<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate ................................................................. 10</td>
</tr>
<tr>
<td>Academic Calendar ................................................................ 10</td>
</tr>
<tr>
<td>General Information .......................................................... 11</td>
</tr>
<tr>
<td>Admission ............................................................................... 13</td>
</tr>
<tr>
<td>Campus Life, Programs and Services for Students ................... 15</td>
</tr>
<tr>
<td>Cross Campus Registration .................................................. 22</td>
</tr>
<tr>
<td>Fees and Expenses ................................................................... 22</td>
</tr>
<tr>
<td>Financial Aid ......................................................................... 24</td>
</tr>
<tr>
<td>Health Services ...................................................................... 25</td>
</tr>
<tr>
<td>University Academic Requirements ........................................ 26</td>
</tr>
<tr>
<td>Discovery Program ................................................................... 26</td>
</tr>
<tr>
<td>University Writing Requirement .......................................... 29</td>
</tr>
<tr>
<td>Degrees ................................................................................... 29</td>
</tr>
<tr>
<td>Majors, Minors, and Options ............................................... 31</td>
</tr>
<tr>
<td>Course Descriptions ............................................................. 32</td>
</tr>
<tr>
<td>Academic Honesty ................................................................... 33</td>
</tr>
<tr>
<td>College of Liberal Arts ........................................................ 34</td>
</tr>
<tr>
<td>Programs of Study ................................................................... 38</td>
</tr>
<tr>
<td>Africana and African American Studies (AFAM) ....................... 38</td>
</tr>
<tr>
<td>Africana and African American Studies Minor ....................... 38</td>
</tr>
<tr>
<td>American Studies (AMST) ....................................................... 39</td>
</tr>
<tr>
<td>American Studies Minor ....................................................... 39</td>
</tr>
<tr>
<td>Anthropology (ANTH) ............................................................ 40</td>
</tr>
<tr>
<td>Anthropology Major (B.A.) ..................................................... 40</td>
</tr>
<tr>
<td>Anthropology Minor ................................................................ 41</td>
</tr>
<tr>
<td>Art and Art History (ARTS) ..................................................... 42</td>
</tr>
<tr>
<td>Fine Arts Major (B.F.A.) ........................................................ 42</td>
</tr>
<tr>
<td>The Arts Major: Art History Option (B.A.) ............................... 43</td>
</tr>
<tr>
<td>The Arts Major: Studio Art Option (B.A.) ............................... 43</td>
</tr>
<tr>
<td>The Arts Major: Studio Art/Art Education Option (B.A.) ............ 44</td>
</tr>
<tr>
<td>Architectural Studies Minor .................................................. 44</td>
</tr>
<tr>
<td>Art History Minor ................................................................... 45</td>
</tr>
<tr>
<td>Art Minor ................................................................................ 45</td>
</tr>
<tr>
<td>Studio Arts Minor ................................................................... 45</td>
</tr>
<tr>
<td>Asian Studies .......................................................................... 45</td>
</tr>
<tr>
<td>Asian Studies Minor ................................................................ 45</td>
</tr>
<tr>
<td>Chinese (CHIN) ...................................................................... 46</td>
</tr>
<tr>
<td>Chinese Minor ....................................................................... 46</td>
</tr>
<tr>
<td>Cinema Studies ...................................................................... 47</td>
</tr>
<tr>
<td>Cinema Studies Minor .......................................................... 47</td>
</tr>
<tr>
<td>Classics (CLAS) ...................................................................... 47</td>
</tr>
<tr>
<td>Classics Major: Ancient Mediterranean Civilizations Option (B.A.) ............................................. 48</td>
</tr>
<tr>
<td>Classics Major: Classical Languages &amp; Literatures Option (B.A.) ..................................................... 48</td>
</tr>
<tr>
<td>Classics Major: Latin &amp; Latin Teaching Option (B.A.) .............. 49</td>
</tr>
<tr>
<td>Classics Minor ...................................................................... 50</td>
</tr>
<tr>
<td>Greek Minor ......................................................................... 50</td>
</tr>
<tr>
<td>Latin Minor .......................................................................... 50</td>
</tr>
<tr>
<td>Classics, Humanities, and Italian Studies (CHI) ....................... 50</td>
</tr>
<tr>
<td>Cognates ............................................................................... 51</td>
</tr>
<tr>
<td>Digital Writing and Literature Cognate .................................. 51</td>
</tr>
<tr>
<td>Intercultural Communication for the Professional World Cognate .................................................. 51</td>
</tr>
<tr>
<td>Skills and Perspectives for the Digital World Cognate ............. 52</td>
</tr>
<tr>
<td>Technical Writing and Public Speaking Cognate ..................... 52</td>
</tr>
<tr>
<td>Communication (CMN) ........................................................... 52</td>
</tr>
<tr>
<td>Communication Major (B.A.) .................................................. 53</td>
</tr>
<tr>
<td>Communication Major: Business Applications Option (B.A.) .................................................. 54</td>
</tr>
<tr>
<td>Communication Major: Media Practices Option (B.A.) ............... 54</td>
</tr>
<tr>
<td>Communication Minor ............................................................ 55</td>
</tr>
<tr>
<td>Education (EDUC) ................................................................... 55</td>
</tr>
<tr>
<td>Education Four-Year, Undergraduate Option ............................ 57</td>
</tr>
<tr>
<td>Educational Studies Dual Major ............................................. 57</td>
</tr>
<tr>
<td>Education Minor .................................................................... 58</td>
</tr>
<tr>
<td>Special Education Minor ........................................................ 59</td>
</tr>
<tr>
<td>English (ENGL) ...................................................................... 59</td>
</tr>
<tr>
<td>English Literature Major (B.A.) .............................................. 60</td>
</tr>
<tr>
<td>English Major (B.A.) .............................................................. 61</td>
</tr>
<tr>
<td>English Teaching Major (B.A.) ............................................... 63</td>
</tr>
<tr>
<td>English/Journalism Major (B.A.) ............................................. 64</td>
</tr>
<tr>
<td>English Minor ...................................................................... 65</td>
</tr>
<tr>
<td>Writing Minor ........................................................................ 65</td>
</tr>
<tr>
<td>French (FREN) ....................................................................... 66</td>
</tr>
<tr>
<td>French Major (B.A.) ............................................................... 66</td>
</tr>
<tr>
<td>French Studies Major (B.A.) ................................................... 67</td>
</tr>
<tr>
<td>French Minor ........................................................................ 67</td>
</tr>
<tr>
<td>French Studies Minor ............................................................ 68</td>
</tr>
<tr>
<td>Geography (GEOG) ............................................................... 68</td>
</tr>
<tr>
<td>College of Engineering and Physical Sciences</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Programs of Study</td>
</tr>
<tr>
<td>Bioengineering (BENG)</td>
</tr>
<tr>
<td>Chemical Engineering (CHE)</td>
</tr>
<tr>
<td>Chemical Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Chemical Engineering Major: Bioengineering Option (B.S.)</td>
</tr>
<tr>
<td>Chemical Engineering Major: Energy Option (B.S.)</td>
</tr>
<tr>
<td>Chemical Engineering Major: Environmental Engineering Option (B.S.)</td>
</tr>
<tr>
<td>Chemistry (CHEM)</td>
</tr>
<tr>
<td>Chemistry Major (B.A.)</td>
</tr>
<tr>
<td>Chemistry Major (B.S.)</td>
</tr>
<tr>
<td>Chemistry Minor</td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering (CEE)</td>
</tr>
<tr>
<td>Civil Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Environmental Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Environmental Engineering Minor</td>
</tr>
<tr>
<td>Computer Science (CS)</td>
</tr>
<tr>
<td>Computer Science Major (B.S.)</td>
</tr>
<tr>
<td>Computer Science Major: Bioinformatics Option (B.S.)</td>
</tr>
<tr>
<td>Computer Science Minor</td>
</tr>
<tr>
<td>Computer Programming Cognate</td>
</tr>
<tr>
<td>Information Technology Major (B.S.)</td>
</tr>
<tr>
<td>Information Technology Minor</td>
</tr>
<tr>
<td>Information Technology Cognate</td>
</tr>
<tr>
<td>Skills and Perspectives for the Digital World Cognate</td>
</tr>
<tr>
<td>Earth Sciences (ESCI)</td>
</tr>
<tr>
<td>Earth Sciences Major (B.A.)</td>
</tr>
<tr>
<td>Earth Sciences Major (B.S.)</td>
</tr>
<tr>
<td>Earth Sciences Minor</td>
</tr>
<tr>
<td>Earth Sciences Teaching Major (B.A.)</td>
</tr>
<tr>
<td>Environmental Sciences Major: Hydrology Option (B.S.)</td>
</tr>
<tr>
<td>Oceanography Minor</td>
</tr>
<tr>
<td>Electrical and Computer Engineering (ECE)</td>
</tr>
<tr>
<td>Computer Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Electrical Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Environmental Sciences</td>
</tr>
<tr>
<td>Materials Science (MS)</td>
</tr>
<tr>
<td>Materials Science Minor</td>
</tr>
<tr>
<td>Mathematics and Statistics (MATH)</td>
</tr>
<tr>
<td>Applied Mathematics Major: Computation Option (B.S.)</td>
</tr>
<tr>
<td>Applied Mathematics Major: Dynamics and Control Option (B.S.)</td>
</tr>
<tr>
<td>Applied Mathematics Major: Economics Option (B.S.)</td>
</tr>
<tr>
<td>Applied Mathematics Major: Fluid Dynamics Option (B.S.)</td>
</tr>
<tr>
<td>Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.)</td>
</tr>
<tr>
<td>Mathematics Education Major: Elementary/Middle School Education K-8 Option (B.S.)</td>
</tr>
<tr>
<td>Mathematics Major (B.S.)</td>
</tr>
<tr>
<td>Mathematics Major (B.A.)</td>
</tr>
<tr>
<td>Statistics Major</td>
</tr>
<tr>
<td>Applied Mathematics Minor</td>
</tr>
<tr>
<td>Mathematics Minor</td>
</tr>
<tr>
<td>Statistics Minor</td>
</tr>
<tr>
<td>Mechanical Engineering (ME)</td>
</tr>
<tr>
<td>Mechanical Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Mechanical Engineering Minor</td>
</tr>
<tr>
<td>Ocean Engineering (OE)</td>
</tr>
<tr>
<td>Ocean Engineering Major (B.S.)</td>
</tr>
<tr>
<td>Ocean Engineering Minor</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
</tr>
<tr>
<td>Engineering Physics Major (B.S.)</td>
</tr>
<tr>
<td>Physics Major (B.A.)</td>
</tr>
<tr>
<td>Physics Major (B.S.)</td>
</tr>
<tr>
<td>Physics Major: Astronomy Option (B.S.)</td>
</tr>
<tr>
<td>Physics Major: Chemical Physics Option (B.S.)</td>
</tr>
<tr>
<td>Physics Major: Materials Science Option (B.S.)</td>
</tr>
<tr>
<td>Physics Minor</td>
</tr>
</tbody>
</table>

<p>| College of Health and Human Services       | 171 |
| Programs of Study                          | 171 |
| Applied Human Anatomy and Physiology       | 171 |
| Applied Human Anatomy and Physiology Minor | 171 |
| Athletic Training                          | 172 |
| Athletic Training Major (B.S.)             | 172 |</p>
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaching</td>
<td>173</td>
</tr>
<tr>
<td>Coaching Minor</td>
<td>173</td>
</tr>
<tr>
<td>Communication Sciences and Disorders (COMM)</td>
<td>174</td>
</tr>
<tr>
<td>Communication Sciences and Disorders Major (B.S.)</td>
<td>174</td>
</tr>
<tr>
<td>Deaf and Hard of Hearing Studies Minor</td>
<td>175</td>
</tr>
<tr>
<td>Exercise Science</td>
<td>175</td>
</tr>
<tr>
<td>Exercise Science Major (B.S.)</td>
<td>175</td>
</tr>
<tr>
<td>Health Management and Policy (HMP)</td>
<td>177</td>
</tr>
<tr>
<td>Health Management and Policy Major (B.S.)</td>
<td>177</td>
</tr>
<tr>
<td>Health Management Minor</td>
<td>179</td>
</tr>
<tr>
<td>Public Health Minor</td>
<td>179</td>
</tr>
<tr>
<td>Health and Physical Education</td>
<td>179</td>
</tr>
<tr>
<td>Health and Physical Education Major (B.S.)</td>
<td>179</td>
</tr>
<tr>
<td>Human Development and Family Studies (HDFS)</td>
<td>181</td>
</tr>
<tr>
<td>Human Development and Family Studies Major (B.S.)</td>
<td>181</td>
</tr>
<tr>
<td>Adolescent and Youth Development Minor</td>
<td>184</td>
</tr>
<tr>
<td>Child Life Minor</td>
<td>184</td>
</tr>
<tr>
<td>Human Development and Family Studies Minor</td>
<td>185</td>
</tr>
<tr>
<td>Interdisciplinary Health</td>
<td>185</td>
</tr>
<tr>
<td>Interdisciplinary Health Minor</td>
<td>185</td>
</tr>
<tr>
<td>Kinesiology (KIN)</td>
<td>185</td>
</tr>
<tr>
<td>Kinesiology Minor</td>
<td>186</td>
</tr>
<tr>
<td>Nursing (NURS)</td>
<td>186</td>
</tr>
<tr>
<td>Nursing Major (B.S.)</td>
<td>186</td>
</tr>
<tr>
<td>Occupational Therapy (OT)</td>
<td>188</td>
</tr>
<tr>
<td>Occupational Therapy Major (B.S.)</td>
<td>188</td>
</tr>
<tr>
<td>Disabilities Minor</td>
<td>189</td>
</tr>
<tr>
<td>Outdoor Adventure Leadership</td>
<td>190</td>
</tr>
<tr>
<td>Outdoor Adventure Leadership Minor</td>
<td>190</td>
</tr>
<tr>
<td>Outdoor Education</td>
<td>191</td>
</tr>
<tr>
<td>Outdoor Education Major (B.S.)</td>
<td>191</td>
</tr>
<tr>
<td>Recreation Management and Policy (RMP)</td>
<td>192</td>
</tr>
<tr>
<td>Recreation Management and Policy Major: Program and Event Management Option (B.S.)</td>
<td>194</td>
</tr>
<tr>
<td>Recreation Management and Policy Major: Therapeutic Recreation Option (B.S.)</td>
<td>194</td>
</tr>
<tr>
<td>Adolescent and Youth Development Minor</td>
<td>195</td>
</tr>
<tr>
<td>Child Life Minor</td>
<td>196</td>
</tr>
<tr>
<td>Social Work (SW)</td>
<td>196</td>
</tr>
<tr>
<td>Social Work Major (B.S.)</td>
<td>196</td>
</tr>
<tr>
<td>Gerontology Minor</td>
<td>197</td>
</tr>
<tr>
<td>Sport Studies</td>
<td>198</td>
</tr>
<tr>
<td>Sport Studies Major (B.S.)</td>
<td>198</td>
</tr>
<tr>
<td>College of Life Sciences and Agriculture</td>
<td>200</td>
</tr>
<tr>
<td>Programs of Study</td>
<td>201</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>201</td>
</tr>
<tr>
<td>Agribusiness Minor</td>
<td>201</td>
</tr>
<tr>
<td>Agriculture, Nutrition and Food Systems</td>
<td>201</td>
</tr>
<tr>
<td>Animal Behavior</td>
<td>202</td>
</tr>
<tr>
<td>Animal Behavior Minor</td>
<td>202</td>
</tr>
<tr>
<td>Animal Science (ANSC)</td>
<td>202</td>
</tr>
<tr>
<td>Animal Science Major (B.S.)</td>
<td>202</td>
</tr>
<tr>
<td>Animal Science Major: Dairy Management Option (B.S.)</td>
<td>204</td>
</tr>
<tr>
<td>Animal Science Minor</td>
<td>205</td>
</tr>
<tr>
<td>Dairy Management Minar</td>
<td>205</td>
</tr>
<tr>
<td>Biochemistry, Molecular and Cellular Biology (BMCB)</td>
<td>205</td>
</tr>
<tr>
<td>Biochemistry, Molecular and Cellular Biology Major (B.S.)</td>
<td>206</td>
</tr>
<tr>
<td>Biochemistry, Molecular and Cellular Biology Minor</td>
<td>208</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>208</td>
</tr>
<tr>
<td>Biology (BIOL)</td>
<td>208</td>
</tr>
<tr>
<td>Biology Major (B.S.)</td>
<td>209</td>
</tr>
<tr>
<td>Biology Minor</td>
<td>211</td>
</tr>
<tr>
<td>Biomedical Science (BMS)</td>
<td>211</td>
</tr>
<tr>
<td>Biomedical Science Major: Medical Laboratory Sciences Option (B.S.)</td>
<td>211</td>
</tr>
<tr>
<td>Biomedical Science Major: Medical Microbiology Option (B.S.)</td>
<td>214</td>
</tr>
<tr>
<td>Biomedical Science Major: Medical and Veterinary Sciences Option (B.S.)</td>
<td>216</td>
</tr>
<tr>
<td>Biomedical Science Minor</td>
<td>218</td>
</tr>
<tr>
<td>Community and Environmental Planning (CEP)</td>
<td>219</td>
</tr>
<tr>
<td>Community and Environmental Planning Major (B.S.)</td>
<td>219</td>
</tr>
<tr>
<td>Community Planning Minor</td>
<td>221</td>
</tr>
<tr>
<td>Ecogastronomy</td>
<td>221</td>
</tr>
<tr>
<td>Ecogastronomy Dual Major</td>
<td>222</td>
</tr>
<tr>
<td>Environmental Conservation and Sustainability</td>
<td>222</td>
</tr>
<tr>
<td>Environmental Conservation and Sustainability Major (B.S.)</td>
<td>223</td>
</tr>
<tr>
<td>Environmental Conservation and Sustainability Minor</td>
<td>225</td>
</tr>
<tr>
<td>Environmental Horticulture</td>
<td>225</td>
</tr>
<tr>
<td>Environmental Horticulture Minor</td>
<td>225</td>
</tr>
</tbody>
</table>
Environmental Sciences ................................................................. 226
Environmental Sciences Major: Ecosystems Option (B.S.) ................................................................. 226
Environmental Sciences Major: Soil and Watersheds Option (B.S.) ................................................................. 227
Environmental and Resource Economics (ERE) ............ 228
Environmental and Resource Economics Major (B.S.) ................................................................. 229
Environmental and Resource Economics Minor ............ 229
Equine Studies ................................................................. 230
Equine Studies Major: Equine Industry and Management Option (B.S.) ................................................................. 230
Equine Studies Major: Equine Science Option (B.S.) ................................................................. 231
Equine Studies Major: Therapeutic Riding Option (B.S.) ................................................................. 232
Equine Studies Minor ................................................................. 233
Forestry ................................................................. 233
Forestry Major (B.S.F.) ................................................................. 234
Forestry Minor ................................................................. 235
Genetics (GEN) ......................................................... 235
Genetics Major (B.S.) ......................................................... 236
Genetics Major: Genomics Option (B.S.) ......................................................... 238
Genetics Minor ................................................................. 240
GeoSpatial Analysis ......................................................... 240
GeoSpatial Analysis Minor ......................................................... 240
Green Real Estate ................................................................. 241
Green Real Estate Minor ................................................................. 241
Marine, Estuarine, and Freshwater Biology (MEFB) ................................................................. 242
Marine, Estuarine and Freshwater Biology Major (B.S.) ................................................................. 242
Marine Biology Minor ................................................................. 244
Molecular, Cellular, Biomedical Sciences ................................................................. 244
Natural Resources and the Environment ................................................................. 244
Neuroscience and Behavior (NSB) ................................................................. 244
Neuroscience and Behavior Major (B.S.) ................................................................. 245
Nutrition (NUTR) ................................................................. 246
Nutrition Major: Dietetics Option (B.S.) ................................................................. 246
Nutrition Major: Nutrition and Wellness Option (B.S.) ................................................................. 248
Nutrition Major: Nutritional Sciences Option (B.S.) ............................................................................. 249
Nutrition Minor ................................................................. 251
Plant Biology ................................................................. 251
Plant Biology Minor ................................................................. 251
Sustainable Agriculture and Food Systems (SAFS) ................................................................. 252
Sustainable Agriculture and Food Systems Major (B.A.) ................................................................. 252
Sustainable Agriculture and Food Systems Major (B.S.) ................................................................. 254
Water Resources Management ................................................................. 256
Water Resources Management Minor ................................................................. 256
Wetland Ecology ................................................................. 257
Wetland Ecology Minor ................................................................. 257
Wildlife and Conservation Biology ................................................................. 257
Wildlife and Conservation Biology Major (B.S.) ................................................................. 258
Wildlife and Conservation Biology Minor ................................................................. 259
Zoology (ZOOL) ................................................................. 259
Zoology Major (B.A.) ................................................................. 260
Zoology Major (B.S.) ................................................................. 260
Zoology Minor ................................................................. 261
Peter T. Paul College of Business and Economics ................................................................. 262
Programs of Study ................................................................. 264
Business Administration (ADMN) ................................................................. 264
Business Administration Major: Accounting Option (B.S.) ................................................................. 265
Business Administration Major: Entrepreneurial Studies Option (B.S.) ................................................................. 265
Business Administration Major: Finance Option (B.S.) ................................................................. 266
Business Administration Major: Information Systems and Business Analytics Option (B.S.) ................................................................. 267
Business Administration Major: International Business and Economics Option (B.S.) ................................................................. 268
Business Administration Major: Management Option (B.S.) ................................................................. 268
Business Administration Major: Marketing Option (B.S.) ................................................................. 269
Business Administration Major: Student Designed Option (B.S.) ................................................................. 270
Business Administration Minor ................................................................. 270
Ecogastronomy (ECOG) ................................................................. 271
Ecogastronomy Dual Major ................................................................. 271
Economics (ECON) ................................................................. 272
Analytical Economics Major (B.S.) ................................................................. 272
Economics Major (B.A.) ................................................................. 273
Economics Major: Global Trade and Finance Option (B.A.) ................................................................. 274
Economics Major: Money and Financial Markets Option (B.A.) ................................................................. 274
Economics Major: Public Policy and Sustainability Option (B.A.) .................................................. 275
Economics Minor .................................................. 276
Entrepreneurship .................................................. 277
Entrepreneurship Minor ........................................ 277
Hospitality Management (HMGT) ........................................ 277
Hospitality Management Major (B.S.) ......................... 278
Hospitality Management Minor ................................ 279
Leadership .......................................................... 279
Leadership Minor ................................................. 279
Special University Programs ........................................ 281
Fellowship Office .................................................. 281
Global Student Success Program (formerly Navitas) .............. 281
Hamel Center for Undergraduate Research .......................... 281
Hons Program ..................................................... 281
Prelaw .............................................................. 282
Premedical/Prehealth Care Professional Study ...................... 283
Reserve Officer Training Corps Programs (ROTC) ................. 283
Study Abroad Programs .......................................... 284
Study Away U.S.A. ................................................. 292
Sustainability ...................................................... 293
Sustainability Dual Major .................................................. 293
Thompson School of Applied Science ........................................ 295

Programs of Study .................................................. 298
Applied Animal Science (AAS) ........................................ 298
Applied Animal Science: Animal Agriculture Concentration (A.A.S.) ........................................ 299
Applied Animal Science: Companion Animal Science Concentration (A.A.S.) ......................... 300
Applied Animal Science: Equine Management Concentration (A.A.S.) ........................................ 302
Civil Technology (CT) ................................................ 303
Civil Technology: Construction Management Concentration (A.A.S.) ........................................ 304
Civil Technology: Surveying and Mapping Concentration (A.A.S.) ........................................ 305
Civil Technology: Sustainable Energy Management Concentration (A.A.S.) ........................................ 306
Culinary Arts and Nutrition (CAN) ........................................ 307
Culinary Arts and Nutrition: Baking and Pastry Arts Concentration (A.A.S.) ........................................ 308
Culinary Arts and Nutrition: Culinary Arts Concentration (A.A.S.) ........................................ 308
Forest Technology (FORT) ............................................ 309
Forest Technology (A.A.S.) ............................................ 310
Horticultural Technology (HT) ........................................ 311
Horticultural Technology: Landscape Construction and Management Concentration (A.A.S.) ........................................ 311
Horticulture Technology: Plant Production Concentration (A.A.S.) ........................................ 312
Integrated Agriculture Management (IAG) ........................................ 314
Integrated Agriculture Management (A.A.S.) ........................................ 314
Veterinary Technology (VTEC) ........................................ 316
Veterinary Technology (A.A.S.) ........................................ 316

University of New Hampshire at Manchester ........................................ 319

ASL/English Interpreting (ASL) ........................................ 319
ASL/English Interpreting Major (B.S.) ........................................ 320
American Sign Language and Deaf Studies Minor ........................................ 321
Analytics and Data Science (DATA) ........................................ 321
Analytics and Data Science Major (B.S.) ........................................ 321
Art ............................................................... 323
Art Minor (UNHM) .................................................. 323
Biological Sciences (BSCI) ........................................... 323
Biological Sciences (A.S.) ........................................... 323
Biological Sciences Major (B.A.) ........................................ 324
Biotechnology (BIOTECH) ........................................... 325
Biotechnology (B.S.) ................................................ 325
Business (BUS) ..................................................... 327
Business Administration (A.S.) ........................................ 327
Business Major (B.A.) ................................................ 328
Business Major: Accounting Option (B.A.) ........................................ 329
Business Minor ..................................................... 330
Entrepreneurship Minor (UNHM) ........................................ 330
Communication Arts (CA) ........................................... 331
Communication Arts Major (B.A.) ........................................ 331
Communication Arts Major: Cinema and Media Arts Option (B.A.) ........................................ 334
Communication Arts Major: Digital Media Option (B.A.) ........................................ 334
Communication Arts Major: Human Relations Option (B.A.) ........................................ 335
Communication Arts Minor ........................................ 335
Computer Information Systems (COMP) ........................................ 336
Computer Information Systems Major (B.S.) ........................................ 336
Computer Information Systems Minor ........................................ 337
Computer Science and Entrepreneurship (COMP) ........................................ 338
Computer Science and Entrepreneurship Major (B.S.) ........................................ 338
<table>
<thead>
<tr>
<th>Subject</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing Technology (COMP)</td>
<td>437</td>
</tr>
<tr>
<td>Culinary Arts &amp; Nutrition (CAN)</td>
<td>439</td>
</tr>
<tr>
<td>Decision Sciences (DS)</td>
<td>441</td>
</tr>
<tr>
<td>Earth Sciences (ESCI)</td>
<td>442</td>
</tr>
<tr>
<td>Ecogastronomy (ECOG)</td>
<td>446</td>
</tr>
<tr>
<td>Economics (ECON)</td>
<td>447</td>
</tr>
<tr>
<td>Economics-UNHM (ECN)</td>
<td>450</td>
</tr>
<tr>
<td>Education (EDUC)</td>
<td>451</td>
</tr>
<tr>
<td>Electrical &amp; Computer Engineering (ECE)</td>
<td>455</td>
</tr>
<tr>
<td>Engineering Technology (ET)</td>
<td>458</td>
</tr>
<tr>
<td>Environmental &amp; Resource Economics (EREC)</td>
<td>476</td>
</tr>
<tr>
<td>Exchange (EXCH)</td>
<td>478</td>
</tr>
<tr>
<td>Forest Technology (FORT)</td>
<td>478</td>
</tr>
<tr>
<td>French (FREN)</td>
<td>480</td>
</tr>
<tr>
<td>Genetics (GEN)</td>
<td>483</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
<td>485</td>
</tr>
<tr>
<td>German (GERM)</td>
<td>487</td>
</tr>
<tr>
<td>Gerontology (GERO)</td>
<td>489</td>
</tr>
<tr>
<td>Greek (GREK)</td>
<td>490</td>
</tr>
<tr>
<td>Health &amp; Human Services (HHS)</td>
<td>491</td>
</tr>
<tr>
<td>Health Management &amp; Policy (HMP)</td>
<td>491</td>
</tr>
<tr>
<td>History (HIST)</td>
<td>494</td>
</tr>
<tr>
<td>Homeland Security (HLS)</td>
<td>506</td>
</tr>
<tr>
<td>Horticultural Technology (HT)</td>
<td>508</td>
</tr>
<tr>
<td>Hospitality Management (HMGMT)</td>
<td>510</td>
</tr>
<tr>
<td>Human Development &amp; Family Studies (HDFS)</td>
<td>513</td>
</tr>
<tr>
<td>Humanities (HUMA)</td>
<td>516</td>
</tr>
<tr>
<td>Information Technology (IT)</td>
<td>520</td>
</tr>
<tr>
<td>Integrated Agriculture Management (IAG)</td>
<td>522</td>
</tr>
<tr>
<td>Integrated Applied Mathematics (IAM)</td>
<td>522</td>
</tr>
<tr>
<td>Intercollege (INCO)</td>
<td>523</td>
</tr>
<tr>
<td>International Affairs (IA)</td>
<td>526</td>
</tr>
<tr>
<td>Italian (ITAL)</td>
<td>526</td>
</tr>
<tr>
<td>Japanese (JPN)</td>
<td>529</td>
</tr>
<tr>
<td>Justice Studies (JUST)</td>
<td>530</td>
</tr>
<tr>
<td>Kinesiology (KIN)</td>
<td>531</td>
</tr>
<tr>
<td>Languages, Literatures &amp; Cultures (LLC)</td>
<td>539</td>
</tr>
<tr>
<td>Latin (LATN)</td>
<td>541</td>
</tr>
<tr>
<td>Life Sciences &amp; Agriculture (LSA)</td>
<td>542</td>
</tr>
<tr>
<td>Linguistics (LING)</td>
<td>542</td>
</tr>
<tr>
<td>Management (MGT)</td>
<td>543</td>
</tr>
<tr>
<td>Marine, Estuarine and Freshwater Biology (MEFB)</td>
<td>544</td>
</tr>
<tr>
<td>Marketing (MKTG)</td>
<td>547</td>
</tr>
<tr>
<td>Materials Science (MS)</td>
<td>549</td>
</tr>
<tr>
<td>Mathematics &amp; Statistics (MATH)</td>
<td>549</td>
</tr>
<tr>
<td>Mechanical Engineering (ME)</td>
<td>555</td>
</tr>
<tr>
<td>Military Science (MILT)</td>
<td>558</td>
</tr>
<tr>
<td>Music (MUSI)</td>
<td>559</td>
</tr>
<tr>
<td>Music Education (MUED)</td>
<td>565</td>
</tr>
<tr>
<td>Natural Resources (NR)</td>
<td>566</td>
</tr>
<tr>
<td>Navitas non-credit (NAV)</td>
<td>574</td>
</tr>
<tr>
<td>Neuroscience and Behavior (NSB)</td>
<td>574</td>
</tr>
<tr>
<td>Nursing (NURS)</td>
<td>575</td>
</tr>
<tr>
<td>Nutrition (NUTR)</td>
<td>578</td>
</tr>
<tr>
<td>Occupational Therapy (OT)</td>
<td>581</td>
</tr>
<tr>
<td>Ocean Engineering (OE)</td>
<td>583</td>
</tr>
<tr>
<td>Paul College Business &amp; Economics (PAUL)</td>
<td>585</td>
</tr>
<tr>
<td>Philosophy (PHIL)</td>
<td>586</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
<td>590</td>
</tr>
<tr>
<td>Political Science (POLT)</td>
<td>594</td>
</tr>
<tr>
<td>Politics and Society (PS)</td>
<td>601</td>
</tr>
<tr>
<td>Portuguese (PORT)</td>
<td>603</td>
</tr>
<tr>
<td>Psychology (PSYC)</td>
<td>604</td>
</tr>
<tr>
<td>Race &amp; Ethnic Studies (RES)</td>
<td>608</td>
</tr>
<tr>
<td>Recreation Management &amp; Policy (RMP)</td>
<td>608</td>
</tr>
<tr>
<td>Religious Studies (RS)</td>
<td>612</td>
</tr>
<tr>
<td>Russian (RUSS)</td>
<td>612</td>
</tr>
<tr>
<td>Sign Language Interpreting (INTR)</td>
<td>614</td>
</tr>
<tr>
<td>Social Work (SW)</td>
<td>615</td>
</tr>
<tr>
<td>Sociology (SOC)</td>
<td>618</td>
</tr>
<tr>
<td>Spanish (SPAN)</td>
<td>622</td>
</tr>
<tr>
<td>Sustainability (SUST)</td>
<td>625</td>
</tr>
<tr>
<td>Sustainable Agriculture &amp; Food Systems (SAFS)</td>
<td>625</td>
</tr>
<tr>
<td>TSAS Communication (COM)</td>
<td>627</td>
</tr>
<tr>
<td>TSAS Mathematics (MTH)</td>
<td>628</td>
</tr>
<tr>
<td>TSAS Social Science (SSCI)</td>
<td>628</td>
</tr>
<tr>
<td>TSAS Thompson School Applied Science (TSAS)</td>
<td>628</td>
</tr>
<tr>
<td>Technology (TECH)</td>
<td>629</td>
</tr>
<tr>
<td>Theatre &amp; Dance (THDA)</td>
<td>630</td>
</tr>
<tr>
<td>Tourism Planning &amp; Development (TOUR)</td>
<td>636</td>
</tr>
<tr>
<td>UNHM Associate Degree English (ENG)</td>
<td>636</td>
</tr>
<tr>
<td>UNHM Independent Study (UMIS)</td>
<td>637</td>
</tr>
<tr>
<td>Course</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>UNHM Special Topics (UMST)</td>
<td>637</td>
</tr>
<tr>
<td>Veterinary Technology (VTEC)</td>
<td>638</td>
</tr>
<tr>
<td>Women's Studies (WS)</td>
<td>639</td>
</tr>
<tr>
<td>Zoology (ZOOL)</td>
<td>640</td>
</tr>
<tr>
<td>Faculty Listing</td>
<td>644</td>
</tr>
<tr>
<td>Index</td>
<td>712</td>
</tr>
</tbody>
</table>
UNH Affirmative Action and Equity Statement

The University of New Hampshire (UNH) is a public institution with a long-standing commitment to equal opportunity for all. It does not discriminate on the basis of race, color, religion, sex, national origin, age, veteran's status, gender identity or expression, sexual orientation, marital status, or disability in admission or access to, or treatment or employment in, its programs, services, or activities. Sexual harassment and sexual violence are types of sex discrimination. Inquiries regarding discriminatory harassment (including sexual harassment or violence) should be directed to Donna Marie Sorrentino, dms@unh.edu, Director & Title IX Coordinator, Affirmative Action and Equity, Room 305, Thompson Hall, 105 Main Street, Durham, N.H. 03824, phone (603) 862-2930 (voice), (603) 862-1527 (TTY), 7-1-1 (Relay NH), (603) 862-2936 (fax); or to the Office for Civil Rights, U.S. Department of Education, 8th Floor, 5 Post Office Square, Boston, MA 02109-3921, phone (617) 289-0111, fax (617) 289-0150, e-mail OCR.Boston@ed.gov.

There are various grievance procedures to provide for the resolution of complaints under this policy. See the UNH Discrimination and Discriminatory Harassment Policy (http://www.usnh.edu/olpm/UNH/V.Pers/B.htm) and Grievance and Complaint Procedures (http://www.unh.edu/vpsas/handbook/grievance-and-complaint-procedures) in UNH Student Rights, Rules, and Responsibilities. Further information may be obtained at the Affirmative Action and Equity Office or via e-mail affirmaction.equity@unh.edu.

About the Catalog

The University provides information pertaining to the Family Educational Rights and Privacy Act of 1974 (the "Buckley Amendment") in the annual student handbook. Information is also available from the office of the Senior Vice Provost for Student Life and Dean of Students. The annual student publication, Student Rights, Rules, and Responsibilities (http://www.unh.edu/student-life/handbook), also contains University regulations and policies regarding student conduct.

The University will supply information about the employment of its graduates who have graduated from our degree and/or certificate programs. This information may be obtained upon request from the University's Advising and Career Center and is available by university, college, or school to current and prospective students. Information on employment outcomes depends on student self-reporting. The University does not guarantee employment to its graduates. Chances for employment are enhanced if students have begun career planning early in their degree programs.

Program descriptions may vary from the actual content or requirements because of advancements in the discipline or the active nature of academic planning and decision making. Accordingly, the University reserves the right to make whatever changes are deemed necessary in schedules, course content, requirements, academic programs (including their termination), calendar, tuition and fees, services, or any other aspect of the University's operations, giving whatever notice thereof is reasonable under the circumstances. Therefore, the provisions of this catalog are not an irrevocable contract between the students and the University. The University is also not responsible for failure to provide or for delay in providing expected services and/or facilities when such failure arises from causes beyond the reasonable control of the University.

All aforementioned publications are available in alternate formats upon request.

Academic Calendar 2017/2018

### Fall Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes Begin</td>
<td>August 28</td>
</tr>
<tr>
<td>Labor Day, University holiday</td>
<td>September 4</td>
</tr>
<tr>
<td>Mid-Semester</td>
<td>October 13</td>
</tr>
<tr>
<td>Election Day - no exams scheduled</td>
<td>November 7</td>
</tr>
<tr>
<td>Classes follow Friday schedule</td>
<td>November 7</td>
</tr>
<tr>
<td>Veteran's Day observed, University holiday</td>
<td>November 10</td>
</tr>
<tr>
<td>No classes; offices open</td>
<td>November 22</td>
</tr>
<tr>
<td>Thanksgiving holiday</td>
<td>November 23-24</td>
</tr>
<tr>
<td>Classes resume</td>
<td>November 27</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>December 8</td>
</tr>
<tr>
<td>Reading day, final exams begin at 6:00 p.m.</td>
<td>December 11</td>
</tr>
<tr>
<td>Final Exams end</td>
<td>December 16</td>
</tr>
</tbody>
</table>

### January Term

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online classes &amp; trips begin</td>
<td>December 27</td>
</tr>
<tr>
<td>New Year's Day, University holiday</td>
<td>January 1</td>
</tr>
<tr>
<td>On Campus classes begin</td>
<td>January 2</td>
</tr>
<tr>
<td>Last day of class</td>
<td>January 19</td>
</tr>
</tbody>
</table>

### Spring Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes Begin</td>
<td>January 23</td>
</tr>
<tr>
<td>Mid-Semester</td>
<td>March 9</td>
</tr>
<tr>
<td>Spring recess</td>
<td>March 12-16</td>
</tr>
<tr>
<td>Classes resume</td>
<td>March 19</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>May 7</td>
</tr>
<tr>
<td>Reading Days</td>
<td>May 8 &amp; 9</td>
</tr>
<tr>
<td>Final exams begin</td>
<td>May 10</td>
</tr>
<tr>
<td>Final exams end</td>
<td>May 17</td>
</tr>
</tbody>
</table>
The University of New Hampshire today is one of the only universities in the U.S. to hold land-, sea-, and space-grant charters. Founded in 1866 as one of the first land-grant colleges in the nation, the University of New Hampshire is a place where all students can find or create their own niche and succeed.

From classroom to coastline, the driving force at UNH is the spirit of discovery. Discovery describes the core educational experience we provide for students, in which new knowledge, ways of thinking, problem-solving skills, and skills of citizenship are acquired and practiced.

Introduction
What makes the University of New Hampshire (UNH) an outstanding institution? Every day, brilliant, dedicated, inventive, hard-working people come together to teach, learn, and discover, always with an entrepreneurial spirit that has made many of our academic and research programs world-class. Faculty and students alike are motivated by passion, by a spirit of inquiry, and by a desire to make a difference in the world.

What makes UNH the "best of both worlds" for undergraduate education? We offer students the living and learning environment of a classic New England liberal arts college with the breadth, spirit of discovery, and civic commitment of a major research university. This is rare among American institutions of higher education, and students and faculty will tell you it is among our greatest assets.

The University Today
Founded in 1866 as one of the first land-grant colleges in the nation, the University of New Hampshire today is one of the only universities in the U.S. to hold land-, sea-, and space-grant charters.

The University comprises the following academic units: the College of Engineering and Physical Sciences; the College of Health and Human Services; the College of Liberal Arts; the College of Life Sciences and Agriculture, which includes the Thompson School of Applied Science; the Peter T. Paul College of Business and Economics; University of New Hampshire at Manchester; the Graduate School; and the University of New Hampshire School of Law in Concord. UNH serves more than 12,600 undergraduate and 2,300 graduate students in 130 undergraduate and 70 graduate programs of study.

The University has a unique commitment to undergraduate research, and has an endowed undergraduate research program that provides students from all disciplines with faculty mentoring and financial support to pursue independent research and scholarship. Each year, the spring Undergraduate Research Conference highlights the work of more than 1,200 undergraduate students representing all colleges and disciplines. The URC is the largest undergraduate research conference of its kind in the United States.

The University of New Hampshire is at the forefront of developing nationwide university best practices to address climate change. Through its EcoLine project, UNH became the first university in the U.S. to use renewable landfill gas as its primary energy source, significantly reducing greenhouse gas emissions. UNH also developed the first University greenhouse gas inventory tool, which is now used by more than 300 universities, and established the first endowed University-wide program to integrate sustainability principles into University curriculum, operation, research, and engagement. Today, the UNH Sustainability Institute is recognized nationally as a leading authority regarding sustainability issues within higher education.

Linking Teaching and Research
Where the University of New Hampshire has linked teaching and research programs with the practical realities of life, it has set an international standard with centers and institutes whose names have become synonymous with excellence in such fields as sustainability, computer interoperability, ocean mapping, child study and development, and experiential education.

Such research power translates into exceptional educational opportunities for our talented students. The University prides itself on graduating students who have undertaken significant research. In recent years, hundreds of students from all disciplines have experienced the thrill of designing their own research projects, collaborating with faculty, and presenting their findings in a public forum. Robust undergraduate research programs enable students to conduct research year-round on campus and around the world.

The University’s international research opportunities program is among the largest of its kind and serves as a model for others nationwide. Today the internationalization of the University is an accomplished fact. The study abroad program and international affairs major are strong and growing. Faculty are in demand as visiting professors at universities around the globe (many as Fulbright Fellows), and bring their experiences back to Durham. In October 2010, UNH formalized a partnership with Chengdu University in Sichuan Province, China, and received designation as a Confucius Institute, through which the University offers a broad array of Chinese language and culture courses. More recently, UNH has collaborated with the Australian-based organization Navitas to offer an International University Transfer Program to qualified students from other countries. Since 2011, international students have had the opportunity to increase their English fluency and undertake the first 12 to 18 months of their international baccalaureate program at UNH through the Navitas program.

Mission
UNH offers a broad array of undergraduate, graduate, professional, and research programs. Nearly 90 percent of the full-time faculty hold doctoral or terminal degrees, and many have earned national and international reputations.

The University of New Hampshire has a threefold mission of teaching, research, and public service.

Teaching. All undergraduate programs of instruction at the University are built on a specialized program of general education known as Discovery. The objectives of the Discovery Program carry through the undergraduate subject major as students refine and apply their skills and discover the relationships among fields of study. At every level, students enjoy close contact with individual faculty members who are dedicated to
research and scholarship; this is an advantage for students because active scholars and researchers teach by sharing their own learning.

Research. The activity of research embraces all the arts and sciences at the University. It is an integral part of both undergraduate and graduate programs. In doctoral study and in many master’s programs, thesis research is a primary mode of learning. As a land-, sea-, and space-grant institution, the University of New Hampshire has a particular obligation to conduct applied research in the areas of agriculture, marine sciences, and engineering, and to disseminate the findings to the state and nation.

Public Service. The University fulfills its special responsibility for the welfare of the state through UNH Cooperative Extension, and through research and consultation on particular needs of New Hampshire citizens. The University is dedicated to collaborative learning inside and outside the classroom.

The UNH Library

The UNH Library supports the educational and research activities of the students, faculty, and staff of the University of New Hampshire as a research-level library. Experienced reference assistance along with group and individual instruction support students learning how to efficiently research and critically evaluate information on the way to becoming effective lifelong learners.

The Library provides access to an extensive collection of electronic resources (e-books, digital collections, an institutional repository, indexes in many subject areas, statistical data sets, and databases supplying full-text periodical and newspaper articles) 24/7 at www.library.unh.edu (http://www.library.unh.edu). The Library also has approximately 2.7 million print and electronic items and more than 104,000 print and electronic serial subscriptions and is active in digitizing, preserving, and making accessible materials in its collections.

Dimond Library houses collections in the social sciences, humanities, business, health and human services, education, earth sciences and is the regional depository for federal government publications (including maps). Dimond Library is also home to the Connors Writing Center, the Academic Technology Support Center, the Parker Media Lab, and Zeke’s Café & #233;. The UNH Museum and Special Collections and Archives house rare books, manuscripts, and University publications and papers. In addition to the main Dimond Library, there are three branch libraries for physical sciences and engineering that offer customized services for the UNH scientific and engineering communities.

The library’s holdings are supplemented by access to the collections of the Boston Library Consortium members as well as libraries across the country through interlibrary loan. The UNH Library shares resources with the campus library at the University of New Hampshire at Manchester and collaborates with the UNH School of Law library.

All library locations offer wireless Internet access, computer workstations, individual study areas, and collaborative group work spaces. Dimond Library offers seating for more than 1,200 in a variety of settings.

For additional information about UNH Library resources, services, and people, please visit www.library.unh.edu (http://www.library.unh.edu).

The Campus

The home of the main campus of the University is Durham—one of the oldest towns in northern New England—near the picturesque seacoast of New Hampshire. The 200-acre campus is surrounded by more than 2,400 acres of fields, farms, and woodlands owned by the University. College Woods, on the edge of campus, includes five miles of well-kept paths through 260 acres of forest.

Since 2000, major building and renovation projects have revitalized the UNH campus while maintaining its traditions. In 2002, the University celebrated the completion of Mills Hall, its newest and very beautiful residence hall; 2003 saw completion of the new Holloway Dining Commons, which underwent additional expansion in 2015. Renovations of Murkland and Congreve Halls have also been completed. The recent Kingsbury Hall expansion gives science and engineering students new project space, a modern lab wing, and high-tech classrooms. In 2007, DeMeritt Hall was torn down and rebuilt in the same location, reusing approximately 95 percent of the original materials to create a state-of-the-art physics building. In 2010, a two-year renovation of James Hall was completed, resulting in an energy-efficient, green-restored building, and a comprehensive, multiyear renovation of Parsons Hall was also completed in late 2012. In spring 2013, the new Peter T. Paul College of Business and Economics opened its doors to students and faculty. This new facility, located in the heart of campus on Garrison Avenue, boasts state-of-the-art classrooms, common areas, and breakout rooms that encourage interdisciplinary collaboration and will change the way business education is taught at UNH. Renovations underway for the 2016-17 academic year include an extensive update of iconic Hamilton Smith Hall, one of the oldest and busiest academic buildings on campus; expansion of the Hamel Recreation Center off the Whittemore Center, which will offer increased fitness space, a large multi-activity court, a new 1/10 mile suspended track, and increased social, gathering, and wellness space; and the completion of the new Wildcat Stadium, which will significantly improve the University’s athletic facilities and increase seating capacity for football and other events.

Accreditation

The University of New Hampshire is accredited by the New England Association of Schools and Colleges, Inc., which accredits schools and colleges in the six New England states. Accreditation by the association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators. Specialized programs of study are also accredited by various professional organizations.

Veterans and their eligible dependents may apply for educational benefits before the start of each semester. For information, contact the UNH veterans coordinator at UNH.Veterans@unh.edu or by phone at (603) 862-0643.

The University supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of their applicants for admission.

University System of New Hampshire Trustees and Administrative Officers

https://www.usnh.edu/trustees

The University System of New Hampshire is governed by a 29-member Board of Trustees comprising the Governor of the State, the President of the Senate, the Speaker of the House, 10 members appointed by the Governor and Executive Council, 7 alumni-elected members, 2 student-elected members, the Commissioner of Education, the Commissioner of Agriculture, the presidents of the University System’s four colleges and
Admission

UNH welcomes campus visitors. Campus tours are led by student admissions representatives who provide a general overview of academic programs and campus life opportunities. Professional staff members are available to provide information about the criteria used by the admissions committee in reviewing candidates and to address specific concerns. For further information or to schedule a campus and/or group information session, visit the Admissions website at http://admissions.unh.edu/visit-campus. Registration is required. Complete information and instructions regarding the application process to UNH are found at http://admissions.unh.edu/apply.

Admission Criteria

Admission to a bachelor’s degree program is based upon successful completion of a strong secondary school program of college preparatory coursework. Primary consideration is given to the academic record, as demonstrated by the quality of the candidate’s secondary school course selections and achievement; recommendation; and the results of the SAT and/or ACT exam. Consideration is also given to character, initiative, leadership, and special talents.

Candidates must, at a minimum, present at least four years of English, three years of mathematics (algebra I, geometry, and algebra II), three years of laboratory science, three years of social science, and two years of study in a single foreign language. Three years of a single foreign language are preferred. Recommended mathematics preparation includes the equivalent of algebra I, geometry, algebra II, and trigonometry/advanced math.

Students who plan to specialize in engineering, biological/physical science, mathematics, or forestry should present at least four years of mathematics including trigonometry, as well as laboratory coursework in chemistry and/or physics. Students pursuing business-related studies also should have completed four years of mathematics including trigonometry. For students planning to major in health-related disciplines, four years of math, as well as laboratory courses in biology and chemistry, are strongly recommended. Students interested in nursing must complete high school chemistry.

Applicants may indicate a prospective major on the application for admission. An undecided applicant may apply for admission into a bachelor’s program as an “undeclared” student to any one of the University’s five college divisions in Durham or at UNH Manchester. For information concerning bachelor and associate degree programs offered through UNH Manchester, visit http://manchester.unh.edu; for information concerning the associate degree programs at the Thompson School of Applied Science, visit https://colsa.unh.edu/tsas.

Many University students request a change in major during their undergraduate years, and most are approved. Some majors are more restrictive than others and require the completion of specific coursework and an additional application. These changes are considered after a student has been at the University for at least one semester and has permission from the appropriate college dean and department chairperson.

Admission Test Requirements

All candidates for admission to bachelor’s degree programs are required to submit the results of the SAT or ACT exam. Scores must be submitted electronically to UNH by the testing agency. SAT subject tests are not required, but a foreign language subject test may satisfy the foreign language requirement of the bachelor of arts degree. Required scores vary by test.

International students whose primary language is not English must submit the results of a Test of English as a Foreign Language (TOEFL). The recommended minimum TOEFL score is 213 (computer version) or 550 (paper version) or 80 (Internet version). UNH also accepts the International English Language Testing System (IELTS) English Language proficiency examination in lieu of TOEFL; the minimum acceptable proficiency grade is 6.5.

Music Candidates

Candidates applying for programs in the Department of Music must make arrangements with the department chairperson for an audition by calling (603) 862-2404. Details regarding audition requirements may be obtained from the department, or may be found on the Department of Music website at http://cola.unh.edu/music.

Admission Deadlines

The Admissions Office welcomes high school students who seek fall semester first-year admission to apply any time after the start of the senior year and before the February 1 regular decision deadline. Admission notifications are provided on a continuous basis through April 15.

Accepted candidates are required to confirm their intention to enroll with the payment of an enrollment fee by May 1. An additional deposit to reserve on-campus housing is also required by May 1.

The review of first-year candidates begins as soon as a complete application (including official grade reports through the first marking period of senior year and a confirmed course schedule, the results of the SAT or ACT, and a letter of recommendation) is on hand. To apply as an early action applicant, candidates must submit an admission application and supporting documents by November 15. In some cases, the admission committee will request senior mid-year grade reports in order to make a final admission decision. Students accepted to UNH through the early action program are not obligated to enroll at UNH.

Deferred Admission

The University considers applicants for deferred admission, which enables students to reserve a space at the University while taking time off from school for work or travel. With few exceptions, UNH will not approve deferral requests in which the student will be taking college coursework elsewhere. Requests for deferrals must be put in writing and sent to the Admissions Office (admissions@unh.edu). The University may not be able to offer deferred admission in certain program areas.

Advanced Standing

The University recognizes outstanding secondary school work by means of advanced placement and credit for those who have taken enriched
or accelerated courses before entering college. Applicants qualify for such credit by successfully completing coursework for college credit and satisfactory achievement on University-approved placement examinations, including the College Board Advanced Placement (AP) Tests, International Baccalaureate (IB) Higher Level Examination Test Results, or through the College Level Examination Program (CLEP). Students should have official results sent directly to the Office of Admissions.

The University accepts AP Tests in every subject area, with credit and course equivalency based on the score achieved. Visit http://admissions.unh.edu/academics/advanced-placement-credit for further information.

The University awards 8 semester credits for each IB Higher Level Examination Test Result of 5, 6, or 7. The University recognizes up to 32 semester credits of CLEP General Examination tests, which may be applied as elective credit only. Scores must be 500 or better in the humanities, natural sciences, and social sciences-history exams. The minimum score for mathematics is 500 and for the English exam with essay, 500. Subject exams, when applicable, may be used to satisfy either departmental or general education requirements. UNH does not accept all CLEP subject exams.

Maximum credit accepted toward a bachelor’s degree for all credit by exam and advanced placement testing is 64 semester hours.

**Associate Degree Candidacy**

The University accepts candidates who have demonstrated ability and motivation for learning through academic achievement, work experience, and/or military service for associate in applied science degree programs.

Students may be considered for admission to associate in applied science degree programs offered by the University’s Thompson School of Applied Science in Durham as well as associate in arts or science degrees at the Manchester campus. Candidates applying as high school seniors must submit the application, secondary school record, and results of the SAT or ACT. Students granted first-year admission to the Thompson School are eligible to live in a University residence hall.

**Eligibility for Degree Candidacy**

Applicants may be candidates for any undergraduate degree offered by the University. However, applicants having a bachelor of arts (B.A.) degree will not be admitted into a program of study that awards the same degree (e.g., B.A. History and B.A. Zoology). Applicants can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Applicants may also be admitted into a program awarding a different degree (e.g., B.A. History and B.S. Biology; or B.A. History and A.A.S. Applied Animal Science).

**Readmission**

An undergraduate who withdraws, does not register for UNH coursework in a given semester, or is suspended or dismissed from the University thereby terminates degree candidacy and must apply for readmission by the following deadlines: fall semester, June 1; spring semester, November 1. Readmission applications are processed in the Office of Admissions; however, decisions regarding readmission are made in consultation with the Division of Student and Academic Services and the dean’s office of the University college division to which the student is applying.

Before seeking readmission, students on academic suspension must remain away from school for at least one semester. Suspended students should include a statement about their readiness to resume University work with their application.

Only under extraordinary circumstances will students be readmitted after dismissal for academic reasons. Applications submitted by dismissed students are reviewed by the University’s Academic Standards and Advising Committee.

It may not be possible for readmission applicants to enroll in programs with established enrollment limitations.

**Transfer Students**

UNH encourages applications from transfer students. Admission consideration includes review of course selection, academic achievement, and the extent to which that selection addresses the University’s general education requirements. Transfer credit is awarded for completed courses taken at an institution that is fully accredited by one of the regional accrediting associations with a grade of C or better, provided those courses are comparable to courses offered at UNH. Each course must carry at least 3 semester credits and receive a letter grade to qualify for general education consideration.

The application deadline for fall semester admission is April 1; October 15 is the application deadline for spring semester. Some programs have enrollment limitations. Students enrolled in one of the University’s associate degree programs who desire admission to a bachelor’s degree program at UNH apply as transfer students through the Office of Admissions.

Transfer students may contact the Department of Housing at (603) 862-2120 or at http://www.unh.edu/housing/transfer-readmits to determine the availability of on-campus housing, or the Office of Commuter Services for assistance with off-campus housing. In most situations, on-campus housing is not guaranteed to transfer students.

**New England Regional Student Program**

The University participates in the New England Regional Student Program, in which each state college and university in New England offers certain undergraduate majors to students from other New England states. Under this program, admitted students pay the UNH in-state tuition plus an additional percentage. Students must indicate on the application the specific major for which they are applying. Information about the curricula may be obtained from:

The New England Board of Higher Education
45 Temple Place
Boston, MA 02111
www.nebhe.org (http://www.nebhe.org), or (617) 357-9620.

Visit http://admissions.unh.edu/ tuitionfees/new-england-regional-student-program/ for available UNH majors through this program.

**Full-Time Special Student Status**

UNH offers a special student classification for persons who wish to participate in University coursework on a full-time basis without entering a degree program. In evaluating requests for special full-time status, the Office of Admissions generally applies the same criteria used in the review of applicants for admission to degree candidacy. Full-time special students have full access to academic support services but are not eligible for University-based financial aid. Students must maintain satisfactory achievement to continue with University coursework. Full-
time special (non-degree) students register for coursework through the Registrar’s Office.

Resident Status
All students attending any division of UNH in any capacity shall be charged tuition at a rate to be determined by their primary, legal domicile. Those domiciled within the state of New Hampshire pay the in-state rate. Those domiciled elsewhere pay the out-of-state rate.

Students are classified as residents or nonresidents for tuition purposes at the time of admission to the University. The decisions, made by the Office of Admissions, are based upon information furnished in students’ applications and any other relevant information.

All enrolling students living in New Hampshire are required to submit a notarized statement to the effect that they, if financially independent, or their parents, if financially dependent, have been legally domiciled in New Hampshire continuously for a period of at least twelve months immediately prior to registering for the term for which the student is claiming in-state status. Students admitted from states other than New Hampshire or from foreign countries are considered nonresident throughout their attendance at the University unless they have acquired bona fide domicile in New Hampshire.

If students maintain residency apart from that of their parents, they must clearly establish that they are financially independent and that their residence in New Hampshire is for some purpose other than the temporary one of obtaining an education at the University. To qualify for in-state status, students must have been legally domiciled in New Hampshire continuously for a period of at least twelve months prior to registering for the term for which in-state status is claimed.

The burden of proof in all cases is upon the applicant. The University reserves the right to make the final decision concerning resident status for tuition purposes.

A copy of the rules governing residency may be obtained from the Office of Admissions and on the following website: https://www.unh.edu/policy/bot/iv-financial-policies/e-classification-students-tuition-purposes-residency-rules

Campus Life, Programs and Services for Students

From international education to residential life, academic advising to internships and writing, the University offers programs and services to help every student get the most out of their college experience.

Advising Services
Every UNH student is assigned an academic adviser, who provides help in choosing courses and planning a program of study. Each college within the University also has an advising office. Other sources of help, for academic or personal problems, are described below.

Athletics, Men’s and Women’s

UNH participates in the following intercollegiate men’s athletics programs: basketball, cross country, football, ice hockey, skiing, soccer, and track and field. UNH also participates in the following intercollegiate women’s athletics programs: basketball, cross country, field hockey, gymnastics, ice hockey, lacrosse, skiing, soccer, swimming and diving, track and field, and volleyball. An undergraduate ID provides access to sporting events; football and men’s hockey require picking up a ticket.

Campus Recreation
The mission of Campus Recreation is to provide outstanding educational experiences through a variety of recreation opportunities that enhance healthy lifestyles in our UNH community.

Vision: Campus Recreation will be widely known for enriching the lives and educational experience of students through cutting edge recreation services.

Operating Principles: In our approach to our work with participants, co-workers, and colleagues on campus and beyond, we: offer exceptional programs and quality services, seek and support personal and professional development, encourage innovation and treat setbacks as part of the learning process, practice respectful, open, and honest communication, embrace diversity, encourage collaboration, always operate with the student’s best interests in mind, operate with a positive attitude, are committed to an exceptional organizational culture, embrace teamwork and a sense of community.

For more information about programs, services, facilities and hours, call (603)862-203, e-mail Campus.Recreation@unh.edu or visit http://campusrec.unh.edu/

Center for Academic Resources (CFAR)
The Center for Academic Resources mission and philosophy, supports students as they endeavor to achieve their best academically. At CFAR we understand that intelligence is not inherent; it is achieved through experience and effort. We teach the skills, strategies, and behaviors that promote deep learning. Deep learning prepares students to apply their knowledge to new environments and experiences well beyond their college courses.

We believe that; we have something to offer all undergraduates, students learn more by studying smarter, not harder and every student has the potential to improve their learning and reach a new potential. We teach; active learning skills, skills that promote academic effectiveness and critical thinking. We provide; information and referrals to local resources, counseling and guidance to remove barriers to learning and academic success. We encourage students; to develop active learning approaches, to engage in the learning process, to harness proactive life skills, including establishing educational goals and setting priorities.

As part of the University’s commitment to improving access and success for students who have been traditionally underrepresented in American Higher Education, CFAR hosts a national TRIO/Student Support Services (SSS) program, partially funded by the US Department of Education*. Student Support Services is intended for students whose parents do not have a college education, students with a high financial need, and students with disabilities.

For more information call (603) 862-3698, e-mail cfar.sss@unh.edu or visit http://www.unh.edu/cfar

*UNH TRIO SSS is funded by the US Department of Education and the University of New Hampshire. In 2016-17 federal funding totals $328,779. The University of New Hampshire contributes an additional $83,527 in matching funds. The project is funded to serve 200 students in 2016-17.
Commuter & Nontraditional Student Services

Commuter & Non-Traditional Student Services at the University of New Hampshire is here to help you get the most out of your college experience. Whether you are a commuter, non-traditional, military-connected, or graduate student, our primary goals include helping you stay informed, connecting you to valuable resources, and supporting you through targeted programming.

For more information call (603) 862-0303.

Cultural Events

Students at the University can participate in a rich cultural life. Numerous lectures, films, concerts, exhibitions, meet-the-artist receptions, master classes, dance performances, and theatrical productions are offered throughout the year. The UNH Celebrity Series; the Museum of Art; and the Departments of Music, Theatre and Dance, and Art and Art History bring artists of international stature to campus.

The fine and performing arts are an integral part of undergraduate education. Programs are frequently incorporated into coursework. For further information, contact the departments and organizations listed below.

Paul Creative Arts Center, cola.unh.edu/pcac

Department of Art and Art History, (603) 862-2190, cola.unh.edu/art-and-art-history

Department of Music, (603) 862-2404, cola.unh.edu/music

Department of Theatre and Dance, (603) 862-2919, cola.unh.edu/theatre-dance

The Museum of Art, (603) 862-3712, cola.unh.edu/moa

UNH Celebrity Series, (603) 862-3242, cola.unh.edu/celebrity-series

Traditional Jazz Series, (603) 862-2404, cola.unh.edu/music/traditional-jazz-series

Paul Creative Arts Center Ticket Office, (603) 862-7222, unh.universitytickets.com

Memorial Union Ticket Office, (603) 862-2290, www.unhmb.com/services/mub-ticket-office

Of course, check the University calendar as well: www.unh.edu/calendar.

Dining

Mission: Through our shared values we will provide superior hospitality services to our guests in support of the teaching, research and public service mission of the University of New Hampshire. UNH has an award-winning dining program that we are extremely proud of! We have earned many awards from the National Association of College and University Food Services including three grand prize awards. In addition, we have been featured in the FoodService Director’s magazine several times and have been nominated for the Restaurants and Institution’s Ivy Award. For more information call (603) 862-3463 or visit www.unh.edu/dining.

Cat’s Cache

Cat’s Cache is a debit account encoded on your UNH photo ID card. There are no minimum or maximum balances, no setup fees, no monthly fees and no penalties for refunds. The account balance carries from semester to semester and year to year. Cat’s Cache provides cashless access to products and services across campus and at many local businesses, and is available for students, faculty and staff. When you use Cat’s Cache to make a purchase, your UNH ID card is swiped through a card reader and the amount of the purchase is deducted from your account balance and the new balance is displayed and/or printed on your receipt. All ID holders have a Cat’s Cache account that can be used as soon as a deposit is made to the account. For more information visit www.unh.edu/dining.

Fraternity & Sorority Life

The University of New Hampshire has a long and rich tradition with fraternities and sororities. The elements that the Greek experience provides to the individual member and to the University are unparalleled. High standards of scholarship, leadership, involvement on campus and philanthropies, and a strong sense of community are just a few of the reasons why the UNH Greek community is integral to getting the best out of your years here!

The Greek community has been active at the University of New Hampshire and its predecessors since 1881 with the founding of Q.T.V. fraternity at New Hampshire College of Agriculture and Mechanical Arts. Currently, UNH fraternity, sorority and society members represent over 10% of the campus with over 1400 students as members in the seven recognized sororities, eleven recognized men’s fraternities.

For more information call (603)862-100 or visit www.unhmub.com/greek.

Honor Societies

The University of New Hampshire has a long and strong/valued tradition of recognizing outstanding student academic achievement through election to a variety of honor societies. Some of these national societies recognize performance in any academic field while others are limited to specific disciplines.

Honor societies are most prevalent in colleges and universities. Based on varying criteria of high academic achievement and leadership, students are invited to join most commonly in their junior or senior year. Although initiated into the campus chapter, students become members of the national society for life. For more information visit https://www.unh.edu/honors-program/national-honor-societies.

Discipline Society Name and Sash/Stole/Cord Color UNH Contact

Athletics
Chi Alpha Sigma, Black and Gold Cord, Joanne Maldari, joanne.maldari@unh.edu

Band
Kappa Kappa Psi, Blue and White Cord, Casey Goodwin, casey.goodwin@unh.edu
Biological Sciences
Phi Sigma, Yellow, Green and White Cord, Estelle Hrabak, estelle.hrabak@unh.edu

Business
Beta Gamma Sigma, Gold and Blue Cord, Ashlyn True, ashlyn.true@unh.edu (eleanne.solorzano@unh.edu)

Campus-Wide
Golden Key, Blue and Gold Sash, Marianne Fortescue and Sylvia Foster, marianne.fortescue@unh.edu
sylvia.foster@unh.edu (sylvia.foster@unh.edu)

Classics
Eta Sigma Phi, Gold and Purple Cord, Richard Clairmont and R. Scott Smith, richard.clairmont@unh.edu, scott.smith@unh.edu

Communications
Lambda Pi Eta, Red, White and Gold Cord, Nora Draper, nora.draper@unh.edu

Computer Science
Upsilon Pi Epsilon, Maroon and White Cord Radim Bartos, rbartos@cs.unh.edu

Economics
Omicron Delta Epsilon, Gold and Blue Cord Marc Herold, marc.herold@unh.edu

Engineering
Tau Beta Pi, Orange and White Cord Michael Carter, mike.carter@unh.edu, Erin Bell, erin.bell@unh.edu, Barry Fussell, barry.fussell@unh.edu

Engineering
UNH Society of Women Engineers, Green and Yellow Stole, May-Win Their, may-win.thein@unh.edu

English
Sigma Tau Delta, Cardinal and Black Cord, Carla Cannizzaro, carla.c@unh.edu

Fraternity/Sorority
Order of Omega, Gold and Ivory, MaryAnne Lustgraaf, maryanne.lustgraaf@unh.edu

Health Pre-Profession
Alpha Epsilon Delta, Purple and Red Cord, Mary K. Lockwood, mkkl@unh.edu

History
Phi Alpha Theta, Red and Blue Cord, Cathy Frierson, cathy.frierson@unh.edu

Hospitality and Tourism
Eta Sigma Delta, Yellow, Dan Innis, dan.innis@unh.edu

Justice Studies
Alpha Phi Sigma, Blue and Gold, Ellen Cohn, ellen.cohn@unh.edu

Liberal Arts
Phi Beta Kappa, Pink and Blue Cord, Susan Siggelakis, susan.siggelakis@unh.edu

Mathematics
Pi Mu Epsilon, Gold, Purple and Lilac Cord, Ellen O’Keefe, emo@cisunix.unh.edu

Natural Resources
Xi Sigma Pi, Green and White Cord, Mark Ducey, mark.ducey@unh.edu

Nursing
Sigma Theta Tau, Orchid and White, Joyce Cappiello, joyce.cappiello@unh.edu

Political Science
Pi Sigma Alpha, Red, White and Black Cord, Susan Siggelakis, susan.siggelakis@unh.edu

Psychology
Psi Chi, Platinum and Dark Blue, Carolyn Mebert, cjm@cisunix.unh.edu

Social Work
Phi Alpha, Gold Cord, Gretchen Bean, gretchen.bean@unh.edu

Sociology
Alpha Kappa Delta, Teal Cord, Thomas Safford, tom.safford@unh.edu

Housing
The Department of Housing is committed to providing living environments that maintain high standards of health and safety. Full-time, live-in professionals manage the residence halls and apartments and work with trained student staff to offer special programs and enforce hall and community standards.

Undergraduate housing is available to all full-time baccalaureate degree candidates and associate in applied science degree candidates. Offers of housing to associate in arts degree and non degree students are considered on a case-by-case basis. Students are not required to live on campus. Offers for on-campus housing are sent to all accepted new freshmen. Transfer and readmitted students may apply for housing via the housing wait list. Offers will be made on a space-available basis. Application information is available at www.unh.edu/housing.

For more information call (603)862-2120 or visit www.unh.edu/housing.

Information Technology
UNH Information Technology delivers network and communications infrastructure, as well as provides IT services that support students, faculty & staff with learning & research. For a complete list of services and to learn more visit the UNH IT Service Catalog (https://www.unh.edu/it/services). For information on how to use the services, visit the Self-Help Knowledge Base (http://unh.edu/it/kb). For more information call (603)862-4242 or visit https://www.unh.edu/it.

International Students and Scholars
The Office of International Students and Scholars (OISS) provides services to international students (http://www.unh.edu/global/international-students), faculty, staff and exchange scholars (http://www.unh.edu/global/faculty-scholars) covering a broad spectrum, which begin before the international visitor arrives on campus and often continue past the completion of their program. These include: Preparation of eligibility documents for visa issuance along with pre-arrival instructions and information; Preparation of applications to
Internships
Supported by the federally funded Job Locator Development Program, the internship office in the University Career and Professional Success helps students locate pre-professional internships in settings ranging from traditional business and research facilities to more uniquely tailored environments that reflect academic and career interests. Students who wish to engage in career-oriented work experiences for credit should consult with an appropriate faculty sponsor regarding the possibility of receiving academic credit.

Students who wish to secure internships should consult the internship postings listed on the Wildcat Careers link on the website. Postings are also listed in the center. Several academic departments also have internship listings posted.

For more information call (603) 862-2070 or visit http://www.unh.edu/career/internships.

Memorial Union Building
The Memorial Union and Student Activities fosters a sense of community and inclusion at the University of New Hampshire. We provide services and facilities that enhance the quality of campus life, support the academic mission of the University, and create opportunities for student development and engagement.

The Memorial Union Building (MUB) is the University’s community center and is the official war memorial of the state of New Hampshire. The MUB provides opportunities for student involvement and offers space for programs, meetings, and study, as well as for major public events, movies, and other entertainment. Students, faculty, and staff serve on the Memorial Union Board of Governors and work with the director to set policies and establish the budget for the building’s operation. The original building was a gift from UNH alumni and first opened its doors in 1957. For a complete listing of Memorial Union programs, offices, services, and events, call (603) 862-2600 or visit www.unhmb.com (http://www.unhmb.com).

Military & Veteran Services
The mission of Military & Veteran Services is to provide the highest quality service and support to Student Veterans, Service Members and those who have a military connection, as outlined in the Principles of Excellence (http://www.benefits.va.gov/gibill/principles_of_excellence.asp) and The 8 Keys of Success (https://www.va.gov/opa/pressrel/pressrelease.cfm?id=2470).

Military and Veteran Services (MVS) will be the primary office to go to for any military connected student using an educational benefit or seeking support (academic, personal, social) to ensure success during their time at UNH. Students will make the M & VS office their first choice in learning about educational benefits, and support programs and services while on campus. We will be the first-line resource within the university community for information about support, services, educational benefits and programs offered. The MVS office will play a central role on campus in raising awareness, educating the community and being vigilant about maintaining our status as a Military Friendly Institution.

As an office that provides services to veterans and military connected students, we value: The ability to provide the highest level of quality service (empathy, good listening skills, serve all individuals equally) meeting individual needs with respect and dignity; Networking with those who may be able to assist, especially in a crisis: the VA, nearby Veteran Centers, other agencies that focus on services and support for Veterans; The highest standards of professionalism, with an emphasis on ethical behavior and ensuring confidentiality; The ability to be transparent in our work (sharing of information between staff so everyone is informed)

For more information call (603) 862-0643, visit www.unh.edu/veterans (http://www.unh.edu/veterans) or e-mail UNH.Veterans@unh.edu.

Multicultural Student Affairs
The Office of Multicultural Student Affairs (OMSA) creates opportunities for people to participate in an inclusive community and to explore and understand diversity, social justice, inclusion, and equity. OMSA’s work is grounded in an understanding of diversity that includes people of all abilities, ages, ethnicities, genders, nationalities, races, religions/spiritual traditions, socioeconomic classes, and sexualities.

Providing support and development for Asian/Asian American/Pacific Islanders; Black/African American/Caribbean/African; Latino/Latina/Hispanic; Middle Eastern/Middle Eastern American; Native American/First Nations; multiracial students; lesbian, gay, bisexual, transgender, questioning students; and first-generation college students as well as ally students is a key focus of OMSA’s work.

OMSA offers cultural and educational programs to all students; offers opportunities for exploring leadership potential within a multicultural and social justice context; provides support and advocacy for students as well as coordinating support from additional colleagues, programs, and offices on campus; helps students connected; helps students to learn more about race, sexuality, gender, class; responds to acts of intolerance; and helps all members of the University community to feel safe and welcome at UNH. OMSA’s work encompasses professional development opportunities for colleagues as well.

The office provides computers for student use, social and study space, a media library, and educational resources and support for faculty and staff. Staff members include the director, the assistant director/ coordinator of LGBTQIA+ initiatives, and the multicultural coordinator. For more information call (603) 862-5204, e-mail omsa.info@unh.edu or visit www.unh.edu/omsa. (http://www.unh.edu/omsa)

Office of Community Standards
The University of New Hampshire Community Standards (CS) office supports the academic mission of UNH by maintaining the general
welfare and safety of the University community and preserving a productive living and learning environment. This is accomplished by our administration of the University of New Hampshire Student Code of Conduct and Conduct Process; the agreed upon community standards established by UNH students, staff, and faculty.

To achieve these aspirations, the Community Standards office supports and enforces standards of behavior designed to foster an environment of civility and respect where both rights and responsibilities are deeply valued. CS respects each and every UNH student by protecting their rights and ensuring fairness through the enforcement of University policies and regulations. CS believes in personal responsibility, accountability, and that your choices matter.

For more information call (603) 862-3377, email community.standards@unh.edu or visit www.unh.edu/ocs (http://www.unh.edu/ocs).

## Police Department

The primary mission of the University of New Hampshire Police Department is the protection of life and property. This is accomplished through fair, consistent and equal enforcement, always keeping in mind the rights and dignity of the public.

The University of New Hampshire Police Department is a full service nationally accredited law enforcement agency. The members of the university community are entitled to a professional department. It is for this reason that we have voluntarily sought accreditation through the Commission on Accreditation for Law Enforcement Agencies, Inc. (CALEA) (http://www.calea.org) and the International Association of Campus Law Enforcement Administrators (IACLEA) (http://www.iaclea.org). Accreditation is an intensive effort covering 444 standards and involves the entire agency.

For more information call (603)862-1427 or visit www.unh.edu/upd. (http://www.unh.edu/upd)

## President's Commission on the Status of People with Disabilities

The mission of the President's Commission on the Status of People with Disabilities is to promote empowerment and inclusion of students, faculty and staff and guests with disabilities at the University of New Hampshire. The Commission acknowledges that people with disabilities are a diverse group that includes individuals with visible and non-visible disabilities.

The Commission shall provide a forum for discussion and assessment of disability-related issues and opportunities that are relevant for the campus and larger community. In addition, the Commission shall advise the President and the Associate Vice President of the Office of Community, Equity and Diversity on disability-related issues, policies, services, attitudes and practices on campus. This mission is motivated by the belief that people with disabilities are assets to our community, adding value and diversity to our living, working and learning environment.

For more information call (603) 862-1058 or visit http://www.unh.edu/cspd/.

A central resource for people with disabilities on campus is Student Accessibility Services, (603) 862-2607 (711 TTY; 800-735-2964 NH Relay ); or visit http://www.unh.edu/studentaccessibility

## President's Commission on the Status of People of Color

The UNH President's Commission on the Status of People of Color proposes, recommends and evaluates programs, policies and services aimed at enhancing diversity and supporting people of color within the UNH community. The commission acts to ensure implementation of goals to increase campus diversity through minority student, faculty and staff recruitment and retention, and through curriculum development.

The mission of the President's Commission on the Status of People of Color is to facilitate the development of a diverse university community by exploring ways to resolve concerns of students, faculty, and staff of color and recommending policy change to the Associate Vice President for Community, Equity, and Diversity. Students, staff and faculty serve on the commission.

For more information call (603) 862-1058 or visit http://www.unh.edu/cspc.

## President's Commission on the Status of LGBTQ People

The mission of the UNH President’s Commission on the Status of Lesbian, Gay, Bisexual, Transgender and Queer+ People is to facilitate the development of a university community that is equitable and inclusive of all sexual orientations and gender expressions through advocacy, education, assessment, and activism.

The LGBTQ+ Commission achieves this mission by monitoring the campus climate for gay, lesbian, bisexual, transgender and queer faculty, students and staff, reviewing the policies and programs that might affect this community, and advising and assisting the university President, and the Associate Vice President of the Office of Community, Equity and Diversity, on these issues. The commission also provides educational and awareness programs to help encourage an inclusive and equitable climate.

The GLBT Commission was established in 1992 as a Task Force; in 2002, then-President Joan Leitzel authorized the establishment of the commission. The commission changed its name to UNH President’s Commission on the Status of LGBTQ+ People in 2015. The Commission meets monthly during the academic year. Its membership includes gay, lesbian, bisexual, queer, transgender and allied university faculty, students, staff and community members who are appointed by the President and the Associate Vice President of the Office of Community, Equity and Diversity.

For more information call (603) 862-1058 or visit http://www.unh.edu/glbt.

## President's Commission on the Status of Women

The mission of the President's Commission on the Status of Women is to insure that UNH creates equal educational and employment opportunities for women of the UNH community, promoting an environment free of sexism and discrimination through policy, advocacy and education. The commission achieves its goals by recommending policies that improve the status of women and ensure an environment of equal education and employment opportunities for women to the President and the Associate Vice President of the Office of Community, Equity and Diversity.
The Commission will collaborate and develop alliances with existing organizations and governance structures within the university community, including the Community, Equity and Diversity Advisory Council for the purpose of promoting an environment free of sexism and discrimination. They will also seek to inform the university community of the status of women on the UNH campus by collecting and disseminating data, initiating and supporting educational outreach programs, and by providing informational and educational programs and materials to help women on the UNH campus develop their skills, continue their education, and increase their networking opportunities.

The Commission was established in February 15, 1972, to explore conditions and attitudes within the University of New Hampshire, relating to the mobility and functional equality of women.

For more information call (603) 862-1058 or visit http://www.unh.edu/womens-commission.

**Psychological and Counseling Services**

Psychological and Counseling Services is the primary mental health facility on campus. We offer a variety of services that are designed to enhance students’ ability to fully benefit from the University environment and academic experience. This includes providing counseling and therapy for students who may be experiencing situational or ongoing psychological difficulties, providing programming to meet the developmental needs of the student population, and encouraging a University atmosphere conducive to personal and intellectual growth as well as psychological well-being. We are fully funded by student fees. An intake appointment is available to all students who have paid the js/cc fee. Ongoing services are a clinical decision.

The staff at the University of New Hampshire Psychological and Counseling Services believes that our role in a university setting is multifaceted. We see ourselves as specialists in developmental, clinical/remedial and preventative interventions with young adults and non-traditional age college students. As counselors, we facilitate student’s further development of their strengths so that they can overcome their challenges.

We also aim to serve the community while being part of the community. As community members with specialized training in work with the University population, we are knowledgeable about the special needs of students, faculty, staff, and the systems of which we are a part. A large part of our community work focuses on prevention; we believe that increased awareness of healthy ways to cope with stress can help the UNH community and its individual members achieve their professional and personal goals.

All information about a student’s visits to the Counseling Center is confidential and cannot be released without the written permission of the student. The University of New Hampshire Psychological and Counseling Services has been accredited by the International Association of Counseling Services since 1978.

For more information, call (603) 862-2090 or visit http://www.unh.edu/pacs.

**Residential Life**

Residential Life staff members focus on integrating students’ learning outside the classroom with traditional learning in the classroom. Staff members work with students, helping them to succeed academically, become positively involved in the hall and University community, and make friends. They accomplish this by providing students with social and educational opportunities, along with daily interaction.

The Residential Life staff includes a director, a team of professional staff members, and resident assistants (RAs) who are a carefully selected group of undergraduate and graduate students. Each residence hall is staffed with at least one full-time professional and several resident assistants.

For more information call (603) 862-2268 or visit https://www.unh.edu/housing/life-here

**Student Accessibility Services**

Student Accessibility Services (SAS) (formerly Disability Services for Students) is committed to establishing a community that ensures full participation for students, and providing assistance that will facilitate independence and academic progress. The office is responsible for determining and ensuring academic and housing accommodations. In addition, we are a source of information and referral; a resource and collaborative partner for the campus community; and a point of support and advocacy regarding access issues in general.

Self-identifying with SAS is the first step in both gathering useful information—what SAS offers and what other resources exist—and establishing accommodations. You will need to provide documentation, make an appointment to review/discuss it, and identify appropriate accommodations. Creating a faculty accommodation letter is part of that process. Please see the Documentation Guidelines for direction on what to provide. If you are unsure, submit/bring whatever you may have so we can review and evaluate it.

There is no deadline to make contact, complete an intake, or provide documentation. The process of identifying and determining accommodations is an ongoing conversation. Students should provide additional documentation and/or talk with SAS as concerns and needs arise, or as the condition of the disability changes.

For more information call (603) 862-2607 (voice), 711 (TTY) or 800-735-2964 (Relay NH); (603) 862-4043 (fax); e-mail SAS.office@unh.edu (SAS.office@unh.edu?subject=SAS webpage inquiry); or visit http://www.unh.edu/studentaccessibility. Student Accessibility Services is located in Smith Hall, Room 201.

**General Information for Students with Disabilities**

Students seeking academic accommodations, services, and accessibility should contact Student Accessibility Services (SAS): voice (603) 862-2607; TTY Users: 7-1-1 or 800-735-2964 (Relay NH); SAS.office@unh.edu (SAS.office@unh.edu?subject=SAS webpage inquiry);

Most major buildings have ramps and many have elevators and adapted restroom facilities. Contact SAS, (603) 862-2607, or Affirmative Action, (603) 862-2930, with questions about building facilities.

Students with disabilities may use state-issued accessible parking permits in visitor lots and at metered parking (free). State permits are available through a student’s home state (Department of Motor Vehicles [DMV]). Please note: on-campus parking in restricted lots ("permit required") requires BOTH the state-issued accessible permit and a UNH campus permit. Questions about temporary accessible parking should be directed to Parking Services at (603) 862-1010.
For information about dietary restrictions and needs as an accommodation, visit http://www.unh.edu/dining/nutrition.

Students with disabilities who need accessible UNH housing should contact SAS early to allow for identification of appropriate accommodation(s) and notification from SAS to Housing. Wildcat Access Van is a demand-response system that operates within the service area of the Wildcat Transit routes. All of the fixed route buses are lift-equipped. For information on this service or for the special arrangements possible during periods of inclement weather, contact SAS, (603) 862-2607.

All B.A. candidates must fulfill the University’s foreign language requirement by the end of their sophomore year. A student with a documented disability may petition the foreign language board for course substitutions on the basis of that disability. Contact SAS to learn about the process.

No otherwise qualified individual may be excluded from or denied access to any program, course of study, or any other offering of the University solely on the basis of a disability. Concerns regarding the institution’s compliance with the Americans with Disabilities Amendments Act (ADAA) of 2008, or Section 504 of the Rehabilitation Act of 1973 should be addressed to the ADA/504 Compliance Officer in the Affirmative Action Office at (603) 862-2930 (Voice/TTY).

**Sexual Harassment and Rape Prevention Program (SHARPP)**

The mission of the Sexual Harassment & Rape Prevention Program is to eliminate sexual and intimate partner violence. SHARPP’s mission is accomplished in two parts: by providing free and confidential advocacy and direct services to all survivors and their allies; and by offering culturally competent awareness and prevention programs to the University of New Hampshire community.

SHARPP is a University of New Hampshire program overseen by Student Life (https://www.unh.edu/student-life), dedicated to providing free and confidential services to survivors of sexual assault, relationship abuse, sexual harassment, childhood sexual abuse, and stalking, as well as their allies. We also provide education, outreach and trainings on the above topics along with consent, active bystanders and healthy relationships to the greater University community.

SHARPP’s direct services include a 24-hour crisis line, emergency medical accompaniment, criminal justice advocacy and information, University judicial support, academic intervention, Title IX support and referrals. SHARPP also provides crisis services and support for those who are close to the survivor, including roommates, parents, friends, family members, and faculty and staff.

SHARPP’s outreach programs provide awareness and educational programming, including education programs for students in the residential halls, classrooms, and Greek life, and orientation activities and training for athletic teams, student organizations, and faculty and staff. Topics include sexual assault, relationship abuse, sexual harassment, childhood sexual abuse, and stalking, under-served populations, understanding consent, active bystanders, healthy relationships and rape culture and Title IX.

The SHARPP office is located at Wolff House, in front of Health Services at the corner of Pettee Brook and Main Streets. The office is open Monday through Friday, 8:00 a.m. to 4:00 p.m. The website is www.unh.edu/sharpp (http://www.unh.edu/sharpp) and features Ask an Advocate, an online resource for help and information. SHARPP’s support line and administrative number is (603) 862-3494. SHARPP is also available through a 24/7 toll free number at 1-888-271-7233 and by TTY at 1-800-735-2964.

**Student Life**

Student Life is a vibrant community of student affairs professionals who share a devotion to the development and education of all students at UNH. Working in collaboration with colleagues from across the campus, we are dedicated to developing the intellectual abilities of our students and strengthening the character and judgment to use those abilities wisely. Resilience, accountability, and engagement are qualities that you will hear us talk about frequently over the academic year. They allow one to explore without fear, fulfill hopes and aspirations, and address challenge squarely. We are Student Life, here to help you help yourself. Visit us on the web or in person for an ear to listen, for guidance when you want it, and for support when you need it. John T. Kirkpatrick, Senior Vice Provost for Student Life and Dean of Students

The office of the senior vice provost for Student Life and Dean of Students provides students with information, direction, and assistance in problem resolution. For more information call (603) 862-2053 or visit www.unh.edu/student-life (http://www.unh.edu/student-life).

**University Advising Center**

The University Advising Center, provides academic advising to undeclared students in the College of Liberal Arts. The center’s professional staff provides assistance to students in clarifying their interests and skills as they relate to developing a program of study at the University and declaring a major, offering opportunities to explore career possibilities.

The center is also the campus resource for all students seeking admission to medical and related health profession schools and law school. The center is the primary academic advising resource for non-degree students and assists all students in identifying and connecting with other resources across campus.

For more information call (603) 862-2064 or visit www.unh.edu/uac. (http://www.unh.edu/uac)

**University Career and Professional Success**

The mission of University Career and Professional Success is, Imbue career preparedness across the entire UNH community to equip our students with the experiences, knowledge, and skills to thrive in an ever-changing future.

The strategic objectives are to partner with faculty and staff to integrate career and professional success into the UNH experience. Consider the broad spectrum of students to effectively deliver the highest level of impact. Actively engage a variety of employers to increase access to high quality jobs and internships. Prepare students to proactively engage in their post graduate success.

For more information about programs, services and opportunities call (603) 862-2070 or visit http://www.unh.edu/career/.

**University Writing Programs**

The University Writing Programs (UWPs) were created to promote, support and assess writing at the University of New Hampshire. The UWPs are housed in Academic Affairs and report to the Senior Vice Provost for Academic Affairs. The UWPs are contained in a single unit
that includes responsibility for the Writing Committee, Writing Across the Curriculum (WAC), the Connors Writing Center (CWC), and the Online Writing Lab (OWL). The curricular component of WAC, consisting of the writing-intensive (WI) courses, is situated within academic departments.

We work with academic units, departments, allied programs, individual faculty, and students to advance the culture of writing at UNH. This approach values and encourages writing as an "activity and subject of study"1 not only in writing intensive (WI) classes but wherever writing occurs. Through frequent guided practice, UNH students become accustomed to negotiating the writing process, are more self aware and able to transfer positive writing habits, and can adjust to differing genre conventions. We offer a wide array of services and resources to support students and faculty with their writing-based endeavors in the curriculum.

For more information call (603) 862-3272 or visit www.unh.edu/writing (http://www.unh.edu/writing).

Connell Writing Center

The Connors Writing Center offers free, one-on-one writing conferences to members of the UNH community: students, faculty and staff. We work with writers from all disciplines on many different kinds of academic writing. Our 50 minute conferences are conducted by trained writing assistants who are UNH undergraduate and graduate students.

We work with writers on all types of writing, from analysis essays to lab reports, conference proposals to dissertations. Our conferences are not limited to one specific type of writing or a single academic field—we collaborate with writers from across the university on a large range of academic writing.

Typically, the writers who visit are working on projects for courses. But we also see writers who are working on personal projects, statements of purpose and personal statements for graduate school, and so on.

For more information about resources and services available call (603) 862-3272 or visit www.unh.edu/writing (http://www.unh.edu/writing).

Cross Campus Registration

Students at the University of New Hampshire and the University of New Hampshire at Manchester may take courses on a space available basis at either campus. Students from either campus should consult with their advisor regarding which courses are appropriate for registration. Please note: students will need special approval to register for cross-campus courses which have campus, college or major restrictions or require special permission. Students can view a full listing of courses at each campus, including restrictions online at courses.unh.edu (https://courses.unh.edu).

Fees and Expenses

The expected cost for 2017 - 2018 at the University will average about $30,000 for residents of New Hampshire and about $44,000 for nonresidents. See the UNH Business Services website (http://www.unh.edu/business-services/tuitfees) for the most up-to-date listing of rates.

UNH bills are sent electronically only. Bills are posted to student Webcat (https://my.unh.edu/task/durham/webcat-task) accounts. Students are notified through UNH assigned e-mail addresses when new bills are posted.

Tuition

Students are permitted to enroll for more than 20 credits only with the approval of their college or school dean. Persons carrying more than 20 credits will be billed a per-credit fee for each credit above 20 credits, whether or not a student has obtained the dean's approval. Courses taken for audit are charged at the same rates as for-credit registrations. No refund will be made after the additional charges have been applied if a student subsequently drops a course, bringing the credits to 20 or fewer. Undergraduates registering for fewer than 12 credits pay the per-credit hour charge, plus a registration fee of $20 per semester. Undergraduates registered for fewer than 12 credits are charged 50 percent of the usual mandatory fees. Students registered for fewer than 5 credits pay the technology fee but are not charged for the other mandatory fees. The minimum charge for any recorded course is the per-credit charge of 1 credit hour.

Tuition differential charges apply to some majors. Students in the College of Engineering and Physical Sciences (CEPS), including engineering and computer science, and the Peter T. Paul College of Business and Economics (PAUL) will be charged a tuition differential. The differential is the same rate for both N.H. residents and nonresident students. CEPS and PAUL students who register for fewer than 12 credits pay a differential per-credit hour. Music majors are charged an applied music fee of $450 each semester.

All admitted students must pay an enrollment fee. The fee is $350 for residents and nonresidents. If a student decides not to attend the University, these payments may be refunded on a prorated basis until August 15, according to the guidelines set by the Office of Admissions.

Tuition and mandatory fee charges will be refunded to students withdrawing or dropping courses by the second Friday of the semester; one-half after the second Friday and until the fifth Friday; and none thereafter (see the University Calendar). Students receiving federal financial aid will have their return of unearned aid calculated in accordance with the U.S. Department of Education regulations in effect at the time of their withdrawal. For more information concerning withdrawal, call Business Services, (603) 862-2230. A degree candidate who withdraws from UNH and subsequently enrolls as a special student within the following year will be billed for tuition and fees on the same basis as degree candidates. Students with outstanding financial obligations to the University must clear their accounts before their registration will be confirmed.

Fees

Expected mandatory fees for 2017 - 2018 include a Memorial Union fee for the use and administration of the student union; a recreational fee for support of recreational facilities; a student activity fee for support of the undergraduate newspaper, yearbook, student government, student radio station, and other student organizations; a technology fee; a student athletic fee to provide support for athletic programs; a health and counseling fee to provide general health care through University Health & Wellness; a career and professional success fee; and a transportation fee to provide student transportation services.

There are no waivers of these fees. The services and facilities are available to all—the extent to which each student uses them cannot be the factor by which assessment is determined. Students who withdraw or drop to part-time after classes begin are eligible for refund of fees at the same rate as tuition refunds listed previously.
As a condition of enrollment, all full-time UNH students will be required to carry health insurance. Students may elect coverage under the University’s student health benefits plan, or may waive the requirement by providing proof of adequate coverage through another plan. International students with F1 or J1 visas are required to purchase the UNH-sponsored coverage. There are no exceptions to this policy.

Mandatory Fees Include

Recreation Fee
- Use of indoor pool at the field house
- Use of athletic facilities at the Whittemore Center, which includes:
  - Aerobics
  - Saunas
  - Locker rooms
- With an additional fee:
  - CPR/first aid course
  - Ballroom dancing
  - Lifeguard instruction

Health & Wellness Fee
For information, see Health & Wellness (p. 25).

Memorial Union Fee
For information, see Memorial Union (http://www.unhmub.com).

Athletic Fee
- Admittance to all home games of organized sports at UNH
- Financial support for athletes and athletic teams

Activity Fee
Support for the following organizations:
- The undergraduate newspaper
- Yearbook
- Student government
- Student radio station
- Movies at reduced rates

For more information, check the “Get Involved” guide available at the Memorial Union Building.

Career and Professional Success
Helps prepare students for successful lives after graduation.
- internships
- career advising and resources
- assessments
- employer relations
- interview preparation
- mentoring

Technology Fee
Support for the following:
- Student computing clusters
- Walk-in Help Desk services
- Technology-enhanced classroom infrastructure
- Academic technology liaisons
- Technology-enhanced learning

Transportation Fee
Student transportation services:
- Campus Connector
- Wildcat Transit
- Safe Rides
- Amtrak Quik Ticket trip
- Non-emergency rides

Room and Board
New first-year students accepting a space on campus must include a $200 housing deposit with their housing application. For returning students, no deposit is required; instead, a cancellation fee will apply if the housing agreement is cancelled. Written notification of cancellation of the room application or assignment received by Housing before June 1 will result in a $250 cancellation fee applied to the student’s account. Written notification of cancellation received by Housing between June 2 and July 1 will result in a $375 cancellation fee applied to the student’s account. Written notification of cancellation received by Housing between July 2 and August 15 will result in a $500 cancellation fee applied to the student’s account. Written notification of cancellation received by Housing between August 15 and before Friday of the first week of fall semester class will result in a charge of one-fourth of the full semester’s housing fee.

If by Friday of the first week of fall class the student fails to occupy the assigned room or cancels the agreement by mutual consent, or if for disciplinary or nonrenewal actions the agreement is canceled, the student will receive a 75 percent refund of the semester’s housing fee. Cancellation after the first Friday of fall classes and before 30 days after registration will result in a 50 percent refund of the semester’s housing fee. Cancellation 30 days after registration will result in no refund of the housing fee. Students who check in or move in to a hall or apartment, move out, and do not withdraw from the University are charged the full housing fee. If the agreement is canceled, any refund of the housing deposit will first be applied against any unpaid University charges.

Refunds of meal plans will be granted only with approval or upon withdrawal from the University. If a refund is approved for an Unlimited Access meal plan, the refund will be prorated by the number of weeks and partial weeks the student attended classes or used the meal plan. Block meal plans will be prorated by the number of meals consumed and charged at the highest prevailing meal rate. Unspent dining dollars will be refunded.

Rebates
Any amount owed to the University will be deducted from any rebate due to a student.

Deposits and Course Fees
Refundable deposits may be required to cover locker keys or loss or breakage in certain departments. A semester charge will be made for individual lessons in music, as noted in the description of applied music courses. (Non-music majors taking music courses or sections will be charged an applied music fee). A charge will be made for riding lessons and SCUBA, as noted in the sections on animal sciences and physical education. Some courses carry special fees to cover the costs of special equipment, field trips, etc.; these are noted in the course descriptions. Thompson School students pay curriculum fees to cover special costs in their programs (see the Thompson School section). Students will be
charged a computer-use fee for courses requiring computer access and/or common access accounts. For certain courses, there are also lab fees.

**Other Expenses**

Books and classroom supplies cost approximately $800 to $1,000 annually. These may be purchased at the University Bookstore.

Personal expenses vary considerably with individual students and include clothing, laundry, recreation, incidentals, and travel.

**Payment**

All bills for tuition, fees, room and board, and other semester charges are due in full on the payment due date for each semester. A late fee may be assessed to student accounts not paid in full by the payment due date. Student accounts not paid in full within 30 days after the payment due date may be assessed additional late fees, default charges, interest and/or collection costs, and the student may be subject to deregistration from classes.

Parents and students who wish to make periodic payments for tuition, fees, room and board, and other semester charges should contact UNH Business Services well in advance of the semester payment due date for information on approved payment plans.

Undergraduate bills are sent electronically through posting to students’ Webcat (https://my.unh.edu/task/durham/webcat-task) accounts. Tuition bills are posted twice a year, in mid-July for the fall semester and in mid-November for the spring semester. Monthly statements are also posted as needed. E-mails are sent to students’ UNH-assigned e-mail addresses notifying students when new bills have been posted. Students may set up Parent Portal accounts to allow parents or others to access their student accounts.

Through the online system, students can view a history of electronic bills and payments and access a real-time view of their accounts. Payment may be made online, or the bill may be printed and mailed with payment. Credit card transactions will be charged a nonrefundable 2.75 percent service fee.

**Financial Aid**

The University Financial Aid Office assists students who are unable to meet educational expenses entirely from their own family resources. Aid is available in the form of grants and scholarships, loans, and part-time employment. The financial aid website gives program information, application procedures, and deadlines.

In many communities, scholarships and loans are available locally. School principals and guidance counselors have information about these sources of assistance, which are available to both high school seniors and adult students.

Before applicants may be considered for assistance by the University, they must submit the Free Application for Federal Student Aid (FAFSA). Applicants will find this at www.fafsa.ed.gov (http://www.fafsa.ed.gov).

The financial aid application deadline for aid awarded by UNH (SEOG, tuition grant, Perkins Loan, or work study) is March 1. This is the date by which your fully completed FAFSA must be received by the federal processor.

The importance of meeting this deadline cannot be overstated. While there are some types of aid (e.g., Pell Grants and Direct Loans) for which you may apply after this deadline, it is likely that you will receive substantially less total aid if your application is late. For the past several years, applicants applying after the deadline did not receive any aid awarded by UNH (SEOG, tuition grant, Perkins Loan, or work study).

It is the University’s position that the student applicant is accountable for the accuracy and timely submission of the FAFSA. We realize that in most cases a student’s parent(s) also participates in completing the form. However, it is the student who is ultimately responsible for monitoring the application process. Students should not wait until being admitted to the University before applying for financial aid.

In order to be considered for need-based assistance, students must submit a FAFSA each year.

Note: There is reference on the FAFSA to a "deadline" of June 30. Do not be misled by this date. It is not the financial aid deadline at UNH or most other colleges.

**Grants and Scholarships**

Admitted undergraduate degree candidates who will attend UNH on a full- or part-time basis may be considered for tuition grants and University scholarships. The basic consideration is financial need, although some scholarships are awarded on the basis of scholastic attainment, participation in extracurricular activities, or meeting specific requirements of a donor.

The University participates in the federally sponsored Federal Supplemental Educational Opportunity Grant Program, which is designed to assist needy students who are admitted degree candidates.

**Federal Pell Grant Program**

Students may apply directly to the federal government for a Pell Grant using the FAFSA.

**Loan Programs**

Matriculated students enrolled on a full- or part-time basis who have completed the financial aid process will be reviewed for the federal government’s Direct Student Loan Program.

**Part-Time Employment**

The Federal Work-Study Program, both academic year and summer, assists students who, as determined by the Financial Aid Office, need financial assistance for their educational expenses. Admitted undergraduate and graduate degree candidates attending at least half time are eligible for consideration.

Students who do not qualify for the Work-Study Program may find part-time employment on or near campus.

**ROTC Scholarships**

Reserve Officer Training Corps scholarships are offered on a competitive basis by both the Army and the Air Force. Entering freshmen may compete for four-year scholarships during the last year of high school. A variety of scholarships are also available to students already attending the University.

Scholarships pay up to full tuition, all mandatory fees, and for required textbooks. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Finally, students with a four-year or
three-year ROTC scholarship compete for a room and board grant for the entire time they are on the scholarship.

For more information, contact the Admission Officer: Army ROTC at (603) 862-7075, or Air Force ROTC at (603) 862-1480.

**Health Services**

The University has a nationally accredited (aaahc.org (http://www.aaahc.org)) health and wellness program.

**Health and Counseling Fee**

All UNH degree students who take five or more credit hours/semester or non-degree students who take thirteen or more credit hours/semester are required to pay the UNH health and counseling fees. These fees allow students to access services at Health & Wellness and/or Psychological and Counseling Services on campus, and cover many services at no or reduced cost. When combined with a student’s health insurance coverage, the health and counseling fees provide for a complete health care package. A student’s health insurance is never billed for services covered by the UNH health and counseling fee.

**Health Insurance**

UNH requires health insurance as a condition of enrollment for full-time degree students at its Durham, Manchester, and Concord campuses. Students who already have health insurance are able to waive coverage under the University-sponsored plan, if their insurance plan meets or exceeds the established UNH waiver criteria, by completing a waiver prior to the deadline. International students with K-1 and J-1 visas will be required to purchase the UNH Student Health Benefits Plan.

**Health Record Requirement**

Undergraduate students who have been formally accepted for bachelor’s or associate’s degree candidacy are required to have health information on file with UNH Health & Wellness. The three requirements are

1. a physical assessment,
2. immunization form, and
3. a health history form

to be completed and submitted by the student online. This information is listed on the Health and Wellness website at www.unh.edu/health (http://www.unh.edu/health)

Documentation of proof of immunity to MMR (measles, mumps, and rubella) is required (UNH Academic Policy 02.14) and is typically shown on the immunization form. Students must meet one of the following criteria for proof of immunity: received two vaccinations at least one month apart after 12 months of age; three positive measles, mumps, and rubella titers (blood test); health provider documentation of past history of the diseases including three positive measles, mumps, and rubella titers proving immunity; or born before 1957. Students requesting a religious exemption from measles vaccinations must complete the UNH Health & Wellness Request for Exemption and submit appropriate documentation. Students from countries where TB is endemic are required to either provide documentation of being tested within six months prior to enrollment, or provide documentation of treatment for either latent or active TB, or a negative chest radiograph if the test is positive. It is the responsibility of students to provide the documentation before attending any classes. Any student failing to complete these requirements may be prevented from registering for future classes.

**Medical Services**

UNH Health & Wellness provides comprehensive, student-focused, primary medical care through a team approach. The clinical staff consists of board-certified physicians, nurse practitioners, physician assistant, nurses, and medical assistants who are committed to prevention and holistic care. Primary medical care is provided for a large variety of common concerns. Examples include respiratory illnesses such as asthma, all kinds of infections, injuries, dermatologic issues, intestinal disorders, women’s, men’s and transgender health, and mental health. Women’s health services include annual examinations, diagnoses and treatment related to abnormal Pap smears, testing and treatment for sexually transmitted infections, contraceptive services, pregnancy testing and counseling, limited sexual assault services, and other women’s health concerns. A community health nurse assists with problems arising from hospitalization and health leaves and return to campus. Other services include allergy/immunization clinics and a travel clinic. Students may speak by telephone with a triage nurse for advice at any time. Clinical support services include laboratory, radiology, and pharmacy. A nurse is available by phone for advice when UNH Health & Wellness is closed. Not all services are available during the summer or breaks. For more information, visit http://www.unh.edu/health

Well-staffed and well-equipped community hospitals are nearby, and emergency ambulance service is available in Durham at all times.

**Health Leaves**

All undergraduate students seeking assistance with health-related (physical or mental) leaves from the University, or those who will be out for extended periods of time due to health issues, should be in touch with the executive director of UNH Health & Wellness at (603) 862-1098. Health-related leave information is also available on the web at www.unh.edu/health/withdrawals (http://www.unh.edu/health/withdrawals).

**Health Education and Support Services**

Health Education and Support Services coordinates health promotion activities on campus. Services provided include educational programs/ workshops, individual and group support to promote healthy lifestyle choices, education and support to students living with chronic illnesses, alcohol and other drug counseling, wellness coaching, nutritional counseling, stress management counseling/services, biofeedback, light therapy, massage therapy, tobacco cessation services, and a resource library with materials on a variety of health and wellness topics. For more information, visit the UNH Health & Wellness website at www.unh.edu/health/ohep (http://www.unh.edu/health/ohep)
University Academic Requirements

Degree Requirements

Degree Requirements for Undergraduates

Requirements in this catalog apply to students who enter the University between July 1, 2017 and June 30, 2018. Students who entered the University at an earlier time but who wish to change to the requirements of this catalog must apply to the appropriate office for the change.

Students will be held responsible for all work required for graduation and for the scheduling of all necessary courses.

Credit and Grade Point Average Requirement

To be eligible for graduation from the University of New Hampshire, a student must obtain a passing grade in a minimum of 128 semester hours; for associate degree graduation, 64 semester hours. The student must attain a cumulative grade-point average of at least 2.00 for all courses taken at the University in which a grade is given. The student must also meet the curricular, departmental, scholastic, and other requirements that have been sanctioned by the proper authorities.

To be eligible for graduation, all baccalaureate, associate in applied science and associate in art students enrolling for academic year 2017/18 must fulfill four types of University requirements: Writing, Discovery (or General Education for associate degree students), degree, and major.

Residence

“Residence” is being enrolled in University of New Hampshire courses after admission to and matriculation in a degree program. Students who are candidates for bachelor’s and associate degrees must attain the last one-fourth of their credits toward the degree in residence unless granted permission by the Academic Standards and Advising Committee to transfer part of this work from other accredited institutions.

Certification of candidate for graduation

Degrees are awarded three times a year: December, May and September. Candidates for graduation shall be certified as to their college requirements by the several college faculties to the Registrar, who shall recommend them to the president for their appropriate degrees provided they have satisfied all University requirements for graduation.

Modifications tend to occur in major programs during the period of students’ undergraduate careers. Students are expected to conform to these changes insofar as they do not represent substantive alterations in their course of study.

Note: Although the University will try to provide sufficient facilities so that students may pursue any major or curriculum for which they meet the requirements, such a privilege cannot be guaranteed, since rapidly increasing enrollment sometimes results in the overcrowding of required specialized courses. On occasion, students may remain in a crowded curriculum if they are willing to take certain courses during the summer session.

Discovery Program

Discovery Program (Core Curriculum Requirement)

The Discovery Program provides the intellectual framework for students in any major. It represents the faculty’s collective belief in what constitutes and contributes to essential knowledge of the world. Together, students and faculty attempt to understand fully and use ethically that knowledge, both in the present and as a reservoir from which to draw in the future. These intellectual skills, knowledge, and ethical grounding will help prepare students to contribute to the creation of a more verdant, healthy, just, and prosperous world.

“He who learns but does not think is lost. He who thinks but does not learn is in great danger.” Confucius.

Discovery Program Student Learning Outcomes

After completing the Discovery Program at UNH, students should be able to:

1. Communicate effectively by applying skills in reading, writing, speaking, and listening.
2. Acquire and use information appropriately and effectively to research, organize, and present knowledge.
3. Apply mathematical concepts and/or statistical models to understand phenomena and/or solve problems in multiple contexts.
4. Formulate and evaluate open-ended questions that lead to empirical/researchable investigations of complex problems and issues.
5. Analyze and synthesize ideas and perspectives from diverse traditions from around the world.
6. Analyze and synthesize ideas and perspectives from more than one academic or intellectual discipline.
7. Clarify connections between their academic learning and their own ethical values.
8. Demonstrate the integration of learning they have achieved in their major field of study.
9. Exercise imagination in grappling with complex problems of both the natural and human created worlds, and understand the centrality of imagination to all human endeavors.
10. Make connections among the various branches of human knowledge and endeavor.

Discovery Program Requirements

Discovery Foundation Skills

Inquiry course. This course may fulfill a Discovery category and/or a departmental requirement. It should be taken during a student’s first or second year or prior to completion of 57 credits. For students who transfer in with 26 or more credits, the Inquiry requirement is waived automatically.

One course in writing skills. Most students will satisfy the first-year writing requirement with ENGL 401 First-Year Writing. This course should be taken during a student’s first year or prior to completion of 32 credits.

One course in quantitative reasoning. This course is normally completed by the end of the first year or 32 credits.

Discovery in the Disciplines

Students must take one course from each Discovery category at the 400-600 levels. Inquiry courses that carry Discovery category designations may be used to satisfy this requirement.

- One course in Biological Science (BS),\textsuperscript{1}
- One course in Physical Science (PS),\textsuperscript{1}
- One course in Environment, Technology, and Society (ETS);
- One course in Fine and Performing Arts (FPA);

\textsuperscript{1}All 400-level courses in Biological Science and Physical Science.

ENGL 401 First-Year Writing. This course should

• One course in Historical Perspectives (HP);
• One course in Humanities (HUMA);
• One course in Social Science (SS); and
• One course in World Cultures (WC) (also may be satisfied by approved study abroad programs).

One of these courses must have a lab component (DLab).

**Discovery and Integrative Understanding**

One senior capstone experience, supervised and approved within the major.

The capstone experience is typically completed by senior students within the major and is designed to elicit opportunities for educational reflection and synthesis of knowledge and skills; however, students who have completed 90 credits at the end of their junior year may complete their capstone during the summer prior to their senior year. The capstone may be met with an approved experience (as described below). It is not necessarily a course.

Suggested ways of meeting capstone may include: McNair research theses, Hamel Center Programs (IROP, SURF USA, SURF Abroad, URA, INCO 790 Advanced Research Experience), and senior honors theses. Examples of capstone experiences include courses, projects, independent research, internships, artistic expression, or community and service learning opportunities.

**The senior capstone experience must meet one or more of the following criteria:**

The capstone synthesizes and applies disciplinary knowledge and skills. The capstone fosters reflection on undergraduate learning and experience. The capstone demonstrates emerging professional competencies. The capstone applies, analyzes, and/or interprets research or data or artistic expression. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement will vary across departments and colleges and may be satisfied through a course, thesis, created work or product, mentored research project, or some form of experiential learning (e.g., fieldwork). The capstone should occur during the student’s senior year. Departments designate capstones as appropriate to their respective disciplines following the usual administrative procedures for their college or school. Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

**Additional Information**

Discovery Program requirements shall not be waived on the basis of special examinations or placement tests, except for the College Board Advanced Placement tests and the College Level Examination Program (CLEP) tests. All students transferring to UNH in academic year 2017-18 will come in under Discovery Program requirements. For students who transfer in with 26 or more credits, the Inquiry requirement is waived automatically.

*Note to Faculty: Waiver of requirements in the Discovery Program. Students may petition the Discovery Committee to waive or replace a requirement. The student’s petition must be approved by the student’s major adviser and forwarded to the dean of the student’s college.*

The required courses cannot be taken on a pass/fail basis. No single course may be counted in more than one Discovery discipline category. Academic departments may or may not permit Discovery courses to count toward requirements for a major. TSAS courses may not be used for general-education (1984-2009), writing-intensive, or foreign language requirements. TSAS courses that are 400-600 level and Discovery-approved may count for Discovery requirements. All Discovery courses carry 3-4 credits.

The most current list of Discovery courses may be found on the Registrar’s Office website.

**Discovery Foundations**

**Inquiry**

All Inquiry courses must contain four individually necessary and collectively sufficient features:

Inspire curiosity: an Inquiry student will compose open-ended questions that lead to further investigation into increasingly focused problems and issues. Develop understanding and perspective: an Inquiry student will explain a central issue or question of the course using at least two unique perspectives. Clarify standards of thinking: an Inquiry student will be able to identify, compare, and evaluate different interpretations (hypotheses, explanations) of a given phenomenon. Create effective communicators: an Inquiry student will present in clearly organized form the results of the investigation into questions or problems the student has posed.

A complete list of Inquiry courses can be found on the Registrar’s Office homepage.

**Writing Skills**

Please refer to the University Writing Requirement section for complete information about this Discovery Foundation.

**Quantitative Reasoning**

Quantitative reasoning refers to the ability to think critically and analytically using abstract formal methods with broad application. Mathematics is the foundation for the physical sciences and, increasingly, for the biological sciences. Its principles and processes illuminate significant aspects of the social sciences as well. In its most precise forms, it enables the design of bridges and the orbiting of satellites. Mathematics discloses invisible truths about the world, makes sense of patterns of which we may or may not be aware, and introduces some order to chaos. In its purest form, it creates its own world of beauty and logic. In its more applied forms, it attempts to make sense of individual and collective human behaviors and complex systems. Many courses listed under this category will help students appreciate the principles of mathematics and gain some skill in its applications to realistic situations, while other courses will introduce kindred subjects including symbolic logic, information theory, statistics, and computer science.

**Discovery in the Disciplines**

**Biological Science**

Biology is a branch of science that investigates the structure and function of living organisms. Scientists investigate ideas and observations that solidify our understanding of the diversity of life from single cells to complex organisms. Biology has deep relations with agriculture, chemistry, psychology, and many other fields of study, and it is the foundation of our knowledge of health and disease. Courses under this category deal with the basic structure and function of organisms, the interaction of organisms with their environment, human health, biotechnology, and the concepts and mechanisms of evolution as a fundamental biological paradigm. All courses will provide some
understanding of the methods of scientific inquiry and seek knowledge about the living world.

**Environment, Technology, and Society**

The exponential growth of the sciences and engineering has bred an equally dramatic growth in technological advances. From the flint arrowhead to the latest communication device or weapon, human beings have been inventing things and transforming their lives, their societies, and their environments as they do. But they seldom foresee all the transformations and consequences their inventions bring about. This category stresses the interplay between at least two of these three realms: environment, technology, and society. Topics might include, but are not limited to, the history of a particular kind of technology (such as transport, fuel, writing, or weaponry), how technological change comes about in general, the scientific and/or social bases for a given technology, its impact for good or ill on human society and the natural environment, the effects of a changing environment on the arts and literature, and/or the ethical questions these topics raise.

**Fine and Performing Arts**

The arts communicate through the intellect, the emotions, and the body, sometimes all at once, in ways simple and subtle, direct and subliminal, gentle and soul shaking. Understanding and appreciating the arts enriches our lives and preserves our cultural heritage for the future. Through its performances, publications, and exhibits, UNH offers many artistic experiences for students and the larger community, some of which are linked to courses under this category. Such courses, which may be about painting, sculpture, architecture, music, dance, theater, or film, will often include learning through practical experience.

**Historical Perspectives**

Even though we are faced daily with evidence of change in our social world and technology, we easily forget that how we live, where we live, and what we see around us are transient states of affairs. It is important to be able to look on one's own world with an imaginative grasp of its history and the forces behind that history. Courses under this category will give students the opportunity to learn about major historical developments and how these developments have shaped contemporary life in all its complexity. Through the study of particular periods and places, students will gain both "historical perspective" and some skill at the methods of historical inquiry. Common to all courses in historical analysis is the presumption that the categories of social analysis are themselves historical and historically contingent, and that to understand the past requires entering imaginatively into languages, institutions, and worldviews quite different from those of the present day.

**Humanities**

The humanities arose in Renaissance universities as an alternative to theology and consisted mainly of Greek and Latin literature, which dealt with any and every aspect of human life; they became central to the liberal arts. Since the nineteenth century, the humanities also have embraced modern literature, the creative arts, philosophy, and history. They focus on questions about meaning, ethics, aesthetics, and the foundations of knowledge; they are as concerned with form as with content. Courses under this category explore major works, ideas, and traditions that have shaped our understandings of the world and our sense of self at different times and places while examining the distinctive methods of humanistic inquiry.

**Physical Science**

The physical sciences seek to discover the components, structures, properties, and laws of the material world from subatomic particles to the entire universe. Through them, we appreciate both the wondrous complexity of the world and its order. The traditional domains of chemistry, physics, astronomy, cosmology, and Earth sciences are the foundations of knowledge in numberless arenas of human activity, while the intersections between these domains and the biological sciences yield astonishing discoveries about living organisms. All courses will provide some understanding of the methods of scientific inquiry, seek knowledge about the physical universe, and evaluate claims in both technical literature and popular media.

**Social Science**

The social sciences investigate human beings and their societies from the smallest bands of hunter gatherers to huge nations and global institutions. Everything from marriage and kinship to law and crime, from ceremonial gift giving to mortgage derivatives, from witchcraft to health insurance, from ancient ritual to modern communication, is a subject of a social science. Courses under this category will explore different theories, methods, and data-gathering techniques as they apply to different social issues. They also will examine how individuals create, interact with, and are shaped by social groups and institutions, including those associated with politics, economics, religion, family, the arts, health, and education.

**World Cultures**

Living in a world of many cultures has created both cooperation and conflict across borders, between and within nations. This category, which includes intermediate language courses and approved study abroad programs, encourages students to become cosmopolitan citizens by gaining knowledge and understanding of cultures other than those of the United States. Students will learn to recognize others' values and, ultimately, accept the many ways in which we all are human. They are thus encouraged to see their own culture with fresh eyes and know the sheer diversity of human outlooks.

Discovery Lab (DLAB), please note: A course that fulfills the laboratory requirement in the Discovery Program should provide students with hands-on experience that reinforces, supports, and/or augments the material presented in other formats throughout the course. It should teach them how the discipline uncovers and validates knowledge; how phenomena are understood through observation, experimentation, and quantitative analysis; how data are collected and interpreted; and how hypotheses are created, tested, modified, confirmed, or invalidated. These experiences also are likely to provide insights into how scientific theories and models are constructed. A significant portion of specified course time must be devoted to laboratory and laboratory-related activities. For example, a conventional model for a 4-credit laboratory course consists of three 50-minute (or two 75-minute) weekly lecture periods plus one 80-minute weekly laboratory period. However, courses may include different and/or innovative laboratory experiences provided the total amount of course and laboratory time is comparable.

**Discovery and Integrative Understanding**

The capstone fosters reflection on undergraduate learning and experience.

The capstone demonstrates emerging professional competencies.
The capstone applies, analyzes, and/or interprets research or data or artistic expression. The capstone explores areas of interest based on the integration of prior learning.

**Discovery Program courses**

The complete list of Discovery courses can be found on the Registrar’s Office website.

**University Writing Requirement**

In 1995, the Academic Senate established the Writing Program as an expression of the following fundamental values and goals for writing at UNH: *As the cornerstone of any higher education, academic and disciplinary literacy is the concern of the entire faculty and the whole University curriculum. Understanding that literacy is a long-term development process, the University community is committed to the following goals for student writing and learning:*

• Students should use writing as an intellectual process to learn material and to discover, construct, and order meaning.

• Students should learn to write effectively in various academic and disciplinary genres for professional and lay audiences.

• Students should learn to display competence with the generic features and conventions of academic language.

In order to help realize the above goals, writing intensive (WI) courses were established as well as the University Writing Requirement (UWR).

**Writing-Intensive (WI) Courses**

WI courses are identified by "Writing Intensive Course" in the "Attributes" section of the course descriptions. 

See CEP 795W below for an example: 

**CEP 795W (01) - Investigations**

**Credits:** 2.0 to 4.0  
**Term:** Fall 2017 - Full Term (08/28/2017 - 12/08/2017)  
**Class Size:** 5  
**CRN:** 12453  
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission. Writing intensive.  
See instructor for permission then sign up in the dept office before registering through WEBCAT.  
**Attributes:** Writing Intensive Course  
**Instructors:** STAFF  

Some courses have both writing-intensive and nonwriting-intensive versions, such as HIST 405 History of Early America and HIST 405W History of Early America. In these cases, only the sections with the "W" in the course number are writing intensive.

A periodically updated master list of WI courses is posted at [http://www.unh.edu/registrar/registration-courses/writing-intensive.html](http://www.unh.edu/registrar/registration-courses/writing-intensive.html). Course attributes can change, so students should make sure to consult the course description for real-time information on WI status when they enroll. Not all courses are offered every semester, so for advance course planning students should consult with their advisors or the owning department.

**University Writing Requirement (UWR)**

All bachelor's degree candidates are required to complete four writing-intensive courses, which must include ENGL 401 First-Year Writing and three additional writing-intensive courses, one of which must be in the student’s major, and one of which must be at the 600 level or above.

**Frequently Asked Question:** "Can the same course satisfy the course-in-the-major requirement and the 600-level or above requirement?"

**Answer:** Yes, one course can satisfy both of these requirements (see pattern B below), but the course would only count as one of the three WI courses needed. In this case, the student would need to take two other WI courses (in addition to ENGL 401) to satisfy the requirement. Thus, a complete WI sequence would conform to one of the two generic patterns below.

**A) Separate Courses for the 600+ Level and in the Major Requirements**

1. ENGL 401  
2. WI in the Major (any level)  
3. WI @600+ level (any)  
4. WI (any)

**B) The Same Course for the 600+ Level and in the Major Requirements**

1. ENGL 401  
2. WI in the Major @600+ level  
3. WI (any)  
4. WI (any)

**Note:** the numbers in the above examples are for reference and don't reflect a required sequence. A particular major may have more specific requirements that may depart from the above models.

The Rationale for Writing and Learning at UNH acknowledges that the WI course structure provides a minimum framework for writing in the curriculum and that there will be writing in non WI-designated courses. The Writing Committee’s position is that WI Course Attributes are definitive and that only courses bearing the WI Attribute will count for the WI requirement. In short, students are expected to enroll in UNH WI-designated courses to satisfy the WI requirement.

[http://www.unh.edu/writing/](http://www.unh.edu/writing/)

**Degrees**

**Bachelor of Arts**

At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.0 for all courses taken at the University in which a grade is given.

Completion of Discovery Program (University core curriculum) requirements.

Completion of the University writing requirement.

Proficiency in a foreign language. This requirement may be fulfilled by completing the equivalent of a full-year elementary-level course in a
requirements. The proficiency in a foreign language requirement must be satisfied by the end of the sophomore year. No credit is awarded for elementary year college coursework if the student has had two or more years of that language in high school. It is strongly advised that students check with academic departments to identify department-advised specific foreign language proficiency options.

Note: A student with a documented disability who wishes accommodation on the basis that the disability will prevent him or her from successfully mastering a foreign language requirement, or whose foreign language requirement was waived in high school because of a documented disability, must contact Student Accessibility Services, Smith Hall, (603) 862-2607 (Voice/TDD). An approved major.

An approved major.

For specific major requirements, check individual departmental or program listings.

**Bachelor of Fine Arts, Bachelor of Music**

Requirements for the B.F.A. degree are outlined in the Department of Art and Art History, College of Liberal Arts; for the B.M. degree, go to the Department of Music, College of Liberal Arts.

**Bachelor of Science**

At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.0 for all courses taken at the University in which a grade is given.

Completion of Discovery Program (University core curriculum) requirements.

Completion of the University writing requirement.

An approved major.

For specific major requirements, check individual departmental or program listings.

**Associate in Arts**

For degree requirements, see the University of New Hampshire at Manchester.

**Associate in Applied Science**

For degree requirements, see the Thompson School of Applied Science.

**Dual Degrees**

The opportunity to pursue two undergraduate degrees simultaneously enhances and broadens the education of certain students. The program is only for those students who can adequately handle the requirements for two different degrees and who can reasonably allocate the additional time and effort needed for the program.

Except for specific five-year degree programs, a student may not pursue two different degree levels simultaneously.

**Requirements**

Students desiring dual degrees must petition the college dean or deans involved for permission. Students must have a minimum 2.5 cumulative grade-point average. Students planning to take one degree in a highly prescribed curriculum should register as freshmen in the appropriate school or college for that curriculum. It is expected that candidates for two degrees will complete 32 credits beyond those required for the first degree. Students can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Students cannot earn more than one bachelor of arts (B.A.) degree. Transfer students already holding a baccalaureate degree from another accredited institution may pursue an additional baccalaureate degree at the University of New Hampshire provided they fulfill the previously listed requirements. The degree received at the first institution will be accepted by UNH as awarded by that institution.

**Supervision**

As soon as a student is accepted as a candidate for two degrees, the appropriate dean(s) will appoint supervisors for each of the proposed majors. The supervisors and the student will work out a basic course plan for the two degrees and inform the appropriate dual degree dean(s) of the plan. The supervisors will maintain joint control over the student’s academic program. The college offices and the supervisors will receive copies of grade reports and other records for students pursuing two degrees.

**Minimum Graduation Average**

A cumulative grade-point average of 2.0 in University of New Hampshire courses is the minimum acceptable level for undergraduate work in the University and for graduation. In addition, some majors require a grade-point average greater than 2.0 in certain courses or combinations of courses. The Academic Standards and Advising Committee examines the records of students periodically and may place academically deficient or potentially deficient students on warning, or may exclude, suspend, or dismiss those who are academically deficient.

**Quota of Semester Credits**

Students registering for more than 20 credits must receive the approval of the college dean. Additionally, students taking more than 20 credits in a single term will pay a per-credit surcharge.

Baccalaureate and associate in arts undergraduates are assigned class standing on the basis of semester credits of academic work completed with a passing grade, as follows: to be a sophomore, 26 credits; to be a junior, 58 credits; to be a senior, 90 credits.

**Residence**

Residence* means being enrolled in University of New Hampshire (including UNH Manchester) courses after admission to and matriculation in a degree program. Students who are candidates for a bachelor’s degree must attain the last one-quarter of total credits for the degree in residence unless granted permission by the Academic Standards and Advising Committee to transfer part of this work from other accredited institutions.

**Accelerated Masters Eligible Programs - Undergraduate Seniors**

Qualified senior students at the University of New Hampshire may be admitted to the Graduate School provided they have followed normal
application procedures; they must have been admitted for the semester in which they wish to enroll in courses for graduate credit. A 3.20 cumulative grade-point average is normally required to be considered for admission to the accelerated master's program.

Such seniors are normally admitted prior to the start of their last undergraduate semester, but may be eligible to apply for admission the first semester of their senior year. Seniors who have been admitted under early admission may register for a maximum of 12 credits of graduate-level courses prior to completing their bachelor's degree. Such courses may upon recommendation of the department and approval of the Graduate School count toward both a bachelor's and master's degree.

When seniors admitted to the accelerated master's program have registered for graduate courses, they must maintain a grade-point average of 3.20, complete their undergraduate degree as planned, and pass graduate courses taken for credit with a grade of B- or better. If these conditions are not met, admission is withdrawn.

Not all graduate programs participate; each program's faculty retain discretion regarding whether their program admits students under the accelerated master's program, as well as the maximum number of graduate credits permitted (not exceeding 12; e.g., some programs will accept one course, others two). Applicants are strongly encouraged to meet with the graduate coordinator in the program's faculty to discuss specifics. Dual-credit forms must be completed and approved by the dean of the Graduate School at the beginning of the semester for which dual credit is sought.

Five-Year Degree Programs
Bachelor of Arts and Master of Education
Bachelor of Arts and Master of Arts in Teaching
Bachelor of Science and Master of Education
Bachelor of Science and Master of Science in Accounting
Bachelor of Science and Master of Science in Biochemistry
Bachelor of Science and Master of Science in Occupational Therapy
Bachelor of Science and Master of Arts in Political Science
Bachelor of Science and Master of Arts in Teaching

 Majors, Minors, and Options
Majors and interdisciplinary minors are described at the college and department locations in this catalog.

Student-Designed Majors
Under special circumstances, students may design their own majors. This option is offered for highly motivated and self-disciplined students who seek a course of study that is not available through existing programs at the University. It allows students, with the close supervision of faculty members, to cross department and college lines and to create educational experiences on and off campus as part of individual programs of study.

Student-designed majors are administered by a committee of elected faculty that operates through the Office of the Provost and Vice President for Academic Affairs. Students who want to design their own majors are required to give the committee evidence of careful thought and planning in a proposal.

Fall submissions are due by October 15 of the student's junior year. Proposals are only reviewed once a semester. Spring submissions are due by February 25. The committee will convene soon after the deadline to review the proposals. Under no circumstances will the committee consider a senior year proposal.

Proposal guidelines are available in the Office of the Provost and Vice President for Academic Affairs and on the Academic Affairs website, www.unh.edu/academic-affairs/student-designed-major-sdm (http://www.unh.edu/academic-affairs/student-designed-major-sdm). Click on “Academic Enrichment.”

Second Majors
Bachelor's degree students may choose to fulfill the requirements of two dissimilar major programs, provided they obtain the approval of the second major department and the dean of the college in which the second major is offered, and comply as follows:

If the two majors are offered in different schools or colleges within the University, the admissions requirements of each must be satisfied.

If the two majors have two distinct degrees; e.g., B.A., B.S., or some other designated degree, students must choose which of the two degrees is to be awarded and fulfill all requirements for that degree.

No more than 8 credits used to satisfy requirements for one major may be used as requirements for the other major.

Minors
Bachelor's degree students may earn a minor in any undergraduate discipline designated by the University. A list of minors is available from the advising coordinator in each college or school (or see the program descriptions for each college or school in this catalog). Students must consult with their major adviser and also the minor supervisor. A minor typically consists of 20 credits with C- or better and a 2.0 grade-point average in courses that the minor department approves. Courses taken on a pass/fail basis may not be used for a minor. No more than 8 credits used to satisfy major requirements may be used for the minor. During the student's final term, an application should be made to the dean to have the minor shown on the academic record.

Options
Some degree programs offer a selection of options (e.g., art history and art studio through the Department of Art and Art History). These options allow students to specialize within a discipline. The choice of option is recorded on the student's transcript.

Grades
Grading and honors policies as stated in this catalog apply to all undergraduate students.

Instructors assign grades as listed below; grade points per credit are indicated in parentheses. For all undergraduate courses, grading standards established by the Academic Senate are that a C indicates competent, acceptable performance and learning; B indicates superior performance and learning; and A indicates excellent performance and learning. These standards apply to all undergraduate courses, instructors, departments, subjects, and colleges. The University reserves the right to modify grading and honors practices.

• A (4.0) Excellent
• A- (3.67) Intermediate grade
• B+ (3.33) Intermediate grade
• B (3.0) Superior
• B- (2.67) Intermediate grade
• C+ (2.33) Intermediate grade
• C (2.0) Satisfactory, competent
• C- (1.67) Intermediate grade
• D+ (1.33) Intermediate grade
• D (1.0) Marginal grade
• D- (0.67) Intermediate grade
• F (0.0) Failure, academic performance so deficient in quality as to be unacceptable for credit
• AF (0.00) Administrative F (usually indicates student stopped attending without dropping the course); is included in grade-point average
• CR—Credit, given in specific courses having no letter grades, designated credit/fail
• P—Passing grade in a course taken under the student pass/fail grading alternative
• W—Withdrawal, assigned if withdrawal is later than fifth Friday of classes (but not after midsemester); is not included in grade-point average
• WP—Withdrawal, assigned if withdrawal is after mid-semester and if student is failing; is included in grade-point average
• WF—Withdrawal, assigned if withdrawal is after mid-semester and if student is passing; is not included in grade-point average
• AU—Audit, no credit earned
• IC—Grade report notation for student’s incomplete coursework
• IA—Indicates "incomplete" in a thesis or continuing course of more than one semester; the grade earned will replace "IA" assigned in previous semesters
• IX—Grade not reported by instructor

Students earning a semester or cumulative grade-point average less than 2.00 are placed on "academic warning."

**Pass/Fail**

While earning a bachelor's degree, students may choose the pass/fail grading alternative for a maximum of 4 credits per semester up to a total of 16 credits toward the degree.

Pass/fail cannot be used for Discovery requirements, for writing-intensive courses, for courses required by a student's major or second major, for option or minor requirements, for ENGL 401 First-Year Writing, or for repeated courses. In addition, B.A., B.F.A., and B.M. degree candidates may not use pass/fail for courses taken to meet the foreign language requirement, and no Paul College course may be taken on a pass/fail basis by a student majoring in administration, economics, or hospitality management.

The minimum passing grade for credit is a D- (0.67); any grade below this minimum is a fail. All grades will be recorded on the grade roster as A, B, C, D, F, or intermediate grades. The pass/fail marks will be placed on students' transcripts and grade reports by the Registrar's Office. The course will not be included in the grade-point calculation, but the pass or fail will be recorded, and in the case of a pass, the course credits will be counted toward degree requirements. Associate in arts students, see the University of New Hampshire at Manchester.

**Honors**

An undergraduate degree student, after completion of at least 12 graded credits in University of New Hampshire courses, is designated as an honor student for a given semester if the student has

1. completed at least 12 graded credits for that semester and earned at least a 3.50 semester grade-point average; or
2. earned at least a 3.50 cumulative grade-point average and at least a 3.50 semester grade-point average regardless of the number of graded credits that semester.

Bachelor's degree candidates who have earned honors for their entire work at the University will be graduated with honors based on the final cumulative grade-point average, provided that a minimum of 64 graded credits have been completed in University of New Hampshire courses. The Latin equivalent of the honors classification will appear on the student’s academic record and diploma. The student’s honors classification will be noted in the commencement program.

Students graduating in academic year 2015-2016 and subsequent years will be graduated with honors according to the following categories: 3.50 to 3.64 (honors); 3.65 to 3.84 (high honors); and 3.85 to 4.00 (highest honors).

**UNH Credit Hour Policy**

The University of New Hampshire is in compliance with the federal definition of credit hour. For each credit hour, the University requires, at a minimum, the equivalent of three hours of student academic work each week. Academic work includes, but is not limited to, direct faculty instruction, e-learning, recitation, laboratory work, studio work, field work, performance, internships, and practica. Additional academic activities include, but are not limited to, readings, reflections, essays, reports, inquiry, problem solving, rehearsal, collaborations, theses, and electronic interactions. Student work reflects intended learning outcomes and is verified through evidence of student achievement.

**Course Descriptions Credits**

The University of New Hampshire is in compliance with the federal definition of a credit hour. For each credit hour, the university requires, at minimum, the equivalent of three hours of student academic work each week. Academic work includes, but is not limited to, direct faculty instruction, e-learning, recitation, laboratory work, studio work, field work, performance, internships and practica. Additional academic activities include, but are not limited to, readings, reflections, essays, reports, inquiry, problem solving, rehearsal, collaborations, theses, and electronic interactions. Student work reflects intended learning outcomes and is verified through evidence of student achievement.

The number of credits listed is the number of semester credits each course number will count toward graduation (except in the case of variable credit courses). Students must register for the number of credits shown or, if the course is variable credit, within the range of credits shown.

"Cr/F" following the course description indicates that no letter grade is given but that the course is graded Credit or Fail.
Course Offerings
The pound sign "#" denotes any course which has not been offered in the past three academic years.

For up-to-date information about when a course is offered; who teaches the course; the number of recitations, lectures, labs, and such, students are referred to each semester’s Time and Room Schedule (https://courses.unh.edu).

Labs
In courses that are not designated by title as laboratory courses, the notation "Lab" in the course description indicates that laboratory sessions are a part of the course. For example, CHEM 403 General Chemistry I.

Numeric System
The University of New Hampshire’s system of numeric designation is as follows:

- 200–299 Courses in Thompson School of Applied Science.
- 300–399 Associate in arts /associate in science courses. Courses may be taken for credit only by associate's degree or nondegree students. Credits may not be applied to baccalaureate degrees.
- 400–499 Introductory courses generally not carrying prerequisites and courses generally falling within University and college requirements.
- 500–599 Intermediate-level courses for undergraduate credit only.
- 600–699 Advanced-level undergraduate courses. Entrance to courses numbered 600 and above normally requires junior standing.
- 700–799 Advanced-level undergraduate courses. Ordinarily not open to freshmen and sophomores.
- 800–999 Courses that carry graduate credit only and therefore are open only to admitted or special graduate students.

Prerequisites and Corequisites
Prerequisites are courses that must be taken before another course. For example, CMN 456 Propaganda and Persuasion is a prerequisite of CMN 505 Analysis of Popular Culture. Each prerequisite for a course is separated from the other prerequisites by a semicolon; e.g., Prereq: CMN 455; CMN 456.

Corequisites are courses that must be taken in the same semester. For example, BMCB 658 General Biochemistry and BMCB 659 General Biochemistry Lab are corequisites.

Academic Honesty
Academic honesty is a core value at the University of New Hampshire. The members of its academic community both require and expect one another to conduct themselves with integrity. This means that each member will adhere to the principles and rules of the University and pursue academic work in a straightforward and truthful manner, free from deception or fraud. The academic policy can be found in the annual publication, Student Rights, Rules, and Responsibilities (http://www.unh.edu/student-life/handbook).
College of Liberal Arts

Heidi Bostic, Dean
Brett M. Gibson, Associate Dean
Reginald A. Wilburn, Associate Dean
Marion Girard Dorsey, Faculty Fellow

It is the purpose of the College of Liberal Arts, as a center of learning and scholarship, to help students achieve an understanding of the heritage of civilization and to educate them in the tradition of the past and realities of the present so they may recognize and act upon their obligations to the future.

The college seeks to meet the educational needs of each student through the development of interests and skills, which, combined with the individual’s potential, make possible a richer, more useful life.

Degrees

Bachelor of Arts
These programs primarily provide a broad liberal education along with depth in a major. Requirements for the bachelor of arts degree and information regarding the majors that lead to a bachelor of arts are presented under Degrees (p. 38) and Programs of Study (p. 29).

Bachelor of Fine Arts
This curriculum provides training for students who plan to enter a professional graduate school. Requirements for the bachelor of fine arts degree are outlined under Programs of Study/Art and Art History (p. 42).

Bachelor of Music
This curriculum provides professional training in performance, composition, music education, and music pre-teaching and allows students to develop their talent to a standard equivalent to the one achieved at conservatories of music. Requirements for the bachelor of music degree and information regarding the curriculum are presented in Programs of Study/Music (p. 86). Degrees include Music Education, Pre-Teaching, Performance, and Composition.

Bachelor of Science
This curriculum provides strong preparation for entry into graduate programs in neuroscience, behavior, pharmacology, and medicine. Requirements for the bachelor of science degree and information regarding this major are presented under Degrees (p. 29) and Programs of Study/Neuroscience and Behavior (p. 93).

Combined Programs of Study
In addition to pursuing a single major, students may combine programs of study as follows (See University Academic Requirements (p. 26) for details):

Minors: Students may pursue one or more minors, each typically comprised of 5 courses. Minors are available in nearly every discipline within the College of Liberal Arts.

Cognates: Students may pursue one or more cognates, each typically comprised of 3 courses and intended to develop career-oriented skills. Cognates in the College of Liberal Arts are:

- Technical Writing and Public Speaking (p. 52)
- Intercultural Communication for the Professional World (p. 51)

Second majors: Students may choose to fulfill the requirements of two dissimilar major programs.

Dual majors: Students may choose to fulfill the requirements of a dual major, typically comprised of 8 courses. Dual majors are designated programs that must be paired with another major of any discipline. Dual majors in the College of Liberal Arts are:

- Educational Studies
- Humanities
- International Affairs
- Justice Studies

See Special University Programs (p. 293) for information about the Sustainability dual major.

Student-designed majors: Under special circumstances, students may design their own majors.

Dual-degree programs: Students may choose to fulfill the requirements of two separate degrees, such as a B.A. and a B.S.

Interdisciplinary opportunities: See the Interdisciplinary Studies (http://cola.unh.edu/interdisciplinary-studies) web page for the complete list of interdisciplinary programs within the College of Liberal Arts.

Proficiency in a Foreign Language

Please see the explanation of this University requirement under Degrees (p. 29): Bachelor of Arts.

Within the College of Liberal Arts, only those students majoring in linguistics, psychology, theatre and dance, or women’s studies may use American Sign Language (ASL) to fulfill their foreign language proficiency requirement. English teaching majors who plan to pursue deaf studies may petition the English department to use ASL to fulfill their foreign language proficiency requirement.

Center for Study Abroad
cola.unh.edu/study-abroad (http://cola.unh.edu/study-abroad)

The College of Liberal Arts offers a number of managed study abroad programs that are administered by college faculty and the College of Liberal Arts Center for Study Abroad. These programs provide opportunities for liberal arts students as well as students in other colleges to experience and learn about different cultures and, in non-English-speaking countries, to increase proficiency in a foreign language.

Because the college administers these programs, registration, finances, and other logistics are streamlined and simple. Students pay UNH tuition and a single program fee, which covers housing, excursions, and, in some cases, board. Most UNH student fees are waived with the exception of the technology fee, a study abroad administration fee, and an international travel insurance fee. Students are guaranteed a full semester of credits (16) for the semester-long programs, and students are eligible for federal financial aid for the semester-long programs.

Please see the list of eligibility requirements under Study Abroad Programs (p. 284).
The College of Liberal Arts Center for Study Abroad is located in 116 Murkland Hall. To learn more about any of the following programs, visit the Center or contact Jim Parsons, College of Liberal Arts Study Abroad Coordinator, cola.studyabroad@unh.edu or james.parsons@unh.edu, (603) 862-3962.

Semester Programs

Chengdu, China: Spring semester study of Chinese language and culture at Chengdu University. Faculty Director: Yige Wang, yige.wang@unh.edu, (603) 862-3565, 104 Huddleston Hall.

London, England: Fall and/or spring courses in British studies, the arts, humanities, social sciences, business, and a wide range of other subjects at Regent's University, London. Faculty Director: Sue Hertz, susan.hertz@unh.edu, 110 Murkland Hall.

Dijon, France: Academic year, spring, or summer study of French language and other liberal arts courses (in French) at the Université de Bourgogne, Dijon. Faculty Director: Nadine Berenguer, nadine.berenguer@unh.edu, (603) 862-1690, 210 Murkland Hall.

Legon, Ghana: Spring-term program in a wide range of courses at the University of Ghana, one of West Africa's most prestigious universities. Faculty Director: Burt Feintuch, burt.feintuch@unh.edu, (603) 862-4356, 23 Huddleston Hall.

Budapest, Hungary: Fall-term program with justice studies emphasis at Corvinus University. Faculty Director: Susan Siggelakis, susan.siggelakis@unh.edu, (603) 862-1780, 318 Horton.

Budapest, Hungary: Spring-term program focusing on the humanities, and modern Hungarian and Central European history and culture at Corvinus University. Faculty Director: Stephen Trzaskoma, s.trzaskoma@unh.edu, (603) 862-3648, 306 Murkland Hall.

Granada, Spain: Spring semester Spanish language immersion program with courses focusing on Spanish language and other disciplines at the Centro de Lenguas Modernas of the University of Granada. Faculty Director: Lina Lee, llee@unh.edu, (603) 862-3123, 210H Murkland Hall.

Summer Programs

Athens, Greece: Five-week program focusing on classics, Greek history, and culture. Faculty Director: Stephen Trzaskoma, s.trzaskoma@unh.edu, (603) 862-3648, 306 Murkland Hall.

Belize: Four-week summer Archaeological Field School in Belize. Faculty Director: Eleanor Harrison-Buck, belize.fieldschool@unh.edu, (603) 862-4742, 311 Huddleston Hall.

Chengdu, China: Three-week summer program in Chinese language study at both the beginner and advanced levels at Chengdu University. Faculty Director: Yige Wang, yige.wang@unh.edu, (603) 862-3565, 104 Huddleston Hall.

Costa Rica: Six-week summer program in Spanish language and culture at the Institute of San Joaquin de Flores. Faculty Director: Lina Lee, llee@unh.edu, (603) 862-3123, 210H Murkland Hall.

Cambridge, England: Six-week summer program offering courses in history, literature, and humanities at Gonville and Caius College, Cambridge University. Faculty Director: Dennis Britton, dennis.britton@unh.edu, (603) 862-1206, 122 Hamilton Smith Hall.

Berlin, Germany: Five-week summer immersion program in German language and culture at the BSI Private Language School in central Berlin. Faculty Director: Charles Vannette, charles.vanette@unh.edu, (603) 862-1690 G10A, Murkland Hall.

Russia: Four-week or eight-week summer program in Russian language, culture, mythology and propaganda in Moscow, St. Petersburg, and on the Trans-Siberian Railway. Faculty Director: Arna Bronstein, arna.bronstein@unh.edu, (603) 862-3445, 304 Murkland Hall.

January Term and Short-Term Programs

Belize: Three-week January term course in archaeological survey and mapping in Belize. Faculty Director: Eleanor Harrison-Buck, belize.fieldschool@unh.edu, (603) 862-4742, 311 Huddleston Hall.

London, England: January term course, the London Experience, a ten-day experience of the theatre of London with insights into its politics, society, and culture as reflected in the arts. Faculty Director: David Kaye, london.experience@unh.edu, (603) 862-0667, M313 Paul Creative Arts Center.

London, England: Three-week January term course on travel writing with two weeks in London. Faculty Director: Susan Hertz, susan.hertz@unh.edu, 210 Murkland Hall.

Rome, Italy: January term course on ancient Roman architecture and society at the Intercollegiate Center for Classical Studies in Rome. Faculty Director: R. Scott Smith, scott.smith@unh.edu, (603) 862-2388, 301 Murkland Hall.

Career and Professional Success
cola.unh.edu/career-and-professional-success (http://cola.unh.edu/career-and-professional-success)

The College of Liberal Arts is committed to helping students achieve success in their career and professional endeavors. From one-on-one career counseling appointments to internship placements and employer visits to campus, the Career and Professional Success office supports students with the tools and resources to secure meaningful, impactful, and rewarding careers.

The Career and Professional Success office is located at 102 McConnell Hall. The director is Raul Bernal, raul.bernal@unh.edu, (603) 862-1280.

Research Centers and Institutes

Center for the Humanities
cola.unh.edu/center-humanities (http://cola.unh.edu/center-humanities)

The Center for the Humanities fosters excellence in the humanities, broadly conceived, at the University of New Hampshire. Center resources and programs support faculty research, encourage reflection and inquiry across the University community and beyond, create interdisciplinary initiatives in many forms, and undertake special projects to raise the visibility of the humanities. To accomplish this, the center endeavors to support the highest quality work by UNH humanities faculty, to build productive collaboration among faculty, to create singular projects that advance its goals, and to be a center of innovation, planning, and inspiration for the humanities at the University of New Hampshire. By pursuing its goals, the center supports the University’s research mission in particular, as well as its academic plan.
As public and professional interest in family violence has grown, so has the need for more reliable knowledge. The FRL seeks to fill this gap with comprehensive literature reviews, new theories, and methodologically sound studies. Researchers at the FRL pioneered many of the techniques that have enabled social scientists to estimate directly the scope of family violence. These efforts have brought international recognition to the FRL.

The FRL is unusual among research centers in the field because it addresses all aspects of the family, violence, and abuse. Topics undertaken by the FRL include physical abuse of children, corporal punishment of children, sexual abuse of children, physical abuse of spouses, dating violence, abuse of the elderly, intra-family homicide, rape and marital rape, violence between siblings, peer victimization of children, pornography, and missing and abducted children. This variety of topics is a result of beliefs that have guided FRL research: that various forms of family problems are interrelated, that conflict is as basic to family life as are love and cooperation, and that much of the conflict and violence in the world outside the family can be traced to roots within the family. This holistic view of family violence has contributed both diversity and richness to the FRL’s work.

The FRL’s prominence in the field is in part a result of the large number, variety, and scope of its publications. In a span of 10 years, FRL staff members have published more than 45 books and more than 740 articles on family violence.

The FRL is housed in a suite of offices in McConnell Hall. The FRL is directed by David Finkelhor, professor of sociology and director of the Crimes Against Children Research Center.

Crimes Against Children Research Center
www.unh.edu/ccrc

The Crimes Against Children Research Center (CCRC) is concerned with all forms of crimes against children and adolescents, from birth through age 17, both within and outside the family, both known and unknown to law enforcement. These include criminal acts as defined by law, such as sexual assault, abduction, theft, robbery, and aggravated assault against children. But it also includes child abuse in all its forms—physical, sexual, emotional—and child neglect, as well as child-to-child violence, such as peer and sibling assaults and bullying. It also includes indirect victimization, where children witness or are affected by the crime victimization of a family member or friend.

The CCRC, created in 1998, grew out of and expands upon the work of the UNH Family Research Laboratory, which has been devoted to the study of family violence and related topics since 1975. Associated with the center is an internationally recognized group of experts who have published numerous books and articles concerning the incidence and impact of violence against children.

CCRC staff has contributed to many pioneering national crime studies, including National Incidence Study of Missing, Abducted, Runaway, and Thrownaway Children; National Family Violence Survey; National Youth Victimization Prevention Survey; National Survey of Sexual Abuse in Day Care; Developmental Victimization Survey; Youth Internet Safety Surveys; and Multisite Evaluation of Children’s Advocacy Centers.

The CCRC is directed by David Finkelhor, who is also the director of the Family Research Laboratory and professor of sociology at the University of New Hampshire. Finkelhor has been researching criminal violence against children since 1978 and is the author and editor of 12 books and more than 100 articles on the subject.

Family Research Laboratory
www.unh.edu/frl

Since 1975, the Family Research Laboratory (FRL) has devoted itself primarily to understanding family violence and the impact of violence in families. As public and professional interest in family violence has grown, so has the need for more reliable knowledge. The FRL seeks to fill that need through comprehensive literature reviews, new theories, and methodologically sound studies. Researchers at the FRL pioneered many of the techniques that have enabled social scientists to estimate directly the scope of family violence. These efforts have brought international recognition to the FRL.

Prevention Innovations Research Center
www.unh.edu/prevention-innovations

Prevention Innovations Research Center: Ending Sexual and Relationship Violence and Stalking is a research center at the University of New Hampshire. Funded in 1999 as a collaborative consortium of academics and professionals, justiceworks offers an array of balanced, nonpartisan services addressing issues in crime, safety, security, and the administration of justice.

Justiceworks is co-directed by John T. Kirkpatrick, senior vice provost for student life and dean of students, and Charles Putnam, clinical professor of justice studies.

Justiceworks is a research and development group in justice studies. Founded in 1999 as a collaborative consortium of academics and professionals, Justiceworks offers an array of balanced, nonpartisan services addressing issues in crime, safety, security, and the administration of justice.

Justiceworks is the sponsor of the Saul O Sidore Memorial Lectures, the James H. and Claire Short Hayes Chair in the Humanities, and the University of New Hampshire-University of Ghana study-abroad program. The Center for New England Culture is a unit of the humanities center. The Center for the Humanities is directed by Burt Feintuch, professor of folklore and English. Katie Umanis is the center’s assistant director.

Cornerstone for the Humanities
www.unh.edu/centerforhumanities

The Center for the Humanities (CH) is a unit of the humanities center. The CH is a unit of the humanities center. The Center for the Humanities is directed by Burt Feintuch, professor of folklore and English. Katie Umanis is the center’s assistant director.

The Center for the Humanities is an internationally recognized group of experts who have published numerous books and articles concerning the incidence and impact of violence against children.

Justiceworks is a research and development group in justice studies. Founded in 1999 as a collaborative consortium of academics and professionals, Justiceworks offers an array of balanced, nonpartisan services addressing issues in crime, safety, security, and the administration of justice.

Justiceworks is co-directed by John T. Kirkpatrick, senior vice provost for student life and dean of students, and Charles Putnam, clinical professor of justice studies.
The Susan Schechter Domestic and Sexual Violence Social Justice Laboratory (Schechter Lab) is an interdisciplinary research laboratory within the Prevention Innovations Research Center. Undergraduate and graduate students associated with the Schechter Lab earn academic credit for their role as research assistants and work with members of Prevention Innovations Research Center on their research, report writing, and publications. The Sharon B. Murphy Scholarship supports undergraduate and graduate student scholarship in the fields of domestic and sexual violence and stalking for work within the Schechter Lab.

The Prevention Innovations Research Center members are UNH faculty members and practitioners from diverse disciplines and colleges across the UNH landscape, including the College of Liberal Arts, the College of Health and Human Services, and the Law School, who work with graduate and undergraduate students from across the University’s colleges and law school. Practitioners are from local and state organizations. The goals of the Prevention Innovations Research Center are to:

1. generate evidence-based knowledge aimed at preventing sexual abuse, relationship violence, and stalking;
2. promote creative and collaborative partnerships between practitioners and researchers; and
3. transform community norms and climates through the dissemination of commercialized products that result from the center’s research.

The Survey Center

cola.unh.edu/survey-center

The UNH Survey Center is a full-scale, non-partisan academic survey research center, committed to providing university researchers, government and business leaders, and private organizations with reliable information about public attitudes concerning important policy matters. It is nationally known for its public opinion and political polling for CNN, Fox News, and WMUR-TV.

The UNH Survey Center has conducted survey research projects at the University of New Hampshire since 1986: state, regional, and national general population surveys based on probability sampling; surveys that target specific populations; surveys that utilize complex stratified sampling techniques; and panel studies. The Survey Center conducts telephone, mail, and web surveys, as well as focus groups and other qualitative research projects.

The UNH Survey Center is located at 9 Madbury Road, Suite 401 and features a 41-station Computer-Assisted Telephone Interviewing (CATI) system. The Survey Center is directed by Andrew E. Smith, who is also associate professor of practice in political science. Students interested in employment as interviewers can contact Martha Belanger at martha.belanger@unh.edu.

Related Research Center

Carsey School of Public Policy
carsey.unh.edu

The Carsey School of Public Policy at the University of New Hampshire is a nationally acclaimed resource for research, leadership development, and engaged scholarship relevant to public policy. The school's activities address the most pressing challenges of the twenty-first century, striving for innovative, responsive, and equitable solutions at all levels of government and in the for-profit and nonprofit sectors. Faculty and students throughout the College of Liberal Arts serve as staff, fellows, researchers, and assistants in the school.

Academic and Cultural Centers and Institutes

Confucius Institute at UNH
cola.unh.edu/confucius

The Confucius Institute at UNH (CI-UNH) is a partnership between the University of New Hampshire and Chengdu University in China that engages the life of the University with the larger community, both locally and globally. The institute offers a full curriculum in Chinese language and culture as well as three study abroad programs in China. It also provides opportunities for cultural learning and exchange for regional schools—primary through post-secondary. At a time when China is the third largest trading partner for New Hampshire, CI-UNH can provide unique opportunities for business and industry in the state. CI-UNH is co-directed by Yige Wang of the UNH Department of Languages, Literatures, and Cultures; and Jie Du, the director of international cooperation and exchange at Hanban in China.

ESL Institute
cola.unh.edu/esl-institute

The ESL Institute at the University of New Hampshire has been involved in teaching international students English since 1976. The Institute provides high-quality instruction in English as a second language (ESL) and orientation in U.S. culture to international students who are non-native speakers of English. ESL courses are offered at the elementary level, the intermediate level, and the advanced level. Students at these levels receive intensive English instruction for four and a half hours per day, four days per week, in the areas of reading, writing, listening, and speaking, as well as pronunciation and contextualized grammar instruction. For students who have a TOEFL score of 60 or above (Internet-based) or 500 or above (institutional paper-based or ITP, administered by the ESL Institute), the ESL Institute provides "bridge" courses where students can simultaneously enroll in one to two UNH academic classes while continuing to study English intensively from four to ten hours per week. At these "bridge" levels, students have the opportunity to "try out" academic courses in a supportive environment. In addition to its focus on ESL instruction for international students, the Institute aspires to serve as a resource for international education to the faculty, staff, and students of UNH. For more information: cola.unh.edu/esl-institute

Museum of Art

cola.unh.edu/moa

The Museum of Art serves as the New Hampshire Seacoast’s premier public art museum and, for more than 50 years, has remained a vital resource for the visual arts, serving the University, local, and regional communities. Visitors and members gather to enjoy a wide variety of changing exhibitions, as well as annual exhibitions featuring UNH studio faculty and student work. Exhibitions of outdoor sculpture by regional artists are shown regularly in the Mills Courtyard. Accompanying programs include gallery talks, lectures, concerts, family programs, and special events. The museum's summer Art Camp provides K-12 students with quality hands-on visual arts and instruction.

The museum’s diverse permanent collection includes more than 1,800 works of art, from prehistoric to contemporary. The works are exhibited...
Located in the Paul Creative Arts Center, the museum is open to students, faculty, museum members, and the general public free of charge. For more information, call (603) 862-3712 or visit cola.unh.edu/moa (http://cola.unh.edu/moa).

http://cola.unh.edu

Africana and African American Studies (AFAM)

Africana and African American Studies Minor (p. 38)

Programs of Study

- Africana and African American Studies (AFAM) (p. 38)
- American Studies (AMST) (p. 39)
- Anthropology (ANTH) (p. 40)
- Art and Art History (ARTS) (p. 42)
- Asian Studies (p. 45)
- Chinese (CHIN) (p. 46)
- Cinema Studies (p. 47)
- Classics (CLAS) (p. 47)
- Cognates (p. 51)
- Communication (CMN) (p. 52)
- Education (EDUC) (p. 55)
- English (ENGL) (p. 59)
- French (FREN) (p. 66)
- Geography (GEOG) (p. 68)
- German (GERM) (p. 70)
- History (HIST) (p. 71)
- Humanities (HUMA) (p. 73)
- International Affairs (IA) (p. 74)
- Italian Studies (ITAL) (p. 79)
- Justice Studies (JUST) (p. 80)
- Latin American Studies (p. 83)
- Linguistics (LING) (p. 83)
- Middle Eastern Studies (p. 85)
- Music (MUSI, MUED) (p. 86)
- Neuroscience and Behavior (NSB) (p. 93)
- Philosophy (PHIL) (p. 94)
- Political Science (POLT) (p. 97)
- Psychology (PSYC) (p. 99)
- Queer Studies (p. 101)
- Race and Ethnic Studies (RES) (p. 102)
- Religious Studies (RS) (p. 103)
- Russian (RUSS) (p. 104)
- Security Studies (p. 105)
- Sociology (SOC) (p. 106)
- Spanish (SPAN) (p. 107)
- Theatre and Dance (THDA) (p. 108)
- Women's Studies (WS) (p. 116)

The Africana and African American studies minor provides students with an interdisciplinary approach to central issues in African, African Diaspora, Caribbean, and African American history, literature, and culture. The minor permits students to concentrate in one of these areas or to combine courses from among the many offerings to create a distinctive program.

The Africana and African American studies minor encompasses the multidisciplinary and comparative study of African history and culture, and the study of the African Diaspora throughout the world, from Europe to Asia as well as to North and South America. The program recognizes the global and transnational dimensions of contemporary African Diasporic experiences in the United States, the Caribbean, and Latin American nations. It thus offers a wide variety of courses that are taught across several disciplines in the University. Students are strongly encouraged to select courses reflecting the breadth of offerings in the minor across the University of New Hampshire’s undergraduate curriculum.

The program presents strong offerings in Africana studies because an understanding of Africa is central to the study of the African Diaspora. The program also features many courses in African American Studies because many aspects of African American history and culture have been central to the development of the United States, highlighting...
both the nation’s problems and its promise, and affecting virtually all areas of academic study through the years, from the humanities and social sciences to the physical sciences. Students are encouraged to take courses from a variety of departments and disciplines. The minor therefore is designed to serve the needs of all students, regardless of their ethnic or cultural background, complementing their work in their major fields of study while serving also as a focused corrective to traditionally marginalized approaches to Africana, African Diasporic, Caribbean, and African American experiences.

Africana and African American studies consists of five 4-credit courses, including one course from a list of introductory courses related to the student’s choice of concentration and four other approved offerings. Students must take at least one course at the 600 or 700 level. The required introductory course provides students with a general understanding of the broad and diverse spectrum of Africana and African American subjects. Electives enable students to develop their understanding in more focused courses (listed below) in various fields of study. There is an opportunity to earn credits toward the minor through a study abroad experience in Ghana in West Africa. (Contact the Center for the Humanities for details.) There is also an independent study option under the AFAM 795 Independent Study designation, which allows a student to work closely with a faculty member on a research project and/ or internship relevant to any aspect of Africana and African American Studies. Students must earn a C- or better in each course, and maintain a 2.0 grade-point average in courses taken for the minor. Electives may include special topics courses as approved by the program, a senior seminar, internship, or study abroad credits.

Students interested in minoring in Africana and African American studies should contact:

Funso Afolayan
funso.afolayan@unh.edu
408 Horton Hall
(603) 862-3026

Electives are approved for the minor and announced each semester on the Africana and African American studies website. Courses that are partly devoted to the concerns of Africana and African American studies may count for the minor, if the instructor will allow the student to focus a significant amount of coursework on this field of study. Approval by both the minor coordinator and the course instructor is required for such courses.

Pre-approved Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (Only topic B)</td>
<td>4</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Peoples and Cultures of the World (Only topic D)</td>
<td>4</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 500</td>
<td>People and Cultures of the World (Only topic A)</td>
<td>4</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>and Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American</td>
<td>4</td>
</tr>
<tr>
<td>Experience in the 20th Century</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 505</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 506</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 587</td>
<td>History of Africa from the Earliest Times to</td>
<td>4</td>
</tr>
<tr>
<td>1870</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 588</td>
<td>History of Africa: 1870 to the Present</td>
<td>4</td>
</tr>
<tr>
<td>HIST 589</td>
<td>Islam in Africa</td>
<td>4</td>
</tr>
<tr>
<td>HIST 600</td>
<td>Explorations (only topic Race, Gender, Science,</td>
<td>4</td>
</tr>
<tr>
<td>and African-American Experience)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 611</td>
<td>Civil War Era</td>
<td>4</td>
</tr>
<tr>
<td>HIST 625</td>
<td>Southern History and Literature since the Civil War</td>
<td>4</td>
</tr>
<tr>
<td>HIST #684</td>
<td>History of Southern Africa since 1652</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 460</td>
<td>Jazz Band</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Advanced Topics (only topic Psychology of Race)</td>
<td>4</td>
</tr>
<tr>
<td>SOC 745</td>
<td>Race, Ethnicity, and Inequality</td>
<td>4</td>
</tr>
<tr>
<td>WS 401</td>
<td>Introduction to Women’s Studies</td>
<td>4</td>
</tr>
<tr>
<td>WS 595</td>
<td>Special Topics</td>
<td>4</td>
</tr>
</tbody>
</table>

American Studies

American Studies Minor (p. 39)

American Studies Minor

http://cola.unh.edu/interdisciplinary-studies/program/as

American Studies

Description

American studies is the interdisciplinary examination of American life and culture at regional, national, and international scales. It integrates
perspectives from a wide variety of disciplines, including history, English, communications, political science, geography, sociology, and the arts.

At UNH, the American studies minor is an individualized program of study that allows each student to choose from a broad range of courses offered by several different departments that best match their interests and needs. It is intended to encourage students with particular interests in the United States to develop those interests and learn more about the country from a variety of perspectives.

Requirements

To earn a minor in American studies, students must complete five courses approved to satisfy minor requirements. At least one of those courses must concentrate on issues of race, gender, or ethnicity. No more than three courses may be at the 400 or 500 level, and no more than two courses may be taken in the same department. Students must earn a C-minus or better for a course to count toward minor requirements and must maintain a 2.0 grade point average in all courses taken for the minor.

Courses

A list of courses that can be used to satisfy minor requirements is posted on the program website in advance of the course registration period for each semester. The list of courses is different every semester and includes courses offered by multiple departments. Below is a partial list of approved courses taught in recent semesters (see the program website for complete lists):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMST 444B</td>
<td>New Orleans: Place, Meaning, and Context</td>
<td>4</td>
</tr>
<tr>
<td>AMST 444E</td>
<td>Fly Fishing and the American Experience</td>
<td>4</td>
</tr>
<tr>
<td>AMST 604</td>
<td>Landscape and American Culture</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 697</td>
<td>Special Topics</td>
<td>4</td>
</tr>
<tr>
<td>ARTS #693</td>
<td>American Art</td>
<td>4</td>
</tr>
<tr>
<td>CMN 505</td>
<td>Analysis of Popular Culture</td>
<td>4</td>
</tr>
<tr>
<td>CMN 607</td>
<td>Persuasion in American Politics</td>
<td>4</td>
</tr>
<tr>
<td>CMN 757</td>
<td>Public Address and the American Experience</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 717</td>
<td>Growing up Male in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 444G</td>
<td>Ethnic America: Readings in African American, Asian American, Native American and Latino/a Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 515</td>
<td>Survey of American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 738</td>
<td>Topics in Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 514</td>
<td>Geography of the United States and Canada</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 515</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>GEOG 610</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>HIST 405</td>
<td>History of Early America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 406</td>
<td>History of the Modern United States</td>
<td>4</td>
</tr>
<tr>
<td>HIST 410</td>
<td>Historic Survey of American Civilization</td>
<td>4</td>
</tr>
<tr>
<td>HIST 506</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 600</td>
<td>Explorations</td>
<td>4</td>
</tr>
<tr>
<td>HIST 603</td>
<td>European Conquest of North America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 611</td>
<td>Civil War Era</td>
<td>4</td>
</tr>
<tr>
<td>HIST 613</td>
<td>American Ways of War</td>
<td>4</td>
</tr>
<tr>
<td>HIST 618</td>
<td>American Environmental History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 620</td>
<td>History of American Thought</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 444A</td>
<td>Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic</td>
<td>4</td>
</tr>
<tr>
<td>KIN 561</td>
<td>History of American Sport and Physical Culture</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>Survey of Music in America</td>
<td>4</td>
</tr>
<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values</td>
<td>4</td>
</tr>
<tr>
<td>POLT 402</td>
<td>American Politics and Government</td>
<td>4</td>
</tr>
<tr>
<td>POLT 403</td>
<td>United States in World Affairs</td>
<td>4</td>
</tr>
<tr>
<td>POLT 500</td>
<td>American Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>POLT 508</td>
<td>Supreme Court and the Constitution</td>
<td>4</td>
</tr>
<tr>
<td>POLT 523</td>
<td>American Political Thought</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 775</td>
<td>Madness in America</td>
<td>4</td>
</tr>
<tr>
<td>RMP 511</td>
<td>Issues of Wilderness and Nature in American Society</td>
<td>4</td>
</tr>
<tr>
<td>THDA 450</td>
<td>History of Musical Theatre in America</td>
<td>4</td>
</tr>
<tr>
<td>WS 405</td>
<td>Gender, Power and Privilege</td>
<td>4</td>
</tr>
</tbody>
</table>

Anthropology (ANTH)

Anthropology is a field of visionaries, makers and collaborators, taking a critical, creative and holistic approach to the study of humankind. We teach hands-on courses in archaeology and socio-cultural, applied, biological and forensic anthropology, reflecting our faculty members’ research in the Americas, Europe, Africa, and Central and Southeast Asia. Through coursework, fieldwork and study-abroad experiences, you’ll gain life-long learning skills that prepare you for success in cross-cultural understanding and communication, working for diverse organizations and tackling complex social issues in today’s global world. Our students are employed in a range of areas such as public health, business, international development, museums and education.

http://cola.unh.edu/anthropology

Programs

- Anthropology Major (B.A.) (p. 40)
- Anthropology Minor (p. 41)

Faculty

http://cola.unh.edu/faculty/anthropology

Anthropology Major (B.A.)

http://cola.unh.edu/anthropology

Description

Anthropology asks the question: What does it mean to be human? We answer this fundamental query with a global perspective on the human condition as students explore both the similarity and diversity of human experience. Through courses that cover a wide range of societies throughout the world, we investigate the human condition, past and present. Introductory courses provide an overview of the...
fields of anthropology: social and cultural anthropology, archeology, physical anthropology, and linguistics. More advanced courses provide the opportunity for students to pursue intensive study of particular topics in cross-cultural perspective. The department emphasizes critical thinking and writing skills and encourages close faculty/student contact in seminar courses and at the upper level. Students, in consultation with their academic adviser, have the opportunity to take courses in other departments that complement specific foci in anthropology.

At this time of increasing globalization, anthropology provides students with a broad overview of diverse peoples and cultures. Majors are therefore well prepared to live in a rapidly changing world. The major both prepares students for graduate-level studies and serves as a foundation for a wide range of careers. With backgrounds in anthropology, our students become teachers, social workers, public policy experts, forensic investigators, health practitioners, primatologists, international business executives, and community and economic development specialists, as well as pursuing various other careers.

To declare a major in anthropology, students must have completed at least one introductory level anthropology course at the 400 or 500 level with a grade of C or better.

**Requirements**

Majors must complete a minimum of 40 credits in anthropology with grades of C or better and in accordance with the following requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 412</td>
<td>Broken Pots and Buried Cities: Adventures in Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 415</td>
<td>The Human Story: Evolution, Fossils and DNA</td>
<td></td>
</tr>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 501</td>
<td>World Archaeological Cultures</td>
<td></td>
</tr>
<tr>
<td>ANTH 511</td>
<td>Core Concepts in Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 513</td>
<td>Ethnographic Methods</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 514</td>
<td>Method and Theory in Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 611</td>
<td>History of Anthropological Theory</td>
<td>4</td>
</tr>
<tr>
<td>One additional course numbered 500 or above</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Three additional courses numbered 600 or above</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Complete capstone requirement</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>40</strong></td>
<td></td>
</tr>
</tbody>
</table>

(Note: While 8 credits, ANTH 699 Senior Thesis; ANTH 699H Honors Senior Thesis; and ANTH 675 Archaeol Field School Belize, count only as one ANTH 600-level course requirement.)

The Discovery Program capstone requirement may be fulfilled by completing one 700-level course (seminar format). Seminar courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 705</td>
<td>Topics in Mesoamerican Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 730</td>
<td>Anthropological Thinking on Education</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 740</td>
<td>Teaching Race</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 785</td>
<td>The Anthropology of Dreams and Dreaming</td>
<td>4</td>
</tr>
</tbody>
</table>

**ANTH 797  Advanced Topics**

Other courses, internships, or experiences may be substituted with the permission of the student's adviser and anthropology department chair.

The required minimum overall GPA in major coursework is 2.0.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement. American Sign Language may not be applied toward the foreign language requirement.

Honors-in-major and senior thesis options are available.

Students who declare a major in anthropology are expected to make steady progress toward fulfillment of major requirements. Normally, this means taking at least one anthropology course per semester until all of the requirements have been met. A student who has fulfilled most of the major requirements may request an exception to this policy from his or her adviser.

Students wishing to major in anthropology should consult with the anthropology chairperson (http://cola.unh.edu/faculty/anthropology).

**Anthropology Minor**

http://cola.unh.edu/anthropology

**Description**

Anthropology asks the question: What does it mean to be human? Anthropologists, as scholars, collaborators, public figures, and activists, take a critical, creative and holistic approach to the study of humankind. In our relatively small program in the College of Liberal Arts, students have the opportunity to take hands-on courses in archaeology and socio-cultural, applied, medical, biological and forensic anthropology, reflecting our faculty members' academic and applied research in the Americas, Europe, Africa, and Central and Southeast Asia.

Through coursework, fieldwork and study-abroad experiences, students gain life-long learning skills that prepare them for success in cross-cultural understanding and communication, as well as the ability to think comparatively about diversity and inequality on a local and global level.

A Minor in Anthropology provides many opportunities for cross-disciplinary collaboration, as students are encouraged to apply anthropological methods, perspectives, and theories to the world around them, and to their other areas of study. Upon graduation, our majors and minors work for a diverse set of organizations, and are employed in a range of areas such as public health, business, law, international development, non-profit organizations, museums, and education.

You do not need to declare a minor; however, it might be wise to meet with a faculty member from the Anthropology Department to discuss your minor plan.

At the beginning of your final semester of study, you should complete a certification of completion of minor form (http://www.unh.edu/registrar/forms/minorform.pdf), obtain the necessary signatures, and submit it to your Dean's Office.)
Contact
Department of Anthropology

Requirements
A minor consists of five 4-credit courses (20 credits) in Anthropology, at least one of which must be numbered above 600, with a C or better in each course.

Art and Art History (ARTS)
The courses offered by the Department of Art and Art History provide an opportunity, within the liberal arts framework, for students to acquire a thorough knowledge of the basic means of visual expression, to study intensively the history of art, or to prepare themselves for a career in art teaching. In addition, these courses offer foundation experience for students who are interested in art but are majoring in other departments in the University. The Department of Art and Art History offers programs leading to a bachelor of arts degree in the arts with options in studio art, studio art/art education, or art history and a bachelor of fine arts degree in studio art. Certification for art teaching in the public schools is offered in cooperation with the Department of Education (see Education, under Programs of Study).

The University reserves the right to retain selections from a student’s work for a period of not more than two years.

Double Option in The Arts
Students may earn a B.A. degree in the arts with both a studio art option and an art history option provided the requirements for each option are met. No more than 8 credits used for one option may be used for the second option. These 8 credits will be in Introductory Drawing and Introduction to Art History.

Minors in the Department of Art and Art History
Students must receive a minimum grade of C- in all required courses. For art majors, only two courses from the art and art history major requirements can be applied toward the minor.

A maximum of two courses (8 credits) may be transferred from another accredited institution, provided UNH has accepted them as transfer credits. Transfer courses must be a minimum of three credits. Students with transfer courses that are accepted with less than four semester credits must still meet the credit requirement for completion of the minor.

http://cola.unh.edu/art-and-art-history

Programs
- Fine Arts Major (B.F.A.) (p. 42)
- The Arts Major: Art History Option (B.A.) (p. 43)
- The Arts Major: Studio Art Option (B.A.) (p. 43)
- The Arts Major: Studio Art/Art Education Option (B.A.) (p. 44)
- Architectural Studies Minor (p. 44)
- Art History Minor (p. 44)
- Art Minor (p. 45)
- Studio Arts Minor (p. 45)

Faculty
http://cola.unh.edu/faculty/art-and-art-history

Fine Arts Major (B.F.A.)
http://cola.unh.edu/art-and-art-history

Description
Incoming first-year applicants wishing to enter the bachelor of fine arts (B.F.A.) degree program must first apply for, and be admitted to, the bachelor of arts (B.A.) in The Arts: Studio Art option. Students may submit a BFA portfolio after they begin their studies at UNH, as early as their first semester. Portfolio reviews for the BFA program are held each semester.

The B.F.A. curriculum provides advanced training for students who plan to enter professional graduate school or pursue careers as professional artists.

Requirements
Students selecting to work toward a B.F.A. degree must complete a minimum of 17 courses and 72 credits, with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>ARTS 480 or ARTS 574</th>
<th>Introduction to Art History</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 598</td>
<td>An Artist’s Life</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632 or ARTS 633</td>
<td>Intermediate Drawing or Life Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 798</td>
<td>Seminar/Senior Thesis</td>
<td>8</td>
</tr>
<tr>
<td>ARTS 501 or ARTS 525</td>
<td>Introductory Ceramics or Introductory Woodworking</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

| ARTS 551 | Introduction to Darkroom Photography | 4 |
| ARTS 552 | Introductory Digital Photography | 4 |
| ARTS 536 | Introduction Printmaking: Intaglio | 4 |
| ARTS 537 | Introduction to Printmaking: Lithography | 4 |

Select four courses in one of the major program areas of the department (two must be at the advanced 700-level or the third and fourth workshops of the same medium) 16

Select two additional art electives (studio or art history); 2D should take at least one 3D elective and 3D should take at least one 2D elective 8

Select two additional 600-level or above art history courses 8

Total Credits 72

The possible areas of concentration within the department are painting, sculpture, ceramics, drawing, printmaking, photography, and furniture
design. Proposals for individualized programs are accepted only by permission of the departmental chairperson, the major adviser, and the departmental bachelor of fine arts committee. Candidates applying for the bachelor of fine arts program are required to submit a portfolio to the B.F.A. committee, which meets each semester one week before preregistration.

The Discovery Program capstone requirement may be fulfilled by completing ARTS 798 Seminar/Senior Thesis.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

The Arts Major: Art History Option
(B.A.)
http://cola.unh.edu/art-and-art-history

**Description**

The art history curriculum provides a comprehensive, in-depth study of Western art from the ancient world to the present as well as some exposure to non-Western cultures and artistic traditions. All courses in the program teach basic skills of interpretation and critical analysis within the framework of broad cultural perspectives that connect the visual arts to larger historical developments. They also teach good writing and research skills. In addition, art history majors typically branch out into other fields, such as history, literature, and foreign languages. By the time they graduate, most majors are well equipped to pursue such traditional careers in the field as museum and gallery work, teaching, publishing, or librarianship. But because art historical education is so broad, it also prepares students for a variety of other, more flexible options, such as law, business, or architecture.

**Requirements**

Students must complete a minimum of 10 courses (40 credits). The following courses are required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 795</td>
<td>Art Historians and Their Styles</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 799</td>
<td>Seminar in Art History</td>
<td>4</td>
</tr>
<tr>
<td>Select six 600- or 700-level art history courses:</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Select one each from Pre-Renaissance, Renaissance/Baroque, and Modern areas</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Select three in any area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 40

These courses must be completed with a minimum grade of C-. Art history students receive preferential placement in ARTS 532 Introductory Drawing. Students contemplating graduate school should learn German, and, if possible, either French, Italian, or another language relevant to their areas of interest.

The Discovery Program capstone requirement may be fulfilled by completing ARTS 795 Art Historians and Their Styles.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

The Arts Major: Studio Art Option
(B.A.)
http://cola.unh.edu/art-and-art-history

**Description**

The B.A. in Art - Studio Art option provides a strong fine arts education and solid foundation that prepares students for a life in the arts, whether it be as a professional or commercial artist, a teacher, an architect, a designer, or a museum director. We offer courses in painting, drawing, photography (both digital and wet lab techniques), printmaking, sculpture (all media: steel, aluminum, bronze casting, clay, and wood), furniture design and fabrication, and ceramics. A degree in Studio Art provides a foundation for diverse professional achievement.

The Department does not offer any courses in commercial arts (advertising, illustration, computer-generated art, etc.), but it does provide a strong fine arts background for those wishing to enter the commercial art field.

**Requirements**

Students selecting to work toward a bachelor of arts degree in studio art must complete a minimum of 14 courses (56 credits), with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 574</td>
<td>Introduction to Architectural History</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632</td>
<td>Intermediate Drawing</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 633</td>
<td>Life Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 501</td>
<td>Introductory Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 525</td>
<td>Introductory Woodworking</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARTS 536</td>
<td>Introduction Printmaking: Intaglio</td>
<td></td>
</tr>
<tr>
<td>ARTS 537</td>
<td>Introduction to Printmaking: Lithography</td>
<td></td>
</tr>
<tr>
<td>ARTS 551</td>
<td>Introduction to Darkroom Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td></td>
</tr>
</tbody>
</table>
Select three additional courses in a studio concentration at 600 level or above (one must be an advanced 700-level course or the third workshop of the same medium)  
12
Select two additional studio electives (ARTS 598, may be used)  
8
Select two 600-level or above art history courses  
8
Total Credits  
56

While these courses represent the minimum departmental requirements for the studio art option, students may wish to plan a program involving greater depth in one or several of the studio areas.

The Discovery Program capstone requirement may be fulfilled by completing a 600 level or above course in the studio concentration. The student will work with the course's instructor to complete a mutually agreed upon capstone project associated with the course's medium.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

### The Arts Major: Studio Art/Art Education Option (B.A.)

http://cola.unh.edu/art-and-art-history

#### Description

The program in art education is organized into a five-year, teacher-education sequence. This curriculum is designed to prepare teachers of art in the public schools. The satisfactory completion of the B.A. studio art curriculum for art education students and required education courses, in conjunction with the fifth-year internship, will satisfy the initial certification requirements for teachers of art in the public schools of New Hampshire and in most other states. These requirements may change by the time students apply for certification and the students are required to fulfill the then-current requirements. Art education students may take accredited crafts courses at other institutions as art electives.

#### Requirements

Students selecting to work toward a bachelor of arts degree in studio art/ art education must complete a minimum of 14 courses (56 credits), with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 574</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>ARTS 501</td>
<td>Introductory Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632</td>
<td>Intermediate Drawing</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:  
4
- ARTS 525  Introductory Woodworking
- ARTS 536  Introduction Printmaking: Intaglio
- ARTS 537  Introduction to Printmaking: Lithography

Select three additional courses in a studio concentration at the 600 level or above (one must be an advanced 700-level course or third workshop of the same medium)  
12
Select one additional studio or art history elective  
4
Select two 600-level art history courses; if ARTS 574 is not taken, at least one 600-level must have depth of content that addresses 20th-21st century art  
8
Total Credits  
56

The following three courses are also required for certification:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 791</td>
<td>Art Education (Elementary)</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 792</td>
<td>Art Education (Secondary)</td>
<td>4</td>
</tr>
</tbody>
</table>
Total Credits  
12

The Discovery Program capstone requirement may be fulfilled by completing a 600-level or above course in the studio concentration. The student will work with the course's instructor to complete a mutually agreed upon capstone project associated with the course's medium.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

### Architectural Studies Minor

http://cola.unh.edu/interdisciplinary-studies/program/architectural-studies-minor

#### Description

The minor in architectural studies provides students with an interdisciplinary introduction to the history, theory, and methods of architecture and its symbolism. The program allows students who are interested in this field to receive programmatic recognition of their work. It is designed to assist those who are contemplating enrollment at a school of architecture; are particularly interested in architectural history; want to supplement their technical majors (e.g., civil engineering) with strong academic minors; or plan to pursue careers in preservation, education, community service, and public relations.

For more information, contact the minor coordinators: Ivo van der Graaff, ivo.vandergraaff@unh.edu, art and art history, or Raymond Cook, ray.cook@unh.edu, civil engineering.
### Requirements

Five courses (18-20 credits), which consist of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 574</td>
<td>Introduction to Architectural History</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Select one of the following:</strong></td>
<td>4</td>
</tr>
<tr>
<td>ARTS 455</td>
<td>Architectural Design Studio</td>
<td></td>
</tr>
<tr>
<td>ARTS 525</td>
<td>Introductory Woodworking</td>
<td></td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Select two electives from the list below chosen in consultation with the minor coordinators:</strong></td>
<td>6-8</td>
</tr>
<tr>
<td>ARTS 596</td>
<td>Special Topics in Studio Art (Intro Graphic Design)</td>
<td></td>
</tr>
<tr>
<td>ARTS 600</td>
<td>Internship (only topic C - Architecture)</td>
<td></td>
</tr>
<tr>
<td>ARTS 625</td>
<td>Wood/Furniture Design Workshop</td>
<td></td>
</tr>
<tr>
<td>ARTS 654</td>
<td>17th and 18th Century American Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTS 655</td>
<td>Nineteenth-Century Architecture: The Architecture of Empire</td>
<td></td>
</tr>
<tr>
<td>ARTS 656</td>
<td>Twentieth-Century Architecture: Modern and Contemporary</td>
<td></td>
</tr>
<tr>
<td>ARTS 674</td>
<td>Greek Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTS 675</td>
<td>Roman Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTS 678</td>
<td>Romanesque and Gothic Art</td>
<td></td>
</tr>
<tr>
<td>ARTS 796</td>
<td>Independent Study in the Visual Arts (only topic G Architectural Design)</td>
<td></td>
</tr>
<tr>
<td>CEE 444</td>
<td>Housing - Everyone Needs a Place to Live</td>
<td></td>
</tr>
<tr>
<td>CEE 780</td>
<td>Matrix Structural Analysis and Modeling</td>
<td></td>
</tr>
<tr>
<td>CEE 795</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>CEE 796</td>
<td>Special Topics (Green Building Design or Residential Construction topics only)</td>
<td></td>
</tr>
<tr>
<td>CLAS 510</td>
<td>Building Rome (A J-term course)</td>
<td></td>
</tr>
<tr>
<td>TECH 564</td>
<td>Fundamentals of CAD (Computer Aided Design)</td>
<td></td>
</tr>
</tbody>
</table>

#### Total Credits

18-20

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### Art History Minor

**http://cola.unh.edu/art-and-art-history**

#### Description

The art history minor offers those majoring in other fields (including studio art) the chance to gain a serious knowledge of aspects of the history and meanings of Western art from antiquity to the modern world. Particularly for those working in history and the humanities, a minor in art history will provide new interdisciplinary perspectives on their major fields.

#### Requirements

The minor consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 574</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
</tbody>
</table>

#### Select four additional art history courses at the 600 level or above | 16

#### Total Credits

20

---

### Studio Arts Minor

**http://cola.unh.edu/art-and-art-history**

#### Description

The studio arts minor is for students who are interested in continuing on to the intermediate and advanced levels in a variety of mediums.

#### Requirements

The minor in studio arts consists of five courses (20 credits) with a distribution that includes

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two studio courses from the 600 level or above | 8

Select two additional studio courses chosen from the offerings of the department | 8

#### Total Credits

20

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### Asian Studies

**Programs**

- Asian Studies Minor (p. 45)

#### Asian Studies Minor

**http://cola.unh.edu/interdisciplinary-studies/program/asian-studies**

#### Description

The aim of the interdisciplinary Asian studies minor program is to foster teaching and learning as well as research in all areas of Asia. The minor offers opportunities to develop proficiency in Asian languages and to study the histories, politics, literatures, cultures and religions of East Asia (China, Japan, Korea and others) and South Asia (India, Pakistan, Sri
Courses offered provide students the chance to explore a wide range of contemporary subjects such as foreign policy, language use, education, environment, the Asian-American experience, ethnic and religious conflict, literary and cultural production, and cross-border movements of industry and ideas.

For further information, please contact Sandhya Shetty, Associate Professor of English, sandhya.shetty@unh.edu, (603) 862-0258.

Requirements

To complete the minor in Asian Studies, students are required to take five courses (20 credits) or their equivalent, and no more than three can be counted from any one of the following disciplines:

- Anthropology (ANTH)
- Asian American or South Asian Literature (ENGL)
- Geography (GEOG)
- History (HIST)
- Languages, Literatures, and Cultures (either CHIN or JPN)
- Philosophy (PHIL)
- Political Science (POLT)

The following are a list of courses that count toward the minor. Please note additional courses may also count. Visit the program website for the most up-to-date information.

ANTH 500 Peoples and Cultures of the World (only topic D) Asia 4
ANTH 501 World Archaeological Cultures (only topic F) Asia 4
ARTS 697 Topics in Asian Art 4
CHIN 400 Conversational Chinese 4
CHIN 401 Elementary Chinese I 4
CHIN 402 Elementary Chinese II 4
CHIN 425 Introduction to Chinese Culture 4
CHIN 503 Intermediate Chinese I 4
CHIN 504 Intermediate Chinese II 4
CHIN 521 Chinese Literature in Translation 4
CHIN 632 Advanced Chinese Conversation and Composition II 4
CHIN 795 Independent Study 1-4
ENGL 581 Introduction to Postcolonial Literatures in English 4
ENGL 616C Studies in Film/Culture and Ideology 4
ENGL 738 Topics in Asian American Studies 4
ENGL 750 Special Studies in American Literature 4
ENGL 777 Postcolonial Novel 4
HDFS 444 We Don't All Play the Violin: Stories and Stereotypes of Asians in America 4
HDFS 773 International Perspectives on Children and Families 4
GEOG 530 Geography of China 4
HIST 425 Foreign Cultures 4
HIST 444G Voices from Modern China 4
HIST 579 History of China in Modern Times 4
HIST 580 History of Japan in Modern Times 4
HIST 681 Society and Culture in 20th-Century China 4
HIST 797 Colloquium (American Century in Asia) 4
HIST 797 Colloquium (Chinese-Western Encounters) 4
JPN 401 Elementary Japanese I 4
JPN 402 Elementary Japanese II 4
JPN 425 Introduction to Japanese Culture and Civilization 4
JPN 503 Intermediate Japanese I 4
JPN 504 Intermediate Japanese II 4
JPN 631 Advanced Japanese I 4
JPN 795 Independent Study 1-4
JPN 796 Independent Study 1-4
PHIL 520 Introduction to Eastern Philosophy 4
POLT 403H Honors/United States in World Affairs 4
POLT 545 People and Politics in Asia 4
POLT 546 Wealth and Politics in Asia 4
POLT 556 Politics in China 4
POLT 566 Asian Challenge to Global Order 4
POLT 569 The Rise of China 4
POLT 797E Seminar in International Politics (US/China Decision Making) 4

Chinese (CHIN)

Programs

- Chinese Minor (p. 46)

Chinese Minor

http://cola.unh.edu/llc

Description

The minor in Chinese language provides students with linguistic skills and cross-cultural competence that will complement their studies, no matter their major. The minor prepares students for future academic or professional opportunities in which proficiency in Chinese is required or preferred.

Students who have studied Chinese at UNH have gone on to use Chinese in a variety of paths. One example is Teach in China, a program offered through the Council of International Education Exchange. New Hampshire has extensive business ties with China, which is ranked third among New Hampshire's top export partners.

Contact Avary Thorne, avary.thorne@unh.edu, (603) 862-4005.

Requirements

20 credits which consist of the following:

CHIN 503 Intermediate Chinese I 4
CHIN 504 Intermediate Chinese II 4
CHIN 631 Advanced Chinese Conversation and Composition I 4
CHIN 632 Advanced Chinese Conversation and Composition II 4
Cinema Studies Minor

http://cola.unh.edu/interdisciplinary-studies/program/cinema-studies-minor

Description

The minor in cinema studies offers a variety of opportunities to study a predominant contemporary form of narrative, aesthetic, and social discourse: the moving image. Film is the primary medium of study for the minor, but the cinematic practices of video and television also may be included as potential areas of interest. Courses consist of interdisciplinary approaches to the analysis of cinema, covering works from the early cinema to the present, from the U.S. and other nations. Students learn the aesthetics, history, technology, economics, and theory of cinema, while also acquiring the language for analyzing its forms and practices. The minor allows for organized and meaningful study of the moving image from a wide range of scholarly interests and approaches that complement the increasingly significant place of cinema in many major disciplines and other programs. Students enrolled in the cinema studies minor will become articulate and critical spectators in the larger cultural contexts of film and media studies.

Cinema studies students are required to take five courses. Students must earn at least a C- in each course and maintain a 2.0 grade-point average in courses taken for the minor. "Double counting" of minor course credits with major course credits will be left to the discretion of existing major departments, with the exception that no more than eight credits, if approved, will "double count."

Interested students should contact the cinema minor coordinator, Matt Konzett, Department of English, matt.konzett@unh.edu, (603) 862-0261.

Requirements

Introductory Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 533</td>
<td>Introduction to Film Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

History and Theory of Film

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLC 540</td>
<td>Film History</td>
<td>4</td>
</tr>
<tr>
<td>or ENGL 618</td>
<td>Film Theory</td>
<td></td>
</tr>
</tbody>
</table>

Advanced and/or Focused Courses

Select two of the following: 8 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 650</td>
<td>Critical Perspectives on Film</td>
</tr>
<tr>
<td>ENGL 616A</td>
<td>Studies in Film/Genre</td>
</tr>
<tr>
<td>ENGL 616B</td>
<td>Studies in Film/Authorship</td>
</tr>
</tbody>
</table>

Elective Courses

Select one elective course 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 616C</td>
<td>Studies in Film/Culture and Ideology</td>
<td></td>
</tr>
<tr>
<td>ENGL 616D</td>
<td>Studies in Film/Narrative and Style</td>
<td></td>
</tr>
<tr>
<td>ENGL 733</td>
<td>Special Studies in Film</td>
<td></td>
</tr>
<tr>
<td>GERM 524</td>
<td>German Cinema</td>
<td></td>
</tr>
<tr>
<td>ITAL 525</td>
<td>Italian Cinema</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1 Electives are drawn from an approved list of courses for the minor, which is compiled and announced every semester. Students also may choose from the advanced and/or focused courses. Elective courses have a significant cinema studies component and may have another disciplinary focus as well. Contributing departments and/or programs include: American studies, anthropology, arts, communication, English, French, geography, German, history, humanities, Italian, music, philosophy, political science, psychology, Russian, sociology, Spanish, theatre and dance, and women’s studies. Students should check with the cinema minor coordinator each semester for approval of the elective.

Classics (CLAS)

Classics encompasses the interdisciplinary study of the Greeks and Romans, as well as the ways in which the ancient world’s influence extends to the Medieval Period, the Renaissance, and the modern world. Studying classics, therefore, is to investigate several thousand years of material through the study of languages, literature, history, politics, law, archaeology, art, mythology and folklore, gender and sexuality, religious studies, philosophy and more—all with methods derived from a variety of humanistic and social science perspectives. This breadth provides an excellent liberal arts education that prepares students for a variety of careers, as well as for further study. Classics majors from UNH have gone on to law school, medical school, and graduate school in classics and many related disciplines and have taken up careers in teaching, government service, the military, and business.

Classics majors have many opportunities at UNH to pursue their own interests in the ancient world while completing their requirements. Along with Greek and Latin, the Classics program offers Hittite and Sanskrit, the ancient languages of Anatolia and India. Students are encouraged to take courses offered outside the department that relate to the field of classics, such as those in ancient history, archaeology, ancient philosophy, classical art, modern languages, linguistics, and English literature. Some of these courses can even count for major requirements; a current list of approved courses is available from any departmental adviser. Study abroad is another way that many majors broaden their studies. Students have frequently spent semesters at many study abroad sites, including the Intercollegiate Center for the Classical Studies in Rome. (UNH is part of the consortium of Universities that supports this program.) The Department of Classics, Humanities, and Italian Studies regularly runs its own popular January Term course in Rome and manages study abroad programs in Ascoli Piceno, Italy; and Budapest, Hungary, that may be appropriate for classics majors, depending on their interests.

The program offers three different options for the classics major. In brief, the differences are:

• The Classical Languages and Literatures (CLL) option allows for the most in-depth study of the ancient languages and requires knowledge of both Ancient Greek and Latin. It thus provides the
strongest preparation for students considering graduate study in classics or related areas, and can also be an appropriate choice (with careful planning) for those thinking about teaching Latin in secondary schools. At the same time, it is designed for any student who desires a solid liberal arts education.

- The Ancient Mediterranean Civilizations (AMC) option balances language study with the opportunity for students to select from a wide range of courses covering many aspects of the Greek and Roman worlds, as well as the neighboring peoples in Europe, North Africa, and the Near East. The flexibility of this option makes it especially attractive for students who wish to double major in another subject. It is generally not suitable, however, for those who wish to pursue related graduate study or a career in teaching Latin. AMC majors can, however, supplement the requirements with additional coursework to keep these options open.

- The Latin and Latin Teaching (LLT) option is designed to provide a good foundational liberal arts education centered on Latin and the Roman world, but it also includes specific elements that make it particularly appropriate for students who are considering careers teaching Latin in secondary schools after graduation. This option does not lead directly to state certification, which can be pursued during a fifth year of study in the Department of Education.

http://cola.unh.edu/chi

Programs

- Classics Major: Ancient Mediterranean Civilizations Option (B.A.) (p. 48)
- Classics Major: Classical Languages & Literatures Option (B.A.) (p. 48)
- Classics Major: Latin & Latin Teaching Option (B.A.) (p. 49)
- Classics Minor (p. 50)
- Greek Minor (p. 50)
- Latin Minor (p. 50)

Faculty

http://cola.unh.edu/chi/program/classics-ba/faculty

Classics Major: Ancient Mediterranean Civilizations Option (B.A.)

http://cola.unh.edu/chi

Description

The Ancient Mediterranean Civilizations (AMC) option balances language study with the opportunity for students to select from a wide range of courses covering many aspects of the Greek and Roman worlds, as well as the neighboring peoples in Europe, North Africa, and the Near East. The flexibility of this option makes it especially attractive for students who wish to double major in another subject. It is generally not suitable, however, for those who wish to pursue related graduate study or a career in teaching Latin. AMC majors can, however, supplement the requirements with additional coursework to keep these options open.

Requirements

To complete the AMC option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

Language Proficiency
Demonstrate proficiency by taking at least 8 credits in GREK or LATN at the 503 level or above

Other Courses
Select at least 32 additional credits in CLAS, GREK, or LATN courses, including:

- CLAS 405 Introduction to Greek Civilization
- CLAS 406 Introduction to Roman Civilization
- At least 8 credits from courses at the 600 level or above

Capstone Experience
Select an approved capstone experience of the following:
- Senior thesis
- Honors thesis
- CLAS capstone course approved by the advisor at the 600 or 700 level
- At least 4 credits in 700-level LATN or GREK courses
- Approved internship
- Approved semester study abroad focused on the classical world

Total Credits
40

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses for the Classics AMC option may not be used to satisfy Discovery category requirements except in the case of a second major.

The required minimum overall GPA in major coursework is 2.0.

Classics Major: Classical Languages & Literatures Option (B.A.)

http://cola.unh.edu/chi

Description

The Classical Languages and Literatures (CLL) option allows for the most in-depth study of the ancient languages and requires knowledge of both Ancient Greek and Latin. It thus provides the strongest preparation
for students considering graduate study in classics or related areas, and can also be an appropriate choice (with careful planning) for those thinking about teaching Latin in secondary schools. At the same time, it is designed for any student who desires a solid liberal arts education.

### Requirements

To complete the CLL option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language Courses</strong></td>
<td>12-24</td>
</tr>
<tr>
<td>Select at least one class at the 700 level in the primary language (GREK or LATN)</td>
<td></td>
</tr>
<tr>
<td>Select at least one class at the 504 level or above in the secondary language (LATN or GREK)</td>
<td></td>
</tr>
<tr>
<td><strong>Non-Language Courses</strong></td>
<td>16-28</td>
</tr>
<tr>
<td>Select at least 16 credits in CLAS courses. As many as 28 credits may be counted toward this option.</td>
<td></td>
</tr>
<tr>
<td><strong>Capstone</strong></td>
<td></td>
</tr>
<tr>
<td>Select an approved capstone experience of the following:</td>
<td></td>
</tr>
<tr>
<td>Senior thesis</td>
<td></td>
</tr>
<tr>
<td>Honors thesis</td>
<td></td>
</tr>
<tr>
<td>CLAS capstone course at the 600 or 700 level</td>
<td></td>
</tr>
<tr>
<td>At least 8 credits in 700-level LATN or GREK courses</td>
<td></td>
</tr>
<tr>
<td>Approved internship</td>
<td></td>
</tr>
<tr>
<td>Approved semester study abroad focused on the classical world</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

1. No credits from language courses at the 400 level may be counted toward this option.
2. Students may count as many as 24 toward the CLL major option.
3. No more than 4 credits may come from courses at the 400 level. There are also courses taught outside of the program that are approved substitutes for CLAS courses, and the department will accept up to 8 credits from such courses. An up-to-date list of these courses is available from departmental advisers and additional exceptions are allowed with the written approval of the adviser.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Classics majors pursuing the CLL option may satisfy their World Culture Discovery requirement with intermediate GREK or LATN courses, but, otherwise, major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

The required minimum overall GPA in major coursework is 2.0.

### Description

The Latin and Latin Teaching (LLT) option is designed to provide a good foundational liberal arts education centered on Latin and the Roman world, but it also includes specific elements that make it particularly appropriate for students who are considering careers teaching Latin in secondary schools after graduation. This option does not lead directly to state certification, which can be pursued during a fifth year of study in the Department of Education.

### Requirements

To complete the LLT option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Latin Language Courses</strong></td>
<td>20-24</td>
</tr>
<tr>
<td>Select at least 20 credits of LATN courses at the 504 level or above</td>
<td></td>
</tr>
<tr>
<td><strong>Other Courses</strong></td>
<td>4-8</td>
</tr>
<tr>
<td>CLAS 401 Classical Mythology</td>
<td>4</td>
</tr>
<tr>
<td>CLAS 406 Introduction to Roman Civilization</td>
<td>4</td>
</tr>
<tr>
<td>Select 4-8 credits of electives</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>CLAS 601 Classical Myth II: The Power and Persistence of Myth</td>
<td></td>
</tr>
<tr>
<td>CLAS 604 Golden Age of Rome</td>
<td></td>
</tr>
<tr>
<td><strong>Capstone Experience</strong></td>
<td></td>
</tr>
<tr>
<td>Select an approved capstone experience of the following:</td>
<td></td>
</tr>
<tr>
<td>Senior thesis</td>
<td></td>
</tr>
<tr>
<td>Honors thesis</td>
<td></td>
</tr>
<tr>
<td>CLAS capstone course at the 600 or 700 level</td>
<td></td>
</tr>
<tr>
<td>At least 12 credits in 700-level LATN courses</td>
<td></td>
</tr>
<tr>
<td>Approved external internship</td>
<td></td>
</tr>
<tr>
<td>CLAS 694 Supervised Practicum (4-credit internal Latin teaching internship)</td>
<td></td>
</tr>
<tr>
<td><strong>Approved semester study abroad focused on the classical world</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>36-44</td>
</tr>
</tbody>
</table>

1. At least 4 credits must come from LATN 631 Latin Prose Composition and at least 4 credits must come at the 700 level.
2. An up-to-date list of these courses is always available from department advisers, and these advisers can also approve exceptions in writing. (At present, the following CLAS courses do not count: CLAS 402 Hellenic and Roman Institutions, CLAS 405 Introduction to Greek Civilization, CLAS 411 Elementary Hittite I–CLAS 412 Elementary Hittite II–CLAS 413, CLAS #414 Elementary Sanskrit II, CLAS 506 Introduction to Comparative and Historical Linguistics, CLAS 525 Greek and Latin Origins of Medical Terms, CLAS 595 Topics/CLAS 596 Topics, CLAS 694 Supervised Practicum.) Besides CLAS 401 Classical Mythology and CLAS 406 Introduction to Roman Civilization, no other 400-level courses may count. No Greek language courses are required for the LLT option, but students are encouraged to complete at least the introductory sequence (401–402).

There are also courses taught outside of the program that are approved substitutes for CLAS courses, and the department will accept up to 8 credits from such courses. An up-to-date list of these courses is available.
from departmental advisers and additional exceptions are allowed with the written approval of the adviser.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses for the Classics LLT option may not be used to satisfy Discovery category requirements except in the case of a second major.

The required minimum overall GPA in major coursework is 2.0.

Please note that the LLT option does not by itself meet New Hampshire state certification requirements. Those who intend to pursue this certification should enroll in EDUC 500 Exploring Teaching as early as possible and then apply early in the fall of their year of graduation for a fifth year of internship and study through UNH's Department of Education. Students are also encouraged strongly to consider taking some EDUC electives during their period of undergraduate study.

Classics Minor
http://cola.unh.edu/chi

Description
The coordinator is Scott Smith, Murkland Hall; Department of Classics, Humanities, and Italian Studies; (603) 862-2388; e-mail scott.smith@unh.edu.

Requirements
A minor in classics consists of five courses (20 credits) in classics, Greek, and/or Latin.

Greek Minor
http://cola.unh.edu/chi

Description
The coordinator is Scott Smith; Murkland Hall; Classics, Humanities, and Italian Studies; (603) 862-2388; e-mail scott.smith@unh.edu.

Requirements
A minor in Greek consists of five courses (20 credits) in Greek.

Latin Minor
http://cola.unh.edu/chi

Description
The coordinator is Scott Smith, Murkland Hall, Department of Classics, Humanities, and Italian Studies; (603) 862-2388; e-mail scott.smith@unh.edu.

Requirements
A minor in Latin consists of five courses (20 credits) in Latin.

Classics, Humanities, and Italian Studies (CHI)

The Department of Classics, Humanities, and Italian Studies (CHI) unites three interdisciplinary programs and leverages the knowledge, research, and teaching of additional faculty from around the College of Liberal Arts to provide a uniquely comprehensive curriculum in the humanities. Courses allow students to explore fundamental questions of human life and discover how these have been answered by thinkers, artists, and writers from the ancient world to the present day. The classics and Italian studies programs concentrate on the Mediterranean world and its cultures, while the humanities program broadens the focus with critical inquiry into not only the reception of ancient Greek and Roman civilizations but also the ways in which comparative studies across time, space, and cultures can illuminate the human condition. The programs offer an explicitly comparative and interdisciplinary training that nourishes expertise across arts, cultures, geographies, and languages, and develops cultural fluency and critical thinking skills that form the basis for lifelong learning.

The faculty of CHI is committed to combining these theoretical considerations with practical concerns in order to help the University’s students become productive, responsible, and involved citizens and leaders of their communities, businesses, and political institutions. Students thus gain both fundamental disciplinary knowledge, such as competency in a foreign language, and also explore perspectives that allow them to appreciate and critique the values, ideals, and intellectual and artistic accomplishments of individuals and societies both present and past.

For those students who wish to study abroad, the department is also home to two programs in Italy and one in Hungary. Students of any major can take part in a year-round program in Ascoli Piceno (UNH-in-Italy), the January-term program in Rome (UNH-in-Rome), or a spring semester program in Budapest (Humanities Spring Budapest Program).

The Department offers three different undergraduate majors (classics, humanities, and Italian studies) and five minors (classics, Latin, Greek, humanities, and Italian studies). The curriculum includes a variety of courses in English in interdisciplinary humanities, classical civilization, and Italian studies and also provides extensive language coursework in Ancient and Modern Greek, Italian, and Latin, as well as additional offerings in Hittite and Sanskrit.

http://cola.unh.edu/chi

Programs

• Classics (CLAS) (p. 47)
• Humanities (HUMA) (p. 73)
Digital Writing and Literature Cognate

Description

Many jobs nowadays require not only solid reading and writing skills; but also the ability to deploy and adapt these skills in a variety of electronic, professional, public and semi-public platforms. This cognate builds students’ ability to comprehend and interpret difficult texts (including complex instructions); to edit, proofread and frame their work for different audiences and contexts; and to navigate rudimentary markup (code) and varied electronic interfaces with confidence and independence.

In consultation with a program advisor, students may choose to pursue a “track”: e.g., courses like ENGL 623 and ENGL 712 may serve as a “creative” track for students interested in honing their digital storytelling and audio skills; while ENGL 693 and ENGL 739 may offer students a way in to cultural heritage management or nonprofit careers. Alternatively, students already focused on a particular course of study (e.g., journalism) may wish to learn how digital tools work in parallel fields (thus taking ENGL 631 to enhance their digital reporting skills while also taking ENGL 739 to learn how to edit Wikipedia).

Contact the English Department with questions at (603) 862-1313.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
</tr>
<tr>
<td>ENGL 620</td>
<td>English Major Internship (Digital Archiving and Editing)</td>
</tr>
<tr>
<td>ENGL 623</td>
<td>Creative Nonfiction (see advisor for help in identifying appropriate section)</td>
</tr>
<tr>
<td>ENGL 631</td>
<td>Introduction to Digital Reporting</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature (Topic N, Introduction to Digital Humanities)</td>
</tr>
<tr>
<td>ENGL 712</td>
<td>Multimedia Storytelling</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
</tr>
</tbody>
</table>

Total Credits: 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

Intercultural Communication for the Professional World Cognate

Description

This cognate is designed to provide students with the means to develop a global perspective, intermediate communication skills, and an understanding of the dynamics of intercultural communication. Research has linked study abroad experience with students’ future employability, and “intercultural/global competence” in particular is a skill valued by employers in a wide range of fields. This cognate provides students a means to attain these valuable, marketable skills, as well as a means to demonstrate this to potential employers.

Contact the Department of Languages, Literatures and Cultures with questions at (603) 862-3121.

Requirements

Professional Culture

Choose one of the following: 4

- LLC 535A Professional Culture in European Union - Case Study: Germany
- LLC 535B Professional Culture in Latin America - Case Study: Mexico and Brazil
- LLC 535C Professional Culture in Asia - Case Study: China

Language Skills

Choose any modern language course numbered 503 or above (503, 631, 632) consistent with the region covered in the professional culture course above and the study abroad experience below 4

Study Abroad Experience

Choose any program in country for 5 weeks or longer that involves coursework in the target or host language/language other than English 2

Total Credits: 12

1 Taught in English, fulfills WC Discovery, no prior knowledge assumed
2 Students can petition for an alternate experience, such as The Washington Center Program, as long as the internship placement involves foreign language use. Preferably, this will relate to the same region covered in the professional culture course and the language skills course, but that is not required.

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.
Skills and Perspectives for the Digital World Cognate

http://cola.unh.edu/interdisciplinary-studies/program/skills-and-perspectives-digital-world-cognate

Description

Engage with and reflect on the technology associated with the digital world. This cognate provides a foundation for the development of technical and critical skills aligned with one of the 21st century's defining areas: information technology. A recent statement by General Electric's CEO asserts that if you join the company today, as opposed to 20 years ago, you're going to learn to code even though you may be in sales, finance or operations. This cognate gives students and future employees a fundamental introduction into technologies that are necessary for high functioning in today's world, both in the workplace and beyond.

Contact the College of Liberal Arts Dean’s Office, (603) 862-2062, or the Computer Science Department, (603) 862-3778, with questions.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming with Visual Basic</td>
<td>4</td>
</tr>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td></td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ANTH 508</td>
<td>Anthropology of Internet</td>
<td></td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td></td>
</tr>
<tr>
<td>CS 408</td>
<td>Living in a Networked World: The Good, the Bad, and the Ugly</td>
<td></td>
</tr>
<tr>
<td>ENGL 415E</td>
<td>Literature and Cyberculture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

Technical Writing and Public Speaking Cognate

http://cola.unh.edu/interdisciplinary-studies/twps-cognate

Description

The cognate in technical writing and public speaking (TWPS) offers students intensive instruction in oral and written communication as important means of addressing technical, professional, or practical problems whose solutions require others' cooperation. Students learn practical precepts for analyzing those “communication situations” and for making informed, strategic decisions when composing oral and written responses in response to them. Students also undergo extensive practice creating standard and, thus, widely applicable forms of spoken and written communication. All students acquire a foundation in effective expression by taking introductory courses in public speaking and in professional and technical writing. Students then build upon that foundation and complete the cognate with one advanced course in either public speaking or professional and technical writing. This cognate is attractive to students who recognize that effective expression is valued in nearly any field of endeavor they are likely to pursue in their post-graduate lives.

Please contact the Liberal Arts Dean’s Office for additional information, (603) 862-2062, 110 Murkland Hall.

Requirements

<table>
<thead>
<tr>
<th>Introductory Courses</th>
<th>Advanced Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 500 Public Speaking</td>
<td>Choose one of the following:</td>
</tr>
<tr>
<td>ENGL 502 Professional and Technical Writing</td>
<td>CMN 600 Public Speaking as a Civic Art or ENGL 602 Advanced Professional and Technical Writing</td>
</tr>
</tbody>
</table>

Total Credits: 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

Communication (CMN)

The Department of Communication emphasizes a range of studies in human communication, including rhetoric, media, and interpersonal communication. Students are taught to analyze verbal, nonverbal, and mediated messages from a variety of perspectives including historical, critical, interpretive, and empirical approaches. Students explore connections and interrelationships among the people, environments, and messages that comprise the social world.

The communication major prepares students well for a wide variety of careers in business and industry, public relations and advertising, personnel, government, education, media, and social services. Students expecting "vocational education, however, will be disappointed. We do not train students to do specific communication tasks, such as how to run a camera or how to construct a magazine advertisement. Rather, we help students to develop their understanding of how communication works the way it does, such as why certain production techniques influence people's interpretations of televised messages or how a particular advertising theme reflects and reinforces the values of a society. Students grapple with such "how" and "why" questions as they study instances of public address in political campaigns, social movements, governmental pronouncements, news reports, and community dialogues. Students also tackle the how’s and why’s of interpersonal communication between friends, family members, work colleagues, acquaintances, and strangers.

The department is committed to providing a strong liberal arts orientation that helps students develop their abilities to think—to describe, analyze, critique, explore, integrate, synthesize, and create ideas. The department's faculty members believe that these are the skills and abilities that will be the most useful resources in students' professional, civic, and personal
lives after leaving UNH. The program trains students to understand, adapt to, and participate in social change. These educational efforts lead to the kind of fundamental understanding that identifies the communication professional and also provides a firm foundation for advanced, graduate study in communication and related fields.

The department’s faculty members have a strong national and international reputation for their research and publications. In addition, the department is recognized on campus for its commitment to teaching. About half of the department’s tenure-track faculty members have won awards for teaching excellence. The faculty is also very active in university, community, and professional service.

The department offers a Business Applications Option for communication majors who want to augment the liberal arts focus of their major with professional training in such areas as marketing, advertising, and organizational behavior.

The department offers a Media Practices Option for communication majors who want to augment their major with training in media production and applied media communication through courses at UNH-Manchester Communication Arts Department.

The department also offers Internships, which are designed to integrate classroom study and supervised practical experience in a work setting. Internship credits do not count toward completion of the Communication Major, but they do contribute to the total number of credits needed for graduation.

http://cola.unh.edu/communication

Programs

- Communication Major (B.A.) (p. 53)
- Communication Major: Business Applications Option (B.A.) (p. 54)
- Communication Major: Media Practices Option (B.A.) (p. 54)
- Communication Minor (p. 55)

Faculty

http://cola.unh.edu/faculty/communication

Communication Major (B.A.)

http://cola.unh.edu/communication

Description

The purpose of the communication major is to prepare students to engage more knowingly with the communicative patterns, problems, and practices that they will encounter in their personal, professional, and civic lives. This purpose requires that students learn to move beyond commonplace and conventional understandings of “communication” and acquire sophisticated perspectives—workable orientations—for describing, analyzing, reflecting upon, and engaging with those patterns, problems, and practices. Accordingly, the major not only acquaints students with a variety of empirical, critical, historical, theoretical, and pragmatic perspectives on communication phenomena, but encourages them to formulate workable orientations of their own for engaging with communication issues and questions. Students who graduate with a communication major are prepared to become thoughtful and proficient “communication decision-makers” during their postgraduate lives.

Students wishing to declare communication as a major should contact the department’s academic adviser, Andrew Sharp (andrew.sharp@unh.edu), for application information and requirements.

Requirements

Majors must complete ten courses (40 credits) with a 2.0 overall average in the major. The distribution of required courses for the major is as follows:

Complete the following three introductory courses: ¹

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>

Select three 500-level communication analysis courses ²

Select four upper-division courses ³

Total Credits 40

¹ Majors must earn a grade of C or better in each introductory course.
² At least two of the three 500-level courses must have different 400-level prerequisites. Majors must earn a grade of C- or better in all three of these analysis courses. CMN 500 Public Speaking, and CMN 599 Internship, cannot be used to fulfill an analysis course requirement.
³ Students are eligible to take upper-division courses after successfully completing at least two of the 500-level analysis courses, each with a different 400-level prerequisite. Students will be encouraged to focus at least three of their upper-division courses on one of six thematic concentrations: Histories and Traditions in Communication; Political Communication and Public Space; Communication, Community, and Everyday Life; Culture and Identities; Citizenship and Advocacy; and Visual Communication. At least one of the student’s four upper-division courses must be at the 700 level. Majors must earn a grade of C- or better in all upper-division courses.

A maximum of 8 credits of independent study (CMN 795 Independent Study) may be counted toward the major. CMN 799H Honors Thesis and CMN 796 Comm-Entry Journal cannot be used to fulfill an advanced course requirement. The Discovery Program Capstone requirement may be fulfilled by completing any 700-level communication course except CMN 796 Comm-Entry Journal. CMN 795 Independent Study can only fulfill the capstone requirement with department approval and can be repeated for a maximum of 8 credits.

Transfer students must complete 20 credits of their communication coursework at UNH to complete the major satisfactorily. Exchange students may transfer no more than 10 approved credits from another institution to be applied toward completion of the communication major at UNH.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.
Communication Major: Business Applications Option (B.A.)

http://cola.unh.edu/communication

**Description**

The Department of Communication in collaboration with the Department of Marketing and the Department of Management in the Peter T. Paul College of Business and Economics offers a business applications option for communication students. The objective of the business applications option is to offer a select group of communication students the opportunity to augment the liberal arts focus of their major with professional training in such areas as marketing, advertising, and organizational behavior. Qualified students who meet all requirements will graduate with a B.A. degree in Communication: Business Applications, an achievement which will be recorded on their official transcripts.

**Minimum Requirements for Option Eligibility**

1. Declared communication major.
2. Completion of CMN 455, CMN 456, and CMN 457 with a C or better.
3. Completion of at least one CMN 500-level course with a C- or better.
4. Maintain minimum in-major GPA of 2.5.

- Student enrollment in the Business Applications Option will be contingent upon space availability.
- Overall, total enrollment should not exceed twenty students in any given academic year.

**Requirements**

**Major Courses**
Completion of all Communication major requirements (p. 53).

**Option Courses and Internship**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 550</td>
<td>Survey of Marketing</td>
<td></td>
</tr>
<tr>
<td>MGT 580</td>
<td>Introduction to Organizational Behavior</td>
<td></td>
</tr>
<tr>
<td>MGT 598</td>
<td>Topics (Leadership)</td>
<td></td>
</tr>
<tr>
<td>MKTG 598</td>
<td>Topics in Marketing (Promotion and Advertising,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Retail and Retail Management)</td>
<td></td>
</tr>
<tr>
<td>CMN 599</td>
<td>Internship</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 16

Students undergo a business applications internship experience that must be completed in one semester. (Prerequisites: CMN 455, CMN 456, CMN 457)

Communication Major: Media Practices Option (B.A.)

http://cola.unh.edu/communication

**Description**

The Department of Communication in collaboration with the Communication Arts Department at the UNH Manchester campus offers the media practices option. This option is designed for qualified students who want to augment their Communication major at Durham with training in media production and applied media communication through courses in the Communication Arts Department at the Manchester Campus. Qualified students who meet all requirements will graduate with a BA degree in Communication with a Media Practices Option, an achievement which will be recorded on their official transcripts.

**Minimum Requirements for Option Eligibility**

1. Declared Communication Major.
2. Completion of CMN 455, CMN 456, and CMN 457 with a C or better.
3. Maintain minimum in-major GPA of 2.5.

Students are responsible for their own travel arrangements between Durham and Manchester campuses.

**Requirements**

**Major Courses**
Completion of all Communication major requirements (p. 53).

**Option Courses**
Completion of two media practices courses (8 credits) in the Department of Communication Arts at Manchester campus from among the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
</tr>
<tr>
<td>CA 502</td>
<td>Image and Sound</td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
</tr>
<tr>
<td>CA 520</td>
<td>Special Topics in Applied Communication</td>
</tr>
<tr>
<td>CA 525</td>
<td>Media Programming</td>
</tr>
</tbody>
</table>

**Internship**
Based on work experience at a site directly relevant to applied media practices or production for a minimum of 4 academic credits completed in one semester. Junior standing is required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 599</td>
<td>Internship</td>
</tr>
</tbody>
</table>
Students may arrange to take Media Practices (CA) courses at any time during the course of their academic programs after they have satisfactorily completed the three 400-level introductory courses. Thus, students may take the 500-level CA courses before, concurrently with, or after completion of CMN 500-level courses and/or CMN 600-level courses.

Visit our Internships webpage (https://cola.unh.edu/communication/internships) for procedures on how to arrange internships.

Communication Minor
http://cola.unh.edu/communication

The contact for the communication minor is the department’s academic adviser, Andrew Sharp (andrew.sharp@unh.edu).

Requirements
The communication minor consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a minimum of two of the following 400-level introductory courses:</td>
<td>8</td>
</tr>
<tr>
<td>CMN 455 Introduction to Media Studies</td>
<td>3</td>
</tr>
<tr>
<td>CMN 456 Propaganda and Persuasion</td>
<td>3</td>
</tr>
<tr>
<td>CMN 457 Introduction to Language and Social Interaction</td>
<td>3</td>
</tr>
<tr>
<td>Select a minimum of two 500-level analysis courses</td>
<td>8</td>
</tr>
<tr>
<td>Select a minimum of one advanced 600-level or 700-level course</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Students who pursue a communication minor must complete five courses within the minor with a C or better at the 400 level and with a C- or better at the 500, 600, and 700 levels, and maintain a minimum grade-point average of 2.0. The two 500-level analysis courses each must have a different 400-level prerequisite and be taken before enrolling in an advanced level course. No more than two transfer courses from other institutions can be applied to the minor and all transfers are contingent upon departmental approval. No more than 4 credits of independent study can count toward the minor. No pass/fail or credit/no credit courses can count toward the minor. CMN 500 Public Speaking, cannot be used to fulfill a minor requirement.

Education (EDUC)
Basic Programs
At the undergraduate level, students have the opportunity to begin taking courses in teacher preparation programs, which will lead at the graduate level to teacher licensing in elementary and secondary education, early childhood education, early childhood special needs, and special education. They also may want to prepare to teach solely at the graduate level.

Students majoring in music, mathematics, Pre-K-3rd grade, and physical education have the option of participating in a five-year program leading to licensure and a graduate degree. Or they may choose the four-year option in those majors, which leads to licensure at the undergraduate level. Students interested in the four-year option in these areas should contact the departments for information.

Elementary teaching and most secondary areas require completion of a minimum of a one-year graduate program, which leads to a master’s degree and teacher licensure. Most students who plan to teach in elementary and secondary schools apply to the graduate school to complete a five-year program. In the five-year program, students begin preparation for teaching at the undergraduate level with a semester of field experience (EDUC 500 Exploring Teaching) and professional coursework in education. Students complete a baccalaureate degree outside of education and move into a fifth year of study and a full-year internship leading to the M.Ed. or M.A.T. degree and licensure in teaching.¹

There also are opportunities for study or certification at the graduate level in administration, elementary and secondary teaching, early childhood and special education. The department encourages students interested in graduate study or in relevant undergraduate courses to meet with these graduate program coordinators in the Department of Education.

Students at the undergraduate level who are interested in special education or early childhood education can begin to complete prerequisite coursework for the graduate program leading to certification in special education (K-12) or early childhood education. For students seeking the M.Ed. in special education or early childhood education without certification in general education, it is not necessary to complete EDUC 500 Exploring Teaching. For coursework that can be taken at the undergraduate level, students should see program advisers in the Department of Education.

¹ Students in the five-year program may combine their program for teacher licensure with a master’s program in their major field department.

Accelerated Master’s Program
UNH undergraduate seniors with a minimum of a 3.2 cumulative grade-point average at the end of the first semester of their senior year and undergraduate juniors with a minimum of a 3.2 cumulative grade point average at the end of the second semester of their junior year can apply for "early admission" to the Graduate School (November for seniors, February for juniors). Such candidates may register for a maximum of 12 credits of dual-credit coursework (undergraduate/graduate level course work, e.g., 700/800) prior to completing their bachelor’s degree. A student must be admitted to the Graduate School before the start of the semester in which the course(s) will be taken in order to receive graduate credit. Once accepted, a student must maintain the minimum 3.2 cumulative grade point average until their undergraduate degree is awarded. A student would apply for early admission on the regular Graduate School application available at www.gradschool.unh.edu (http://www.gradschool.unh.edu).

Program Philosophy and Mission Unit
Mission Statement
The following conceptual framework guides all of the programs that prepare professionals in education at the University of New Hampshire:

The professional education unit at the University of New Hampshire seeks to prepare practitioners who will become leaders in their own practice settings and within their profession, applying knowledge to improve education for all students and enrich the lives of clients.
Immersion in subject matter, research, theory, and field-based experience provides a base for our graduates to make well-reasoned judgments in complex situations, render informed decisions, model exemplary practice, and take initiative for planned change.

Students learn to establish caring environments that celebrate individual differences and backgrounds while fostering cooperation and educational improvement. We stress reflective critical inquiry as a mode of study and community-building as a means for promoting change. We value and support both our students’ local practice and their broader leadership within the profession.

Mission of Programs in Teacher Education

The following mission statement gives direction to the basic and advanced programs in teacher education:

We seek to prepare beginning teachers who demonstrate excellence in classroom practice and who will become educational leaders. Our graduates will possess the knowledge, skills, and dispositions required for outstanding classroom practice and eventual leadership within the local school community and the larger education community.

Undergraduate Work toward Teacher Certification in Elementary and Secondary Education

Step I. Enroll in Exploring Teaching: Education 500

Students are encouraged to take EDUC 500 Exploring Teaching, as a sophomore, but completion during junior or senior year also can leave enough time for other education course requirements.

Step II. Professional Coursework in Education at the Undergraduate Level

Education 500 is a prerequisite to further work in the teacher education program. An undergraduate receives a co-adviser in the Department of Education (usually the Exploring Teaching instructor). Along with the major adviser, this co-adviser works with the student to plan the undergraduate portion of the five-year teacher education program.

Every student must take four credits in each of the areas, as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 700</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 701</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 705</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 751A</td>
<td>4</td>
</tr>
<tr>
<td>or EDUC 751B</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

EDUC 707 Teaching Reading through the Content Areas, is required for some secondary subject licensure areas. Elementary education students are required to have four methods courses: one each in the teaching of reading, mathematics, science, and social studies. Those who do not intend to use this coursework for initial licensing may enroll with instructor permission. All 700-level education courses at UNH are restricted to students with junior or senior standing. These courses may also be taken at the graduate 800 level.

Any course taken in the Department of Education that will be used to fulfill a teacher licensure requirement must be completed with a grade of B- or above.

Step III. Admission to the Internship and Graduate Phase of the Teacher Education Program

Undergraduate seniors should apply to the Graduate School in early November in the first semester of the senior year for the final phase of the teacher education program. Students with an undergraduate grade-point average of 3.2 or better admitted into the accelerated master’s program may be allowed to begin the program in the second semester of the senior year, earning a maximum of 12 graduate credits.

Undergraduate juniors with an undergraduate grade-point average of 3.2 or better should apply to the Graduate School in early February in the second semester of the junior year for the final phase of the teacher education program. Students with an undergraduate grade-point average of 3.2 or better admitted into the accelerated master’s program may be allowed to begin the program in the first semester of the senior year, earning a maximum of 12 graduate credits during the senior year.

The final phase of the program includes a full-year internship, electives, and a program portfolio and colloquium. This phase normally takes an academic year plus a summer to complete.

The yearlong internship (EDUC 900A Internship and Seminar in Teaching/EDUC 901A Internship and Seminar in Teaching) is part of the final stage of the five-year program. It meets the goals of increased clinical experience and better integration of theory and practice.

The internship is a teaching and learning experience in which the intern is involved in an elementary or secondary school over the course of an entire school year. Interns become a part of the school staff, sharing appropriate instructional tasks, and often carrying the full instructional duties in one or more classes.

Interns are mentored and supervised by a school staff member who is designated as a “cooperating teacher.” A UNH faculty member collaborates in intern supervision and conducts a weekly seminar for all interns with whom he/she is working.

The internship is a full-time experience for 6 graduate credits each semester. It typically begins in September and runs through May or June. Due to the intensive time commitment, it is recommended that, at most, only one course be taken in addition to the internship each semester.

Before the internship, all students will have completed a bachelor’s degree with a major outside of education. Because of this, they will possess a depth of knowledge in a subject area and a broad general education, in addition to substantive preparation for teaching. Secondary education candidates must have completed an approved major, or its equivalent, in the subject that they intend to teach. Elementary education candidates may pursue an undergraduate major in any area; however, majors in the core disciplines taught in elementary schools are desirable.

Undergraduates should apply for internship in September of their senior year. At the same time, it is advisable to begin the application process for graduate school. Arranging an appropriate placement is a time-consuming process. Starting early will facilitate finding the best setting for students’ needs and goals. The director of field experiences in Durham and the associate director of teacher education in Manchester play a major role in identifying internship sites and should be consulted regarding the placement process. Internship applications are available at the Department of Education, Durham, and the Office of Teacher
Education, Manchester. Admission to the internship requires a completed application to the internship, admission to the graduate school, and a consultation with the director of field experiences. Please note: Undergraduates interested in the master’s degree in early childhood education, the early childhood special education option, and special education do not apply for internships in their senior year. Internships for this program are arranged with program faculty once core graduate requirements are met.

**Admission to the Program**

**Step 1.** Exploring Teaching is open to all students, subject to available space. Approximately 150 students are accepted each semester.

**Step 2.** Continuation in professional coursework is dependent upon positive recommendations from EDUC 500 Exploring Teaching.

**Step 3.** Admission to the internship and the graduate program requires acceptance to the Graduate School. The process is competitive because of high admissions standards and limited space in the program. Approximately 80 percent of applicants for Phase III are accepted.

In determining admission of students to teacher education graduate programs, several criteria are used:

1. **Undergraduate Grade-Point Average**
   Average undergraduate GPA for student accepted in the Fall of 2015 was a 3.42
2. **Passing scores on the Praxis Core Exam (Reading, Writing and Math)**
   [https://www.ets.org/praxis/nh/requirements](https://www.ets.org/praxis/nh/requirements)
3. **Three letters of recommendations and positive recommendations from EDUC 500 Exploring Teaching, or the equivalent and from those able to relay information about a candidate’s performance in teaching situations or related areas are important.**

In the admission process, the program seeks evidence that candidates have the following knowledge, abilities, and dispositions:

1. motives to teach that include a strong social commitment to contribute to society through education;
2. a disposition to care for students—each and every one;
3. the ability to interact positively with children and adults;
4. the capacity to win the respect of their peers and be effective in group interaction, showing openness to the needs and views of others;
5. well-developed communication skills, including speaking, writing, and listening skills as well as an ability to engage others in both the giving and receiving of information and feelings;
6. perceptiveness: the ability to identify and process the relevant details in a given environment, especially in the context of a classroom;
7. the ability to make reasonable judgments in the context of complex situations that change from moment to moment;
8. the capacity for clear thinking and an ability to translate complex thoughts into simple and clear explanations;
9. superior academic skills: extensive knowledge of at least one major discipline, intellectual curiosity, and the ability to be open to the unknown;
10. a disposition to take charge of one’s own learning, which includes the active pursuit of feedback and the willingness to take thoughtful risks.

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**Programs**

- Education Four-Year, Undergraduate Option (p. 57)
- Educational Studies Dual Major (p. 57)
- Education Minor (p. 58)
- Special Education Minor (p. 59)

**Faculty**

[http://cola.unh.edu/faculty/education](http://cola.unh.edu/faculty/education)

**Education Four-Year, Undergraduate Option**

[http://cola.unh.edu/education](http://cola.unh.edu/education)

**Description**

A bachelor’s degree including a one-semester student-teaching requirement allows students to be recommended for licensure in certain specialized areas. Those areas are mathematics, music, Pre-K-3rd grade, and health & physical education.

**Requirements**

These program options include a major appropriate for the licensure being sought, in addition to the following core professional courses or their equivalent:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 700</td>
<td>Educational Structure and Change</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 701</td>
<td>Human Development and Learning: Educational Psychology</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 705</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 751A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td>4</td>
</tr>
<tr>
<td>or EDUC 751B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 694</td>
<td>Courses in Supervised Teaching</td>
<td>8</td>
</tr>
</tbody>
</table>

A minimum 2.8 cumulative grade-point average at the time of application to student teaching is required. Students in music, mathematics, and physical education need to apply by March 1st of the junior year and October 15th of the senior year for spring semester to the Department of Education for student teaching. An unofficial transcript and a current resume; must accompany the application. Return applications to the Department of Education Office, 207 Morrill Hall, attention Liz Arcieri.

**Educational Studies Dual Major**

[http://cola.unh.edu/education](http://cola.unh.edu/education)

**Description**

The Educational Studies Dual Undergraduate major provides an opportunity for students to broaden their disciplinary education through focused exploration and application of educational studies, acknowledging the inherent educational aspect of many professions that...
communicate information and work for social change at any scale. The Dual Major in Educational Studies emphasizes experiential learning in transdisciplinary learning communities, research with faculty, corporate and K-12 engagement, and community service. The dual major does NOT lead to a teaching certification.

Requirements

The Dual Major in Educational Studies requires (32 credits) each completed with a C+ or better. Any Education course to be applied for a future teacher licensure requirement must be completed with a grade of B- or better. The dual major cannot be declared until after a first major has been declared and students must have a UNH undergraduate GPA of a 2.50 or better at the time of declaring. The required minimum overall GPA in major coursework is 2.50.

Required courses

**Foundations**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 402</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Educational Studies (in development)</td>
<td></td>
</tr>
</tbody>
</table>

**Explorations in Learning and Teaching**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>4</td>
</tr>
<tr>
<td>Exploring Teaching</td>
<td></td>
</tr>
<tr>
<td>EDUC 520</td>
<td>4</td>
</tr>
<tr>
<td>Education, Poverty, and Development</td>
<td></td>
</tr>
</tbody>
</table>

**Course Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 700</td>
<td>4</td>
</tr>
<tr>
<td>Educational Structure and Change</td>
<td></td>
</tr>
<tr>
<td>EDUC 701</td>
<td>4</td>
</tr>
<tr>
<td>Human Development and Learning: Educational Psychology</td>
<td></td>
</tr>
<tr>
<td>EDUC 705</td>
<td>4</td>
</tr>
<tr>
<td>Contemporary Educational Perspectives</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 703C</td>
<td>4</td>
</tr>
<tr>
<td>Classroom Management: Creating Positive Learning Environments</td>
<td></td>
</tr>
<tr>
<td>EDUC 703F</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Elementary School Science</td>
<td></td>
</tr>
<tr>
<td>EDUC 703M</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Elementary School Social Studies</td>
<td></td>
</tr>
<tr>
<td>EDUC 706</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Reading in the Elementary School</td>
<td></td>
</tr>
<tr>
<td>EDUC 741</td>
<td>4</td>
</tr>
<tr>
<td>Exploring Mathematics with Young Children</td>
<td></td>
</tr>
<tr>
<td>EDUC 745</td>
<td>4</td>
</tr>
<tr>
<td>Math with Technology in Early Education</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 506</td>
<td>4</td>
</tr>
<tr>
<td>Literacy Tutoring at the Elementary School Level</td>
<td></td>
</tr>
<tr>
<td>EDUC 550</td>
<td>4</td>
</tr>
<tr>
<td>Language and Linguistic Diversity in Schools</td>
<td></td>
</tr>
<tr>
<td>EDUC 712</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Multilingual Learners</td>
<td></td>
</tr>
<tr>
<td>EDUC 734</td>
<td>4</td>
</tr>
<tr>
<td>Children’s Literature</td>
<td></td>
</tr>
</tbody>
</table>

**Instructional Methods in Schools**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 705C</td>
<td>4</td>
</tr>
<tr>
<td>Classroom Management: Creating Positive Learning Environments</td>
<td></td>
</tr>
<tr>
<td>EDUC 706C</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Elementary School Science</td>
<td></td>
</tr>
<tr>
<td>EDUC 706M</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Elementary School Social Studies</td>
<td></td>
</tr>
<tr>
<td>EDUC 706T</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Reading in the Elementary School</td>
<td></td>
</tr>
<tr>
<td>EDUC 714</td>
<td>4</td>
</tr>
<tr>
<td>Exploring Mathematics with Young Children</td>
<td></td>
</tr>
<tr>
<td>EDUC 724</td>
<td>4</td>
</tr>
<tr>
<td>Math with Technology in Early Education</td>
<td></td>
</tr>
<tr>
<td>EDUC 506</td>
<td>4</td>
</tr>
<tr>
<td>Literacy Tutoring at the Elementary School Level</td>
<td></td>
</tr>
<tr>
<td>EDUC 550</td>
<td>4</td>
</tr>
<tr>
<td>Language and Linguistic Diversity in Schools</td>
<td></td>
</tr>
<tr>
<td>EDUC 712</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Multilingual Learners</td>
<td></td>
</tr>
<tr>
<td>EDUC 734</td>
<td>4</td>
</tr>
<tr>
<td>Children’s Literature</td>
<td></td>
</tr>
</tbody>
</table>

**Language and Literacy**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 705</td>
<td>4</td>
</tr>
<tr>
<td>Contemporary Educational Perspectives</td>
<td></td>
</tr>
</tbody>
</table>

**Special Education**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 556</td>
<td>4</td>
</tr>
<tr>
<td>Mentoring Adolescents with Disabilities in the Transition to Work</td>
<td></td>
</tr>
<tr>
<td>EDUC 751A</td>
<td>4</td>
</tr>
<tr>
<td>Educating Exceptional Learners: Elementary</td>
<td></td>
</tr>
<tr>
<td>EDUC 751B</td>
<td>4</td>
</tr>
<tr>
<td>Educating Exceptional Learners: Secondary</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
</tr>
</tbody>
</table>

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Students who are interested in a dual major in Educational Studies will need to file an Intent to Dual Major Form. The form is available from the program website at cola.unh.edu/education. Program offices are located Morrill Hall room 203BA and room 209 and are open Monday through Friday from 8 a.m. to 11:30 a.m. and 12:30 p.m. to 4:30 p.m. For more information, please contact Professor Paula Salvio at paula.salvio@unh.edu or Cindy Glidden at cindy.glidden@unh.edu.

**Education Minor**

http://cola.unh.edu/education

**Description**

Explore the field of education. Five courses (20 credits) comprise the minor in Education.

A Certification of Completion of Minor form (http://www.unh.edu/registrar/regforms/minorform.pdf) needs to be completed at the beginning of a student’s final undergraduate semester at UNH. Forms are available from the Registrar’s Office or the Department of Education Office.

For more information, contact Cindy Glidden, Department Coordinator, cindy.glidden@unh.edu, (cindy.glidden@unh.edu) 209 Morrill Hall, (603) 862-2311.

**Requirements**

A minor consists of 20 credits in Education Department courses. A methods course located in another department may be counted for four of these 20 credits (e.g., ARTS 791 or 792, ENGL 792, MATH 708, 709, etc.).
No more than 8 credits used by the student to satisfy major requirements may be used for the minor.

Courses used in obtaining a minor in special education cannot be used towards a minor in education.

EDUC 500 Exploring Teaching can only be counted once (four credits) towards the minor.

No more than two transferred courses in Education or a closely-related area from another college or university may be used towards a minor in Education. A three-credit course transferred from another school will count for three credits at UNH, not four credits.

Special Education Minor
http://cola.unh.edu/education

Description
Explore the field of special education. Five courses (20 credits) comprise the minor in Special Education.

A Certification of Completion of Minor form (http://www.unh.edu/registrar/regforms/minorform.pdf) needs to be completed at the beginning of a student’s final undergraduate semester at UNH. Forms are available from the Registrar’s Office or the Department of Education Office.

For more information, contact Cindy Glidden, Department Coordinator, cindy.glidden@unh.edu, (cindy.glidden@unh.edu) 209 Morrill Hall, (603) 862-2311.

Requirements
A minor consists of 20 credits in Education Department courses. The specific courses required for the minor are:

<table>
<thead>
<tr>
<th>Required Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 750 Introduction to Exceptionality</td>
</tr>
<tr>
<td>EDUC 756 Supporting Families of Individuals with Exceptionalities</td>
</tr>
<tr>
<td>Choose one of the following:</td>
</tr>
<tr>
<td>EDUC 751A Educating Exceptional Learners: Elementary</td>
</tr>
<tr>
<td>EDUC 751B Educating Exceptional Learners: Secondary</td>
</tr>
<tr>
<td>EDUC 751C Educating Exceptional Learners: Related Services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elective Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose two of the following:</td>
</tr>
<tr>
<td>EDUC 556 Mentoring Adolescents with Disabilities in the Transition to Work</td>
</tr>
<tr>
<td>EDUC 720 Integrating Technology into Classroom</td>
</tr>
<tr>
<td>EDUC 752 Contemporary Issues in Learning Disabilities</td>
</tr>
<tr>
<td>EDUC 753 Contemporary Issues in Behavioral Disabilities</td>
</tr>
<tr>
<td>EDUC 754 Contemporary Issues in Developmental Disabilities</td>
</tr>
<tr>
<td>EDUC 757 Contemporary Issues in Autism Spectrum Disorders</td>
</tr>
<tr>
<td>EDUC 760 Introduction to Young Children with Special Needs</td>
</tr>
<tr>
<td>EDUC 761 Inclusive Curriculum for Young Children with Special Needs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>One course taken at UNH in a closely related department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
</tr>
<tr>
<td>1 Offered Fall semester and Summer only</td>
</tr>
<tr>
<td>2 Section to be determined by the undergraduate major and future career interests</td>
</tr>
<tr>
<td>3 May be taken twice as the content/readings are different each semester</td>
</tr>
</tbody>
</table>

No more than one required course or one elective may be a transfer course. A three-credit course taken transferred from another school will count for three credits at UNH, not four credits. A minor in Special Education does NOT lead to a teaching certification.

English (ENGL)
The English department offers four majors: English, English Literature, English Teaching, and English/Journalism. A fifth undergraduate program is the interdepartmental Linguistics major.

Through these diverse but interrelated programs of study, the English department pursues a three-pronged mission in undergraduate instruction. We seek first to train students in the professional study of literature in the English language. In conjunction with this broad, multifaceted aim, we strive to educate students about the history and nature of English language in its spoken and written forms. As a third and equally important part of our mission, we teach students to write clearly, persuasively, and elegantly. In all five of its undergraduate majors, the English department provides students with the kinds of critical thinking, research, and writing skills that will serve them well in their personal and professional lives.

Writing Programs
The Department of English offers courses for students interested in becoming writers. Writing workshops are offered in fiction, poetry and creative nonfiction. Intermediate-level courses may be taken more than once for credit, especially with two different instructors.

English/Law School 3+3
The 3+3 program offers highly motivated UNH undergraduate students of English the possibility to earn both a bachelor’s degree and a law degree in six, rather than seven, years of study. After completing three years as an undergraduate and gaining admission to the UNH Law School through the approved process, the 3+3 program participant will become a full-time first-year law student. Upon successful completion of the first year of law study, the credits earned will be counted toward the JD degree and as elective credits sufficient to complete UNH’s requirements for the bachelor’s degree.

http://cola.unh.edu/english

Programs
• English Literature Major (B.A.) (p. 60)
• English Major (B.A.) (p. 61)
• English Teaching Major (B.A.) (p. 63)
Undergraduate Academic Catalog 2017-2018

• English/Journalism Major (B.A.) (p. 64)
• English Minor (p. 65)
• Writing Minor (p. 65)

Faculty

http://cola.unh.edu/faculty/english

English Literature Major (B.A.)

http://cola.unh.edu/english

Description

The English literature major has been developed for those students looking for a more focused study of literature, especially those who plan to go on to graduate school in English or other fields in the humanities. Its requirements have been designed to engage students in a sustained study of literature that explores the formal, historical, cultural, and theoretical dimensions of written texts.

These requirements are designed to strengthen students' knowledge of literary history and cultural contexts, forms of literary expression, and the interpretive questions that shape critical inquiry. Students in this program will develop a deep understanding and appreciation of literatures in English, including both British and American literatures, as well as literary traditions organized around other principles, such as postcolonial or African-American. The English literature major also encourages students to develop a higher proficiency in critical writing, in formulating and addressing complex problems, and in synthesizing research.

Requirements

For the English literature major, students must complete a minimum of 40 credits of major coursework with a grade of C- or better, with the exception of ENGL 419 Introduction to Literary Analysis, which must be completed with a grade of C or better. ENGL 401 First-Year Writing, ENGL 403 Exploring Literature, ENGL 415s, "Literature and..." courses, and ENGL 444 classes may not be used to satisfy major requirements.

A minimum of six courses must be completed at the 600 level or higher.

Coursework must meet the following distribution requirements (a single course may satisfy multiple requirements):

- ENGL 419 Introduction to Literary Analysis
- Select two 500-level literature courses (select from list below)
- Select two pre-1800 literature courses (select from list below)
- Select two post-1800 literature courses (select from list below)
- ENGL 619 Critical Approaches to Literature
- Select one American literature course at the 600/700 level
- Select one British literature course at the 600/700 level
- Select two courses that investigate and question representations of identity; genre, including film; and/or theoretical positions (select from list below)
- Select one course that addresses race, the construction of race, and racial theories (select from list below)

Capstone:

- ENGL 787 English Major Seminar

1 This must be completed with a minimum grade of “C.” ENGL 419 Introduction to Literary Analysis is the only 400-level class that may count towards the English Literature major. ENGL 403 Exploring Literature will NOT count towards this major.

500-Level Literature Courses

Select one survey course of the following:

- ENGL 512 Survey of British Literature I
- ENGL 513 Survey of British Literature II
- ENGL 514 Survey of British Literature
- ENGL 515 Survey of American Literature
- ENGL 516 Survey of American Literature
- ENGL 517 Introduction to African American Literature and Culture
- ENGL 521 Nature Writers
- ENGL 530 Introduction to Poetry
- ENGL 531 Introduction to Drama
- ENGL 581 Introduction to Postcolonial Literatures in English
- ENGL 585 Introduction to Women in Literature

Total Credits 8

Pre-1800 Literature Courses

Either two advanced courses (600-level and above) or one advanced course and either ENGL 512 Survey of British Literature I or ENGL 513 Survey of British Literature II. Choose from:

- ENGL 657 Shakespeare
- ENGL 741 Literature of Early America
- ENGL 751 Medieval Epic and Romance
- ENGL 753 Old English
- ENGL 756 Chaucer
- ENGL 758 Shakespeare
- ENGL 759 Milton
- ENGL 767 Literature of the Restoration and Early 18th Century
- ENGL 768 Literature of the Later 18th Century
- ENGL 780 Drama of Shakespeare's Contemporaries
- ENGL 781 English Drama, 1660-1800
- ENGL 783 English Novel of the 18th Century

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.
### Post-1800 Literature Courses

Either two advanced courses, or one advanced course and one of the following: ENGL 514 Survey of British Literature, ENGL 515 Survey of American Literature or ENGL 516 Survey of American Literature.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>Studies in American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 681</td>
<td>Introduction to African Literatures in English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>Introduction to African American Literature in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 742</td>
<td>American Literature, 1815-1865</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 743</td>
<td>American Literature, 1865-1915</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 744</td>
<td>American Literature, 1915-1945</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 745</td>
<td>Contemporary American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 746</td>
<td>Studies in American Drama</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 747</td>
<td>Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #748</td>
<td>Studies in American Fiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 749</td>
<td>Major American Authors</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 769</td>
<td>English Romantic Period</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 771</td>
<td>English Victorian Period</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 772</td>
<td>English Victorian Period</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 773</td>
<td>British Literature of the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 774</td>
<td>British Literature of the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 777</td>
<td>Postcolonial Novel</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 782</td>
<td>Modern Drama</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 784</td>
<td>English Novel of the 19th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 616D</td>
<td>Studies in Film/Narrative and Style</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 618</td>
<td>Film Theory</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 733</td>
<td>Special Studies in Film</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

1 With the exception of ENGL 533 Introduction to Film Studies

### Courses that Address Race, the Construction of Race, and Racial Theories

Choose from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 509</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>Introduction to African American Literature in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #740</td>
<td>Indigenous New England</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature (subtopic R)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature (subtopic R)</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

The required minimum overall GPA in major coursework is 2.0.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

Majors may only count one online course toward their English major requirements.

Students interested in majoring in English Literature should consult Carla Cannizzaro, Coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313 or the director of the English Literature program.

### English Major (B.A.)

[http://cola.unh.edu/english](http://cola.unh.edu/english)

#### Description

The dual objectives of the general English major are to provide all students with a common core of literary experience and to offer the opportunity to shape a course of study suited to their personal interests. Flexible requirements place a responsibility on each student to devise a program that has an intelligent rationale. For example, students with a special interest in writing are free to take the minimum number of literature courses (five) and complete their major by taking offerings in fiction, creative nonfiction, and poetry writing. All the undergraduate
courses offered by the department are open to English majors so that students may sample a range of courses in literature, linguistics, creative or nonfiction writing, and English teaching, according to particular interests that change and grow.

By its very nature, the English major is broad, open, and liberal. It enables students to sample a variety of courses in order to understand the operation of language from many perspectives.

**English/Law School 3+3**

The 3+3 program offers highly motivated UNH undergraduate students of English the possibility to earn both a bachelor's degree and a law degree in six, rather than seven, years of study. After completing three years as an undergraduate and gaining admission to the UNH Law School through the approved process, the 3+3 program participant will become a full-time first-year law student. Upon successful completion of the first year of law study, the credits earned will be counted toward the JD degree and as elective credits sufficient to complete UNH's requirements for the bachelor's degree.

**Requirements**

For the English major, students must complete a minimum of 40 credits of major coursework with a grade of C- or better, with the exception of ENGL 419 Introduction to Literary Analysis, which must be completed with a grade of C or better. ENGL 401 First-Year Writing, ENGL 403 Exploring Literature, ENGL 415s, “Literature and...” courses, and ENGL 444s may not be used to satisfy major requirements. Note that any one course may satisfy more than one requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419 Introduction to Literary Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Select two pre-1800 literature courses</td>
<td>8</td>
</tr>
<tr>
<td>Select two post-1800 literature courses</td>
<td>8</td>
</tr>
<tr>
<td>Select one course that addresses race, the construction of race, and racial theories</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following options:</td>
<td>8</td>
</tr>
<tr>
<td>Option A:</td>
<td></td>
</tr>
<tr>
<td>Two 500-level courses</td>
<td>2</td>
</tr>
<tr>
<td>Option B:</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>One 500-level course</td>
<td>2</td>
</tr>
<tr>
<td>Select six courses numbered 600 and above</td>
<td>24</td>
</tr>
<tr>
<td>Select one additional 500-, 600-, or 700-level English course of their choosing</td>
<td>4</td>
</tr>
<tr>
<td>Capstone:</td>
<td></td>
</tr>
<tr>
<td>One 700-level class in addition to the 10-course major</td>
<td>4</td>
</tr>
</tbody>
</table>

1. This must be completed with a minimum grade of "C." ENGL 419 Introduction to Literary Analysis is the only 400-level class that may count towards the English major. ENGL 403 Exploring Literature and ENGL 415s, "Literature and..." courses will NOT count towards this major.

2. ENGL 501 Introduction to Creative Nonfiction may be included here.

3. You may include any advanced-level courses even if taken to fulfill literature requirements above. All writing courses numbered 600 and above may be included here. [ENGL 620 English Major Internship and ENGL 788 Senior Honors (previously numbered ENGL 695), cannot be used to satisfy major requirements.]

4. Minimum grade required: C. The course selected for capstone may not be double-counted toward English major requirements. Students should submit a Capstone Declaration form indicating the English course taken for capstone credit at the time of registration. Capstone Declaration forms are available in the English Department main office.

**Pre-1800 Literature Courses**

Either two advanced courses (600-level and above) or one advanced course and either ENGL 512 Survey of British Literature I or ENGL 513 Survey of British Literature II. Choose from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 657 Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 741 Literature of Early America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 751 Medieval Epic and Romance</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 753 Old English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 756 Chaucer</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 758 Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 759 Milton</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 767 Literature of the Restoration and Early 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 768 Literature of the Later 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 780 Drama of Shakespeare's Contemporaries</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 781 English Drama, 1660-1800</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 783 English Novel of the 18th Century</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

**Post-1800 Literature Courses**

Either two advanced courses, or one advanced course and one of the following: ENGL 514 Survey of British Literature, ENGL 515 Survey of American Literature, or ENGL 516 Survey of American Literature.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 609 Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650 Studies in American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 681 Introduction to African Literatures in English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690 Introduction to African American Literature in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739 American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 742 American Literature, 1815-1865</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 743 American Literature, 1865-1915</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 744 American Literature, 1915-1945</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 745 Contemporary American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 746 Studies in American Drama</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 747 Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #748 Studies in American Fiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 749 Major American Authors</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 769 English Romantic Period</td>
<td>4</td>
</tr>
</tbody>
</table>
ENGL 771 English Victorian Period 4
ENGL 772 English Victorian Period 4
ENGL 773 British Literature of the 20th Century 4
ENGL 774 British Literature of the 20th Century 4
ENGL 777 Postcolonial Novel 4
ENGL 782 Modern Drama 4
ENGL 784 English Novel of the 19th Century 4

1 If topic is appropriate. (Please see your advisor if you have questions about other courses that might fulfill this requirement.)

Course That Addresses Race, the Construction of Race, and Racial Theories

ENGL 517 Introduction to African American Literature and Culture 4
ENGL 550 Introduction to the Literature and Culture of Race 4
ENGL 609 Ethnicity in America: The African American Experience in the 20th Century 4
ENGL 690 Introduction to African American Literature in America 4
ENGL 738 Topics in Asian American Studies 4
ENGL 739 American Indian Literature 4
ENGL #740 Indigenous New England 4
ENGL 693 Special Topics in Literature (subtopic R) 4
ENGL 797 Special Studies in Literature (subtopic R) 4

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

Majors may only count one online course toward their English major requirements.

Students interested in majoring in English should consult Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313.

English Teaching Major (B.A.)
http://cola.unh.edu/english

Description

The English teaching major is designed for students wishing to teach English in middle or high schools (grades 5-12). Students receive a B.A. in English Teaching upon completion of their undergraduate studies. Completion of the undergraduate major does not in itself, however, meet state certification requirements to teach in public schools in New Hampshire. English teaching majors who want to gain certification at UNH must apply for admission to (and complete) graduate study, including coursework and a year-long internship within the Department of Education. (Students usually apply for the master's program in their senior year; please see the Department of Education for details on the M.A.T. and M.Ed. programs.) Much of the work for a master's degree may be completed during this fifth year, likely including additional time spent in summer courses or additional semesters. Most students, however, will be recommended for certification at the end of the fifth year and receive the graduate degree. The New Hampshire teaching certificate is recognized by many but not all states.

The goal of the English teaching major is to prepare students as informed, thoughtful, and skilled English teachers who will become educational leaders in their schools and, more broadly, in the profession itself. To that end, the department seeks to make its preservice teachers thoroughly familiar with the knowledge base available in the Departments of English and Education. From their courses within the English department, students learn what the study of English entails and how areas of knowledge and the abilities to read, write, and discuss can best be taught to students in grades 5-12. Preservice teachers also acquire knowledge of certain content areas, such as American and British literature and English grammar. From their courses within the education department, students learn about human development and learning, the history and structure of schools, and different philosophical perspectives on public education. Finally, through the yearlong teaching internship, students apply their knowledge from both sources to actual practice. This requirement reflects a core belief that the opportunity to combine theory and practice is essential in preparing effective beginning teachers.

Requirements

Completion of the undergraduate teaching major does not in itself meet state certification requirements. Students should enroll in the undergraduate major and:

Pass the following English courses with an average of 2.5 or better:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis</td>
</tr>
<tr>
<td>ENGL 514</td>
<td>Survey of British Literature</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>Survey of American Literature</td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
</tr>
</tbody>
</table>

Select one of the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 725 &amp; ENGL 726</td>
<td>Seminar in English Teaching</td>
</tr>
<tr>
<td>ENGL 725 &amp; ENGL 792</td>
<td>Teaching Writing</td>
</tr>
<tr>
<td>ENGL 725 &amp; ENGL 792</td>
<td>Teaching Literature and Literacy</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
</tr>
</tbody>
</table>

Two additional literature courses numbered 600 or above 1 8

One course that addresses race, the construction of race, and radical theories 2 0-4

Any English department course in writing, linguistics, critical theory, film, or literature 3 4

Complete the Discovery Program capstone for English Teaching majors:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 789</td>
<td>Special Topics in English Teaching</td>
</tr>
</tbody>
</table>

1 ENGL 512 Survey of British Literature I or ENGL 513 Survey of British Literature II may be substituted for one of the two required literature courses numbered 600 or above.
Choose from a department-approved list (other courses may count, when relevant and with prior written approval of the student's adviser). The course used to fulfill this requirement may be double counted within the 'Two literature courses 600 or above' OR 'Any English Department course:' requirement area.

Except ENGL 401 First-Year Writing, ENGL 403 Exploring Literature, ENGL 415s, "Literature and...," courses, and ENGL 444s

Apply for the fifth-year teaching internship and master's degree program by fall or spring of their senior year (usually September 30 for the internship and November 1 or February 1 for the master's program). Students with a GPA of 3.2 or better can apply for the master's degree program in their junior year. If accepted early, the student can earn graduate credit for up to three undergraduate English or education courses.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of Arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

Majors may only count one online course towards their English major requirements.

Students interested in majoring in English teaching should consult Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313, or the director of the English teaching program.

English/Journalism Major (B.A.)

http://cola.unh.edu/english

Description

The English/journalism major focuses on the study and practice of rigorous reporting and nonfiction storytelling in many forms. It prepares students for careers in writing, editing, and digital journalism. It also incorporates the study of literature, an important foundation for critical thinking and storytelling. In addition to learning the basic skills of interviewing, fact gathering, verification, and writing in both news and feature styles, students are taught to produce stories for digital platforms using audio, photo, video, and more. These skills will launch successful careers in journalism or any vocation that requires strong research and communication skills.

Requirements

English/journalism majors must complete ENGL 401 First-Year Writing with a B or better before taking the first journalism course, ENGL 534 21st Century Journalism: How the News Works. After completing ENGL 534 21st Century Journalism: How the News Works, majors may move on to ENGL 621 Writing and Reporting the News I. Students must get a B or better in 621 to go on to ENGL 622 Writing and Reporting the News II and ENGL 631 Introduction to Digital Reporting—both courses are required for the major.

ENGL 419 Introduction to Literary Analysis 2 4
Select one pre-1800 literature course (select from list below)
Select one post-1800 literature course (select from list below)
Select one course that addresses race, the construction of race, and racial theories (select from list below)
ENGL 534 21st Century Journalism: How the News Works 4
ENGL 621 Writing and Reporting the News I 4
ENGL 622 Writing and Reporting the News II 4
ENGL 631 Introduction to Digital Reporting 4
Select two additional journalism courses from the following: 8
ENGL 623 Creative Nonfiction
ENGL 708 Nonfiction: Form and Technique
ENGL 711 Editing
ENGL 712 Multimedia Storytelling
ENGL 724 Sports Writing
ENGL 735 Entrepreneurial Journalism
Capstone:
ENGL 720 Journalism Internship 1-16
Select a three-course concentration in another area 3 12

With a B or better, or the AP or transfer credit equivalent
This must be completed with a minimum grade of C. ENGL 419 Introduction to Literary Analysis is the only 400-level class that may count towards the English Literature major. ENGL 403 Exploring Literature, ENGL 415s, "Literature and..." courses, and ENGL 444s will NOT count towards this major.
Because media outlets expect even entry-level staff to have an area of expertise, English/journalism majors must take a three-course concentration in another field, such as sociology, German, environmental science, criminal justice, or other English disciplines (e.g., African American studies). Courses taken for a minor will count toward the three-concentration.

Pre-1800 Literature Courses
ENGL 512 Survey of British Literature I 4
ENGL 513 Survey of British Literature II 4
ENGL 657 Shakespeare 4
ENGL 741 Literature of Early America 4
ENGL 751 Medieval Epic and Romance 4
ENGL 753 Old English 4
ENGL 756 Chaucer 4
ENGL 758 Shakespeare 4
ENGL 759 Milton 4
ENGL 767 Literature of the Restoration and Early 18th Century 4
ENGL 768 Literature of the Later 18th Century 4
ENGL 780 Drama of Shakespeare's Contemporaries 4
ENGL 781 English Drama, 1660-1800 4
ENGL 783 English Novel of the 18th Century 4

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Post-1800 Literature Courses
ENGL 514 Survey of British Literature 4
### Courses That Address Race, the Construction of Race, and Racial Theories

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>Introduction to African American Literature in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 738</td>
<td>Topics in Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #740</td>
<td>Indigenous New England</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature (subtopic R)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature (subtopic R)</td>
<td>4</td>
</tr>
</tbody>
</table>

1 If topic is appropriate. (Please see your advisor if you have questions about other courses that might fulfill this requirement.)

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

### Writing Minor

**Description**

The Writing minor provides students with the critical thinking, research, and writing skills that will serve them well in their personal and professional lives.

**Requirements**

Students who wish to minor in English at UNH must complete five courses (20 credits). At least three of the courses must be at the 600 level or above. ENGL 419 Introduction to Literary Analysis is recommended as one of the five courses. ENGL 401 First-Year Writing and ENGL 415s, "Literature and...", courses cannot be applied toward the English minor. No more than two transfer courses can be applied toward the English minor. The minimum acceptable grade for each course is C-.
Requirements

Students must complete at least five 4-credit courses (20 credits) from the list of approved courses. At least three of the courses must be at the 600 level or higher. ENGL 415s, “Literature and...” courses cannot be applied toward the English writing minor. The minimum acceptable grade for each course is C-. No more than two transfer courses can be applied toward the English writing minor. English literature and English teaching majors may declare a writing minor with the approval of their faculty adviser. A maximum of two English courses (8 credits) are allowed to double-count toward the literature or teaching major and writing minor. Other English Department majors are not eligible to declare a writing minor.

Courses that Count Toward the Writing Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 526</td>
<td>Introduction to Fiction Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 527</td>
<td>Introduction to Poetry Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 621</td>
<td>Writing and Reporting the News I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 622</td>
<td>Writing and Reporting the News II</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 623</td>
<td>Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 625</td>
<td>Intermediate Fiction Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 627</td>
<td>Intermediate Poetry Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 701</td>
<td>Advanced Fiction Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 703</td>
<td>Travel Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 705</td>
<td>Advanced Poetry Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 708</td>
<td>Nonfiction: Form and Technique</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #709</td>
<td>Poetry: Form and Technique</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 710</td>
<td>Teaching Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 711</td>
<td>Editing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 721</td>
<td>Advanced Reporting</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 729</td>
<td>Special Topics in Composition Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
</tbody>
</table>

At the beginning of your final semester of study at UNH, please fill out the Certification of Completion of Minor (http://www.unh.edu/registrar/regforms/minorform.pdf) form and obtain signatures from your major advisor, the English department coordinator, and the Dean of your college.

French (FREN)

Study Abroad in Dijon

The department offers a junior year and semesters abroad at the University of Burgundy in Dijon, France (see FREN 690 Study Abroad in Dijon France). This program is open to all qualified students at the University of New Hampshire who have completed, with a grade of B- or better, FREN 631 Advanced French Conversation and Composition I-FREN 632 Advanced French Conversation and Composition II and FREN 651 Readings in French Literature-FREN 652 Readings in French Literature by the end of the semester preceding their departure. Early consultation with the director of the program is urged. Non-credit orientation meetings are required during the semester prior to departure.

Summer Study in Dijon

This program is open to all students interested in an immersion program during the summer. It provides four to eight weeks of intensive courses in French at the CIEF (Centre International des Etudes Francaises) at the Universite de Bourgogne in Dijon, France. A minimum GPA of 2.5 is required. The pre-requisite for non-French majors is a minimum of one year of elementary French. The pre-requisite for French majors is FREN 631 Advanced French Conversation and Composition I, FREN 632 Advanced French Conversation and Composition II, FREN 651 Readings in French Literature and/or FREN 652 Readings in French Literature. For French majors, the course is only open to those who cannot fulfill their semester-long study abroad requirement for documented academic reasons. By petition only. Special fee. 4 to 8 credits.

Teaching Assistantship in France

Each year the French government offers teaching assistantships in a French secondary school to graduating French majors or minors. Applications are accepted during the fall semester.

http://cola.unh.edu/lfc

French Major (B.A.)

http://cola.unh.edu/lfc

Description

The French major offered by the Department of Languages, Literatures, and Cultures provides knowledge of the language, literature, and culture of France and other French-speaking countries around the world. An undergraduate major in French is useful in a variety of careers, such as business, law, government or public service, and teaching. Check out our alumni stories here (http://cola.unh.edu/spotlight/lfc).

Requirements

A major consists of 40 credits in courses numbered 631 or above, in which readings are in French. Coursework for the French major must be completed with a grade of C or better. Majors are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 631</td>
<td>Advanced French Conversation and Composition I</td>
<td>4</td>
</tr>
<tr>
<td>FREN 632</td>
<td>Advanced French Conversation and Composition II</td>
<td>4</td>
</tr>
<tr>
<td>FREN 651</td>
<td>Readings in French Literature</td>
<td>4</td>
</tr>
</tbody>
</table>
The major consists of 44 credits in French courses numbered 631 or above and of cross-listed courses in other departments, including the following requirements:

- **FREN 631** Advanced French Conversation and Composition I 4
- **FREN 632** Advanced French Conversation and Composition II 4
- **FREN 651** Readings in French Literature 4

Select one of the following:

- **FREN 675** Topics in French Civilization 4
- **FREN 676** Topics in Francophone Culture 4
- **FREN 677** France in the European Union 4

Select two 700-level courses in French or Francophone literature 8

Select at least three elective courses (12 credits) closely related to French and Francophone cultural studies 12

Total Credits 44

1 These are to be chosen in consultation with a faculty adviser from among the following departments: history, geography, or anthropology, one 600- to 700-level course; art history or music, one 600- to 700-level course; economics, political science, or education, one 600- to 700-level course.

Coursework for the French studies major must be completed with a grade of C or better. Students are required to enroll in at least one course each semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed study abroad program in Dijon is highly recommended. It offers both year- and semester-long programs. Other options are available, but non-UNH programs must be chosen in close consultation with a major adviser and the UNH Center for International Education. Students in majors with inflexible curricula who wish to complete a second major in French studies should consult with a French adviser about alternate means of satisfying the study abroad requirement.

Transfer students must earn a minimum of 12 credits on the Durham campus. Of these 12 credits, one course must be FREN 790 Advanced Language and Style and at least one 700-level course in French/ Francophone literature.

The Discovery Program capstone requirement may be fulfilled by completing FREN 790 Advanced Language and Style.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. However, majors may use the required study abroad experience to satisfy the World Cultures Discovery category requirement.

### French Studies Major (B.A.)

http://cola.unh.edu/lfc

**Description**

This major gives students a variety of perspectives not only on French and Francophone literature but also on a variety of other issues pertaining to the Francophone world. A major in French studies prepares graduates to negotiate successfully the economic reality of an increasingly international job market, and provides them with a wide range of career prospects after they leave the University. Check out our alumni stories here (http://cola.unh.edu/spotlight/lfc).

### Requirements

The major consists of 44 credits in French courses numbered 631 or above and of cross-listed courses in other departments, including the following requirements:

- **FREN 652** Readings in French Literature 4
- **FREN 790** Advanced Language and Style 4

Select at least two 700-level literature courses at the Durham campus 8

Other elective courses 12

Total Credits 40

Students are required to enroll in at least one course each semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed program in Dijon is highly recommended and offers year- and semester-long options. Other options are available, but non-UNH programs must be chosen in consultation with a major adviser and the UNH Center for International Education. Students in majors with inflexible curricula (like engineering, some sciences, and health care) who wish to complete a second major in French should consult with a French adviser about possible alternate means of satisfying the study abroad requirement.

Transfer students must earn a minimum of 12 major credits at the Durham campus. Of these 12 credits, one course must be FREN 790 Advanced Language and Style and at least one 700-level course in French/ Francophone literature.

The Discovery Program capstone requirement may be fulfilled by completing FREN 790 Advanced Language and Style.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. However, majors may use the required study abroad experience to satisfy the World Cultures Discovery category requirement.

### French Minor

http://cola.unh.edu/lfc

**Description**

Students who minor in French or French studies learn to perfect their communications skills, explore works of imaginative literature in French, and investigate dimensions of historical and contemporary civilization and culture in one or more French-speaking countries.
A minor in French consists of 20 credits in French courses numbered FREN 503 Intermediate French I and above. No fewer than three courses have to be taken at UNH. No more than one course conducted in English (e.g., FREN 525 Introduction to French Civilization and Culture or FREN 625 Cuisine, Culture, and the Creation of French Identity) will be counted toward the minor, although students may elect to take more than one such course provided they earn more than 20 credits. Those entering the minor at FREN 504 Intermediate French II or higher will be expected to complete FREN 651 Readings in French Literature or FREN 652 Readings in French Literature. LLC 791 Methods of Foreign Language Teaching does not count for the minor. After completing the five required courses, students submit a "Completion of Minor" form.

French Studies Minor
http://cola.unh.edu/llc

Description
Students who minor in French or French studies learn to perfect their communications skills, explore works of imaginative literature in French, and investigate dimensions of historical and contemporary civilization and culture in one or more French-speaking countries.

Requirements
The minor in French studies consists of 20 credits numbered FREN 503 Intermediate French I or above. No fewer than three courses have to be taken at UNH. No more than one course conducted in English (FREN 525 Introduction to French Civilization and Culture or FREN 625 Cuisine, Culture, and the Creation of French Identity) will be counted toward the minor. Students entering the minor at FREN 504 Intermediate French II or higher will be expected to complete FREN 651 Readings in French Literature or FREN 652 Readings in French Literature. LLC 791 Methods of Foreign Language Teaching does not count toward the minor. After completing the five required courses, students submit a "Completion of Minor" form.

Geography (GEOG)
Geography is the study of how and why things vary from place to place around the world. Geographers study the environment. They study the geography of human activity. They study places and all that makes them distinctive. They study how people interact with the natural world.

Geography is a multifaceted and inherently interdisciplinary field. It is an integrating discipline, drawing on knowledge from many other fields in order to understand geographic patterns and the character of individual places. Geography is also a way of looking at the world. Nearly any subject can be viewed through a geographic lens.

The Department of Geography at UNH is strongest in cultural, political, urban, historical, and environmental geography, climatology, and geotechniques. Individual faculty members possess regional specialties in New England, North America, Latin America, the Middle East, and Japan.

https://cola.unh.edu/geography

Programs

• Geography Major (B.A.) (p. 68)
• Geography Minor (p. 69)

Faculty
http://cola.unh.edu/faculty/geography

Geography Major (B.A.)
https://cola.unh.edu/geography

Description
The geography major provides undergraduates with a solid foundation in geography by uniting social and biophysical sciences, humanities and technology to examine the factors that make a place or environment unique. A geography degree will prepare students to pursue a variety of careers or professional and graduate degrees.

With interests ranging from globalization to climate change and sustainability, urbanization to community development at home and abroad, UNH geography graduates have gone on to careers in urban, regional, and transportation planning, community development, environmental conservation and natural resources management, sustainability science, geographic information science, market research, locational analysis, population studies, foreign aid, international diplomacy, and education.

Requirements
To earn a bachelor of arts in geography, students must complete 10 geography courses with a minimum grade of C-minus:

Select five core courses
Select four courses in one of three areas of concentration
Select one elective course

Students must select an area of concentration within six months of declaring geography as their major.

Core Courses
All geography majors must complete five core courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 401</td>
<td>Regional Geography of the Western World</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 402</td>
<td>Regional Geography of the Non-Western World</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 572</td>
<td>Geography of the Natural Environment</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 581</td>
<td>Human Geography</td>
<td>4</td>
</tr>
<tr>
<td>GEOG/NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 20

The core courses are intended to provide students a basic understanding of human, physical, and world regional geography, plus geographic information systems. They should be taken as early as possible in a student’s program because they provide a foundation for more advanced coursework.
Students are encouraged to complete GEOG 595 Statistics for Spatial Science, or another statistics course approved by their adviser, before enrolling in GEOG 658 Introduction to Geographic Information Systems.

**Human Geography Concentration**

Intended for students most interested in the geography of human activity, including population, urban, cultural, political, and economic geography.

Select three of the following, including one course at the 600-level or above:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 582</td>
<td>Global Trade and Local Development</td>
</tr>
<tr>
<td>GEOG 584</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GEOG 673</td>
<td>Political Ecology</td>
</tr>
<tr>
<td>GEOG 680</td>
<td>Historical Geography</td>
</tr>
<tr>
<td>GEOG 685</td>
<td>Geography of Population and Development</td>
</tr>
<tr>
<td>GEOG 686</td>
<td>World Economy and Globalization</td>
</tr>
</tbody>
</table>

Select one of the following regional geography courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 514</td>
<td>Geography of the United States and Canada</td>
</tr>
<tr>
<td>GEOG 520</td>
<td>Geography of Latin America and the Caribbean</td>
</tr>
<tr>
<td>GEOG 530</td>
<td>Geography of China</td>
</tr>
<tr>
<td>GEOG 540</td>
<td>Geography of the Middle East</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>Geography of Sub-Saharan Africa</td>
</tr>
</tbody>
</table>

**Environmental Geography Concentration**

Intended for students most interested in the geography of the natural environment, including weather, climate, landforms, biogeography, and human-environment interactions.

Select three of the following, including one course at the 600-level or above:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 405</td>
<td>Human-Environment Geography</td>
</tr>
<tr>
<td>GEOG 473</td>
<td>Elements of Weather</td>
</tr>
<tr>
<td>GEOG 560</td>
<td>Geography of Natural Hazards</td>
</tr>
<tr>
<td>GEOG 573</td>
<td>Biogeography</td>
</tr>
<tr>
<td>GEOG 574</td>
<td>Geography of Landforms</td>
</tr>
<tr>
<td>GEOG 670</td>
<td>Climate and Society</td>
</tr>
<tr>
<td>GEOG 671</td>
<td>Weather Forecasting</td>
</tr>
<tr>
<td>GEOG 673</td>
<td>Political Ecology</td>
</tr>
<tr>
<td>GEOG 595</td>
<td>Statistics for Spatial Science ¹</td>
</tr>
</tbody>
</table>

**Geotechniques Concentration**

Intended for students most interested in geographic information systems, aerial photo interpretation, remote sensing, photogrammetry, and other geographic techniques.

Select three of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 650</td>
<td>Field Methods in Geography</td>
</tr>
<tr>
<td>GEOG/NR 757</td>
<td>Remote Sensing of the Environment</td>
</tr>
<tr>
<td>GEOG/NR 759</td>
<td>Digital Image Processing for Natural Resources</td>
</tr>
</tbody>
</table>

**Other Courses**

A course taught as GEOG 796 Special Topics may fulfill the major elective requirement or be applied to a concentration if approved by department faculty. The following courses may fulfill the major elective requirement if taken for four credits but cannot be applied to a concentration.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 695</td>
<td>Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>GEOG 795</td>
<td>Special Project</td>
<td>2</td>
</tr>
<tr>
<td>GEOG 799</td>
<td>Honors Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Additional Requirements**

Students entering UNH beginning in August 2010 must pass a comprehensive examination in their senior year to fulfill the Discovery capstone requirement.

The required minimum overall GPA in major coursework is 2.0. Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

The University's foreign language requirement can be fulfilled by the following languages: French, Italian, Spanish, Portuguese, German, Russian, Chinese, Japanese, Arabic, Latin, or Greek. Other languages will be considered by petition.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

**Geography Minor**

https://cola.unh.edu/geography

**Description**

The geography minor allows undergraduates to explore one or more of the three main areas of geography—human geography, environmental geography, and geotechniques. Studying geography prepares students to pursue a wide variety of careers or enter graduate school.

**Requirements**

To minor in Geography, you must complete any five Geography courses (at least 20 credit hours) with a grade of at least C-. Courses taken Pass/Fail cannot be used for the minor. All minor courses can be used to fulfill Discovery Program requirements.

At the beginning of your final semester at UNH you should complete a Certification of Completion of Minor form (http://www.unh.edu/registrar/regforms/minorform.pdf). The minor must be approved by your
major and minor supervisors. The completed form is then presented to the college dean for approval and, finally, forwarded to the Registrar.

Please direct questions about minoring in Geography to Mary Stampone (mary.stampone@unh.edu), Chair.

**German (GERM)**

German is the most widely spoken language in Europe, and Germany holds a prominent role in the EU and world economy. Germany is also the world's second leader in the development of alternative energy. The country's rich cultural history and intellectual life make Germany's contributions critical to a well-informed education.

**Study Abroad**

**Summer Study in Berlin, Germany**

The UNH German Program manages a five-week program in Berlin, Germany. Students earn 4 or 8 credits through GERM 586 Study in Berlin, designed to give students an immersion experience in the German language and culture. In the course of five weeks, students will receive seventy hours of intensive language instruction at the appropriate level (elementary, intermediate, or advanced) at the BSI Private Language School in central Berlin. No prior German language study is required. On designated weekday afternoons, students will gather for cultural excursions and discussions with the on-site UNH faculty member. Students can receive UNH language credit and fulfill the World Cultures Discovery requirement. In line with UNH's goals to educate students to become global citizens, this immersion experience will give students insight into what it means to experience a different culture and language. For more information, contact Charles Vannette at (603) 862-1690, e-mail berlin.program@unh.edu, (berlin.program@unh.edu) or visit cola.unh.edu/study-abroad/program/germany-berlin (http://www.cola.unh.edu/study-abroad/program/germany-berlin).

**Other Programs**

The University allows both German majors and minors and other students to attend approved study abroad programs for UNH credit. Students may attend accredited one- or two-semester programs at universities such as Berlin, Freiburg, Heidelberg, Innsbruck, Marburg, Munich, Tübingen, or Vienna. Most study abroad programs require a minimum of two years of college German. For details, see the German coordinator or the foreign study coordinator in the Center for International Education. Internships with a German firm or organization may also be taken for credit (see GERM 595 Internship). Financial aid applies to all approved programs.

https://cola.unh.edu/llc

**Programs**

- German Major (B.A.) (p. 70)
- German Minor (p. 71)

**Faculty**

http://cola.unh.edu/llc/program/german-ba/faculty

**German Major (B.A.)**

https://cola.unh.edu/llc

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**Description**

The German major is offered by the Department of Languages, Literatures, and Cultures. This program is of interest to the following groups of students:

- Those who have a special interest in the German language, literature, and culture.
- Those who intend to enter fields in which a background in foreign languages and literatures is desirable, such as international business and law, trade, journalism, science, library science, government service, and international service organizations.
- Those who plan to teach German in secondary schools. Since most secondary schools require their teachers to teach more than one subject, students planning to enter teaching at this level should plan their programs carefully. They should combine a major in one language and its literature with a minor or at least a meaningful sequence of courses in another subject. Dual majors also are possible. For certification requirements, see the section coordinator.

All German majors are strongly encouraged to double major or include a relevant minor in their studies.

Check out our alumni stories here. (http://cola.unh.edu/spotlight/llc)

**Requirements**

A major consists of 10 courses in German beyond GERM 402 Elementary German II. Courses required for the major (or their equivalents):

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM 503</td>
<td>Intermediate German I</td>
<td>4</td>
</tr>
<tr>
<td>GERM 504</td>
<td>Intermediate German II</td>
<td>4</td>
</tr>
<tr>
<td>GERM 525</td>
<td>Introduction to German Culture and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>GERM 631W</td>
<td>Advanced Communications Skills I</td>
<td>4</td>
</tr>
<tr>
<td>GERM 632</td>
<td>Advanced Communications Skills II</td>
<td>4</td>
</tr>
<tr>
<td>Select four courses, taken at the 600 or 700 levels</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Capstone: Select one course at the 700 level</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1 A successful IROP or SURF application may count as one of the 700-level courses.
2 Including GERM 797 Special Studies in German Language and Literature and GERM 798 Special Studies in German Language and Literature

A grade of C- or better is required in all major coursework. Majors are required to spend a minimum of one semester in an approved German-speaking study abroad program, or at least eight weeks in a summer study program. For students spending one semester abroad, two or three of the five upper-level courses are normally taken in Durham. For students spending an academic year abroad, three or four of the five upper-level courses are normally taken in Durham. LLC 791 Methods of Foreign Language Teaching does not count for major credit; LLC 791 Methods of Foreign Language Teaching is recommended as an elective and required for teacher certification.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each
individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. However, majors may use the required study abroad experience to satisfy the World Cultures Discovery category requirement.

German Minor

https://cola.unh.edu/llc

Description

The German minor is appropriate for those who have a special interest in the German language, literature, and culture; and those who intend to enter fields in which a background in foreign languages and literatures is desirable, such as international business and law, trade, journalism, science, library science, government service, and international service organizations.

Requirements

A minor consists of five courses in German numbered 503 and above. The minor may include one course taught in English but not LLC 791 Methods of Foreign Language Teaching.

You do not need to declare a minor; however, it might be wise to meet with a faculty member from the German program to discuss your minor plan.

At the beginning of your final semester of study, you should complete a certification of completion of minor form (http://www.unh.edu/registrar/regforms/minorform.pdf), obtain the necessary signatures, and submit it to your Dean’s Office.

History (HIST)

The History Department offers comprehensive programs for undergraduates and a faculty who have won numerous prizes for teaching and scholarship. Our courses cover a wide range of times, places, and subjects, with a particular strength in cultural history, women’s history, the history of religion, Atlantic history, and African American history.

The Department offers a major and minor in history. We also administer two interdisciplinary minors: the history and philosophy of science minor and the religious studies minor.

The History Department at UNH has approximately 200 undergraduate majors; about 50 students graduate with a history major every year.

https://cola.unh.edu/history

Faculty

http://cola.unh.edu/faculty/history

History Major (B.A.)

https://cola.unh.edu/history

Description

The study of history is an essential element of the liberal arts education. The history major provides both an awareness of the past and the tools to evaluate and express one’s knowledge. The student who majors in history will have the opportunity to study the breadth of the human past and will acquire the skills in critical reading and writing that form the foundation of the educated life. The study of history may include all of human culture and society and provides tremendous latitude in the subjects that may be studied. The interdisciplinary nature of the field makes it a natural focus for study that may encompass a variety of other fields.

Undergraduate Awards for Majors

The Philip M. Marston Scholarship, an award of $500, is available to students who are interested in colonial or New England history and have demonstrated financial need. There are course requirements for this scholarship. More details are available from the history office.

Each spring, the members of the departmental undergraduate committee choose history majors to receive the following prizes in history:

- The William Greenleaf Prize is given for the best senior colloquium paper. Award candidates must have a minimum grade-point average of 3.2 in history courses. Individuals may nominate themselves or may be nominated by faculty members.
- The Allen Linden Prize for the best senior history thesis is funded by the Signal Fund.
- The Charles Clark Prize is for the best essay or research paper submitted by a history major and is funded by the Signal Fund.

Phi Alpha Theta, the history honor society, is an international scholastic organization dedicated to promoting historical study on the undergraduate and graduate levels. Admission to the UNH Psi Pi chapter is open to undergraduates with an overall grade-point average of 3.0, a grade-point average of 3.4 or better in history courses, and completion of HIST 500 Introduction to Historical Thinking.

Requirements

To complete a major in history, students must take ten, 4-credit history courses or their equivalent. Students who enter the University as history majors or who declare a major in history should take the first required course, HIST 500 Introduction to Historical Thinking, as soon as possible. To declare a major in history, students must have completed two history courses with a grade of C- or better. HIST 500 Introduction to Historical Thinking is a prerequisite for the second required course, HIST 797 Colloquium, which fulfills the Discovery Program capstone requirement for history majors and is taken during the senior year. Students should consult the list of topics for HIST 797 Colloquium advertised each semester.
A student's program of study must include two parts:

1. An area of specialization. A student must select at least four courses to serve as an area of specialization within the major. Up to two courses (each four credits or their equivalent) in the area of specialization may be taken in other departments; such courses must be 500 level or above and have the approval of the student's adviser. The area of specialization may be in a nation, region, a time period, or an interdisciplinary field.

2. Complementary courses. A student must select, in consultation with his or her adviser, at least three history courses in fields outside the area of specialization, chosen to broaden his or her understanding of the range of history. Normally, each major should take at least one course from each of Groups I, II, and III, unless explicitly excused by his or her adviser. Group I contains all American history courses, Group II contains all European history courses, and Group III contains all other history courses.

The program must be planned in consultation with an adviser. A copy of the program, signed by the adviser, must be placed in a student's file no later than the second semester of the student's junior year. Courses at the 700 level will be judged by the adviser as to their applicability for area of specialization or complementation. The program may be modified with the adviser's approval.

For transfer students, a minimum of five of the semester courses used to fulfill the major requirements must be taken at the University. One upper-level course may be transferred to satisfy the requirement that a major must take at least three courses numbered 600 or above. Transfer students must complete both HIST 500 Introduction to Historical Thinking or its equivalent and HIST 797 Colloquium.

Students intending further work in history beyond the bachelor's degree are urged to take HIST 775 Historical Methods.

Students intending to major in history should consult with the department administrative assistant in Horton 423. Suggested programs for students with special interests or professional plans are available in the department office.

**History Minor**

https://cola.unh.edu/history

**Description**

The study of history is an essential element of the liberal education. Studying history provides both an awareness of the past and the tools to evaluate and express one's knowledge.

**Requirements**

A minor in history consists of 20 semester credits with C- or better and at least a 2.0 grade-point average in courses that the Department of History approves. Courses taken on a pass/fail basis may not be used for the minor. No more than 12 credits in 400-level courses may be used for this minor. For transfer students, no more than two transfer courses, or 8 transfer credits, may be used toward the minor.

**History and Philosophy of Science Minor**

http://cola.unh.edu/interdisciplinary-studies/program/history-and-philosophy-science-minor

**Description**

What is science? When people ponder this question, they often are led to seek answers outside the sciences themselves. This interdisciplinary minor helps students address historical and philosophical questions about science. The history of science asks: How did we come to hold the beliefs we do about the natural world? How were the great scientists of the past led to the discoveries for which they are remembered? Why did people in the past have very different ideas on issues like the motions of the heavens or the nature of the human body? It is a puzzling reality of world history that the human understanding of nature, society, and the mind has varied greatly with place and time. This intriguing variety also raises philosophical questions: What separates science from pseudoscience or religion? How can we decide whether scientific knowledge will have good or bad consequences for humanity? Can science ever reach the ultimate truth about the universe?

The minor in history and philosophy of science offers courses in such diverse departments as economics, history, mathematics, philosophy, and psychology. It presupposes no specialized scientific background and may be combined with any undergraduate major. Five 4-credit courses are required for the minor, with no more than three from any single department.

Students interested in taking the minor should contact the coordinator, Jan Golinski, Department of History, Horton Social Science Center, e-mail jan.golinski@unh.edu.
Requirements

Select five of the following: 20

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 698</td>
<td>Topics</td>
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<tr>
<td>ECON 798</td>
<td>Economic Problems</td>
<td>1</td>
</tr>
<tr>
<td>HIST 521</td>
<td>Origins of Modern Science</td>
<td></td>
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<tr>
<td>HIST 522</td>
<td>Science in the Modern World</td>
<td></td>
</tr>
<tr>
<td>HIST 621</td>
<td>History of American Thought</td>
<td></td>
</tr>
<tr>
<td>HIST 622</td>
<td>History of American Thought</td>
<td></td>
</tr>
<tr>
<td>HIST 652</td>
<td>Topics in European Intellectual History</td>
<td></td>
</tr>
<tr>
<td>HIST 654</td>
<td>Topics in History of Science</td>
<td></td>
</tr>
<tr>
<td>HUMA 651</td>
<td>Humanities and Science: The Nature of Scientific Creativity</td>
<td></td>
</tr>
<tr>
<td>PHIL 424</td>
<td>Science, Technology, and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 435</td>
<td>Human Nature and Evolution</td>
<td></td>
</tr>
<tr>
<td>PHIL 447</td>
<td>Artificial Intelligence, Robots, and People</td>
<td></td>
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<tr>
<td>PHIL 630</td>
<td>Neuroscience and Philosophy</td>
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<tr>
<td>PHIL 780</td>
<td>Special Topics</td>
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<tr>
<td>PSYC 571</td>
<td>Pioneers of Psychology</td>
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</tr>
<tr>
<td>PSYC 591</td>
<td>Special Topics</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 20

1 With approval.

Humanities (HUMA)

The humanities program examines the fundamental questions and issues of human civilization. Through studying diverse texts in the arts, music, literature, history, philosophy, and science, students seek answers to questions that thoughtful human beings must address in the course of their lives. Whether these questions come from Socrates (What is justice?), from Sir Thomas More (What is obligation to God?), from Raphael (What is beauty?), from Newton (What are the laws of nature?), or from Martin Luther King, Jr. (What is freedom?), they direct our attention to enduring human concerns and to texts that have suggested or illustrated the most profound and powerful answers. The humanities program is housed in the Department of Classics, Humanities, and Italian Studies.

http://cola.unh.edu/chi

Programs

- Humanities Dual Major (p. 73)
- Humanities Minor (p. 74)

Faculty

http://cola.unh.edu/faculty/chi

Humanities Dual Major

http://cola.unh.edu/chi

Description

The dual major in Humanities is structured in such a way that students can focus on a chosen primary major while taking advantage of the Humanities Program curriculum and its emphasis on analytical writing, critical thinking, and well-rounded interdisciplinary cultural knowledge. Students combine our curriculum with another, disciplinary major that allows them to pursue a narrower field of study in some depth. The dual major in interdisciplinary humanities offers students a set of tools and skills so they can understand and forge our 21st century world. Its curriculum provides structure, progression, and rigor. Citizens of the 21st century need to know how to analyze texts and navigate cultures. That is why the Humanities are essential to the lives of educated people.

Requirements

The humanities dual major consists of a minimum of 32 credits of academic work, with a minimum grade of C-. Students cannot declare the dual major until they have declared a primary major. They must have a GPA of 2.75 to be accepted to the dual major program.

Core Requirements: Four Core Courses (16 Credits)

Select EITHER two of the following team-taught courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMA 500</td>
<td>Critical Methods in the Humanities</td>
</tr>
<tr>
<td>510A/510B/511</td>
<td>Ancient World: An Interdisciplinary Introduction</td>
</tr>
<tr>
<td>511A/511B/511C/511D</td>
<td>Medieval World: An Interdisciplinary Introduction</td>
</tr>
<tr>
<td>512A/512B/512C/512D</td>
<td>Renaissance and Early Modern: An Interdisciplinary Introduction</td>
</tr>
<tr>
<td>513A/513B/513C/513D</td>
<td>Modern World: An Interdisciplinary Introduction</td>
</tr>
<tr>
<td>514A/514B/514C/514D</td>
<td>20th Century, 1900-1945: An Interdisciplinary Introduction</td>
</tr>
<tr>
<td>OR one team-taught course PLUS</td>
<td></td>
</tr>
<tr>
<td>HUMA 401/401W</td>
<td>Introduction to the Humanities</td>
</tr>
</tbody>
</table>

Discovery Program Capstone

Select EITHER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMA 700</td>
<td>Seminar (preferably during junior or senior year)</td>
</tr>
<tr>
<td>HUMA 798</td>
<td>Research Seminar</td>
</tr>
<tr>
<td>HUMA 799</td>
<td>Research Seminar</td>
</tr>
</tbody>
</table>

Additional Requirements (16 Credits)

Select four area courses in HUMA (500 level or above) from at least three of five areas of disciplinary focus

1 Students will be made acquainted with the methods and technology required for research in humanities.
2 This seminar provides an opportunity for in-depth reading, viewing, and/or listening to texts and artifacts. The emphasis is on the multiple perspectives and methodologies that can be brought to bear upon these works from several humanistic disciplines.
Each student participates in the research tutorial (for a total of 6 credits) throughout the senior year. The tutorial provides a context within which students may discuss and receive direction in the course of completing a major research paper, the senior thesis. At the end of the second semester, students present their research to the faculty and their fellow students.

Selected with the advice and approval of each student’s major adviser or the program coordinator. These offerings should bear some relation to the student’s particular interests and senior research paper, as seems appropriate in each individual case.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

### Humanities Minor

http://cola.unh.edu/chi

**Description**

There has never been a more exciting time to be human—or has there? What exactly does it mean to be a human being in the twenty-first century? How can you get the most out of your humanity? Find out by minoring in the humanities. It can help prepare you for a life you may not have considered, in ways you’ve never imagined.

**Requirements**

The humanities minor consists of the following courses:

Select two courses (8 credits) of the following sequence:

- HUMA 510A/510B/510C/510D Ancient World: An Interdisciplinary Introduction (8 credits)
- HUMA 511A/511B/511C/511D Medieval World: An Interdisciplinary Introduction (8 credits)
- HUMA 512A/512B/512C/512D Renaissance and Early Modern: An Interdisciplinary Introduction (8 credits)
- HUMA 513A/513B/513C/513D Modern World: An Interdisciplinary Introduction (8 credits)
- HUMA 514A/514B/514C/514D 20th Century, 1900-1945: An Interdisciplinary Introduction (8 credits)

Select two courses (8 credits) from other humanities program courses, one of which should be at the 600 level

- HUMA 700 Seminar (or another approved course) (4 credits)

Total Credits: 20

Inquiries about the humanities major and minor should be directed to Catherine Peebles, Coordinator of the humanities program, 320 Murkland Hall, (603) 862-3638, e-mail huma@unh.edu.

### International Affairs (IA)

The international affairs program offers undergraduate students the opportunity to pursue a dual major or a minor in international affairs (IA). The dual major and minor pair with any primary major in any college at UNH. The IA program adds an international dimension to the primary major and expands career opportunities in a global, interdependent world. IA courses core courses are interdisciplinary, taught by faculty with expertise in international studies from around the university. Required IA courses and IA elective courses help students appreciate complex interconnections among nations and peoples and equip them with the analytical skills, cultural competence, and global perspectives needed for careers in the public, private and nonprofit sectors.

http://www.cola.unh.edu/international-affairs

**Programs**

- International Affairs Dual Major (p. 74)
- International Affairs Minor (p. 78)

**Faculty**

https://cola.unh.edu/faculty/international-affairs

### International Affairs Dual Major

http://www.cola.unh.edu/international-affairs

**Description**

The international affairs (IA) dual major can complement and add a global dimension to any other major at UNH. The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for international affairs must be completed with a grade of C or better. For information, contact the International Affairs Program Assistant (https://cola.unh.edu/international-affairs/contact-us).

Students who wish to declare international affairs dual major must earn a C or better in IA 401, have declared a primary major, and have a 2.5 cumulative grade-point average. Students are expected to maintain at least a 2.5 grade-point average, the minimum required for study abroad at UNH.

**Note:** Participation in the international affairs dual major and minor is open to ALL students at UNH. For instance, the Department of Civil Engineering has developed a dual-major program in civil engineering and international affairs. Students do not need to have pre-existing skills in a foreign language before coming to UNH. For more information about the civil engineering/IA program, contact Ray Cook at ray.cook@unh.edu.

**Requirements**

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IA 401</td>
<td>International Perspectives</td>
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<tr>
<td>IA 501</td>
<td>Global Issues in International Affairs</td>
<td>4</td>
</tr>
<tr>
<td>IA 701</td>
<td>Seminar</td>
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Select one of the following:  

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
</tr>
</tbody>
</table>

International Affairs Language Requirement  
1 variable  

International Experience - Study Abroad  
2 variable  

Electives - see list below  

Select one course from each category list, plus one more course from 12 either category (3 courses total):  

Politics, Culture, & History  

Science, Environment, Economy, & Health  

1 International Affairs Language Requirement  
IA majors must demonstrate functional reading, writing, and speaking ability equivalent to a third-year, second-semester college level (632). Students may take placement tests to establish proficiency. Native second language speakers are exempt from this requirement - speak to an IA advisor. Language study may be pursued at UNH; through study abroad in the summer, J-term, or academic year; or through transfer credits from other institutions with the permission of the IA advisor.  

2 International Experience - Study Abroad  
Minimum of eight weeks. The IA international experience is ordinarily conducted in a country or region consistent with the student’s language study. However, students may pursue their international experiences elsewhere by petition (https://cola.unh.edu/sites/cola.unh.edu/files/departments/International%20Affairs/pdf/ia-petition-intl-experience.pdf) to the IA Program Chair. The international experience (usually completed in the junior year) is completed before taking IA 701 in the senior year. Students must meet with the Study Abroad advisors at the Center for International Education and Global Engagement (http://www.unh.edu/global/education-abroad) to plan their international experience, typically a year in advance of study abroad.  

Electives (three total)  
IA Dual Majors take three electives, one course from each category list: Politics, Culture, and History and from Science, Environment, Economy and Health. IA dual majors choose their 3rd elective from either list. IA electives are offered across the university and may be used to fulfill Discovery, Honors Program and/or other minor requirements. Up to 8 credits may be double counted between your primary major and IA. Additional courses taken in the primary major may count for IA if these courses do not count towards your primary major requirements. Electives may be taken at UNH, on the international experience, or transferred from another university with permission of your IA advisor.  

Politics, Culture, & History Electives  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology (or ANTH 411H)</td>
</tr>
</tbody>
</table>
| ANTH 500    | Peoples and Cultures of the World (area specific)  
| ANTH 501    | World Archaeological Cultures |

or ANTH 411Global Perspectives on the Human Condition: An Introduction to Anthropology |

or ANTH 500Peoples and Cultures of the World |

ANTH 515 Anthropology and Contemporary Issues  

ANTH 616 Religion, Culture, and Society  

ANTH #640 Anthropology of Islam: Muslims’ everyday lives in contemporary communities  

ANTH 697 Special Topics  

ANTH 750 Islam and Gender: Gendered Lives of Muslims  

ARTS 674 Greek Art and Architecture  

ARTS 675 Roman Art and Architecture  

ARTS 678 Romanesque and Gothic Art  

ARTS 679 Northern Renaissance Art I  

ARTS 680 Northern Renaissance Art II  

ARTS 681 Early Renaissance Art in Italy  

ARTS 682 The High Renaissance  

ARTS 683 Baroque Art  

ARTS 684 Baroque Art in Northern Europe  

ARTS 687 Nineteenth-Century European Art  

ARTS 688 Gauguin to Hitler: Tropical Paradise to Technological Utopia  

CHIN 425 Introduction to Chinese Culture  

CHIN 521 Chinese Literature in Translation  

CLAS 405 Introduction to Greek Civilization  

CLAS 406 Introduction to Roman Civilization  

CLAS 421 Major Greek Authors in English  

CLAS 510 Building Rome  

CLAS 520D Classical Society, Politics and Ethics: Greek and Roman Religion  

CLAS 550A Identities and Difference in the Ancient World: Greek and Roman Women  

CLAS 604 Golden Age of Rome  

ENGL/LING 606 Languages of the World  

FREN 525 Introduction to French Civilization and Culture  

FREN 526 Introduction to Francophone Cultures  

FREN 625 Cuisine, Culture, and the Creation of French Identity  

FREN 651 Readings in French Literature  

FREN 652 Readings in French Literature  

or FREN 652 Honors/Readings in French Literature  

FREN 675 Topics in French Civilization  

FREN 676 Topics in Francophone Culture  

FREN 677 France in the European Union  

FREN 762 17th Century French Literature  

FREN 765 18th Century French Literature  

GEOG 401 Regional Geography of the Western World  

GEOG 401Hons/Regional Geography of the Western World  

GEOG 402 Regional Geography of the Non-Western World  

or GEOG 402Hons/Regional Geography of the Non-Western World  

GEOG 514 Geography of the United States and Canada  

GEOG 520 Geography of Latin America and the Caribbean  

GEOG 530 Geography of China  

GEOG 540 Geography of the Middle East  

GEOG 550 Geography of Sub-Saharan Africa  

GEOG 584 Political Geography
<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>GEOG 796</td>
<td>Special Topics</td>
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<tr>
<td>GERM 521</td>
<td>Major German Authors in English</td>
</tr>
<tr>
<td>GERM 524</td>
<td>German Cinema</td>
</tr>
<tr>
<td>or GERM 524H</td>
<td>Honors/Special Topics in German Film</td>
</tr>
<tr>
<td>GERM 525</td>
<td>Introduction to German Culture and Civilization</td>
</tr>
<tr>
<td>or GERM 525H</td>
<td>Honors/Introduction to German Culture and Civilization</td>
</tr>
<tr>
<td>GERM 601</td>
<td>Introduction to German Literature</td>
</tr>
<tr>
<td>GERM 797</td>
<td>Special Studies in German Language and Literature</td>
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<tr>
<td>GERM 798</td>
<td>Special Studies in German Language and Literature</td>
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<tr>
<td>HIST 421</td>
<td>World History to the 16th Century</td>
</tr>
<tr>
<td>HIST 422</td>
<td>World History in the Modern Era</td>
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<tr>
<td>or HIST 422H</td>
<td>Honors/World History in the Modern Era</td>
</tr>
<tr>
<td>HIST 425</td>
<td>Foreign Cultures (area specific; or HIST 425H)</td>
</tr>
<tr>
<td>or HIST 425H</td>
<td>Foreign Cultures</td>
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<tr>
<td>HIST 435</td>
<td>Origins of European Society (or HIST 435H)</td>
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<tr>
<td>or HIST 435H</td>
<td>Origins of European Society</td>
</tr>
<tr>
<td>HIST 436</td>
<td>Europe and the Modern World (or HIST 436H)</td>
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<tr>
<td>or HIST 436H</td>
<td>Europe and the Modern World</td>
</tr>
<tr>
<td>HIST 444B</td>
<td>Revolutions Across the Atlantic</td>
</tr>
<tr>
<td>HIST 444C</td>
<td>World War Propaganda in Britain and the United States</td>
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<tr>
<td>HIST 444D</td>
<td>Slavery and Society in Pre-Colonial Africa</td>
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<tr>
<td>HIST 444J</td>
<td>Global Citizenship: In Pursuit of Liberty</td>
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<tr>
<td>HIST 483/RS 483W</td>
<td>History of World Religions</td>
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<tr>
<td>or HIST 483W</td>
<td>History of World Religions</td>
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<tr>
<td>HIST 498</td>
<td>Explorations of Historical Perspectives</td>
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<td>HIST 532</td>
<td>Modern Latin America</td>
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<td>HIST 537</td>
<td>Espionage and History</td>
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<tr>
<td>HIST 538</td>
<td>Modern European War and Society: The Napoleonic Wars to World War II</td>
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<tr>
<td>HIST 560</td>
<td>Modern Britain</td>
</tr>
<tr>
<td>HIST 563</td>
<td>Introduction to Russian Culture and Civilization</td>
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<tr>
<td>HIST 564</td>
<td>Russia and the Soviet Union in World War II</td>
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<tr>
<td>HIST 565</td>
<td>Women in Modern Europe</td>
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<td>HIST 566</td>
<td>Comparative Revolutions: How to Make a Revolution in the World before Marx</td>
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<td>HIST 575</td>
<td>Ancient Near East</td>
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<td>HIST 579</td>
<td>History of China in Modern Times</td>
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<td>HIST 580</td>
<td>History of Japan in Modern Times</td>
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<td>Medieval Islam</td>
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<td>HIST 586</td>
<td>Islam in the Modern Age, 15th Century to present</td>
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<td>HIST 602</td>
<td>Holocaust: The War on Europe's Jews</td>
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<td>Special Topics in American Legal History</td>
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<td>Europe after the Black Death</td>
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<td>Saints, Sinners, and Heretics: Europe in the Age of Religious Reform</td>
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<td>19th Century European Great Powers - Diplomacy and International Law</td>
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<td>England in the Tudor and Stuart Periods</td>
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<td>Germany from 1918 to Present</td>
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<td>Classical and Hellenistic Greek Worlds</td>
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<td>HIST 681</td>
<td>Society and Culture in 20th-Century China</td>
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<td>HIST #684</td>
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<td>HUMA 512A</td>
<td>Renaissance and Early Modern: An Interdisciplinary Introduction</td>
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<td>20th Century, 1945-1999: An Interdisciplinary Introduction</td>
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<td>HUMA 515D</td>
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<td>ITAL 425</td>
<td>Introduction to Italian Studies</td>
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<td>ITAL 425H</td>
<td>Honors/Introduction to Italian Studies</td>
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<tr>
<td>ITAL 444A</td>
<td>Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic</td>
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<td>ITAL 444B</td>
<td>Mamma Mia! Italian Motherhood from the Virgin Mary to Carmela Soprano</td>
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<td>Selected Topics in World Literature</td>
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<td>ITAL 522</td>
<td>Italian Literature in Translation, 18th-20th Centuries</td>
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<td>ITAL 525</td>
<td>Italian Cinema</td>
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<td>Introduction to Italian Culture and Civilization I: Middle Ages, Renaissance, Baroque</td>
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<td>Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism</td>
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<td>Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy</td>
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<td>Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy</td>
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<td>LLC 535A</td>
<td>Professional Culture in the European Union - Case Study: Mexico and Brazil</td>
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<tr>
<td>LLC 535B</td>
<td>Professional Culture in Latin America - Case Study: Mexico and Brazil</td>
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<td>PHIL 620</td>
<td>20th Century European Philosophy</td>
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<td>United States in World Affairs (or POLT 403H)</td>
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<tr>
<td>POLT 522</td>
<td>Dissent and the Political Community</td>
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<td>POLT #543</td>
<td>The Politics of Costa Rica</td>
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<td>POLT 544</td>
<td>Of Dictators and Democrats</td>
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<td>POLT 545</td>
<td>People and Politics in Asia</td>
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<td>POLT 546</td>
<td>Wealth and Politics in Asia</td>
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<tr>
<td>POLT 550</td>
<td>Comparative Government and Society</td>
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<td>POLT 552</td>
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<td>POLT 554</td>
<td>Revolution and Protest in Latin America</td>
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<td>POLT 555W</td>
<td>Politics in Russia</td>
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<td>Politics in China</td>
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<td>Comparative Politics of the Middle East</td>
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<td>World Politics</td>
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<td>POLT 562</td>
<td>Strategy and National Security Policy</td>
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<td>United States Policy in Latin America</td>
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<td>POLT 566</td>
<td>Asian Challenge to Global Order</td>
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<td>The Rise of China</td>
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<td>Counterterrorism: Nation states’ responses to terrorist activity</td>
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<td>Selected Topics in Comparative Politics</td>
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<td>Selected Topics in International Politics</td>
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<td>Food and Wine Politics</td>
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<td>POLT 798E</td>
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<td>PORT 526</td>
<td>Luso-Brazilian Culture and Civilization</td>
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<td>Introduction to Russia: Contemporary Society and Culture</td>
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<td>Topics in Russian Culture and Society in Moscow</td>
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<td>RUSS 521</td>
<td>Devils, Deities, and Madness in Russian Literature</td>
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<td>RUSS 521H</td>
<td>Devils, Deities, and Madness in Russian Literature</td>
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<td>RUSS 522W</td>
<td>Morality, Sex and Revolution in Russian Literature</td>
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<td>RUSS 525</td>
<td>Russia: Mythology and Propaganda</td>
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<td>RUSS 525M</td>
<td>Russia: Mythology and Propaganda</td>
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<td>RUSS 525R</td>
<td>Russia: Mythology and Propaganda</td>
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<td>Readings in Russian Literature</td>
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<td>SOC 597</td>
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<td>SOC 656</td>
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<td>SOC 693</td>
<td>Global Social Change</td>
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<td>SPAN 526</td>
<td>Latin American Civilization and Culture</td>
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<td>SPAN 647</td>
<td>Hispanic Cultural Studies</td>
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<td>SPAN 651</td>
<td>Introduction to Spanish Literature and Thought</td>
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<td>Introduction to Spanish Literature and Thought</td>
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<td>SPAN 653</td>
<td>Introduction to Latin American Literature and Thought</td>
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<td>SPAN 654</td>
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<td>Science, Environment, Economy, &amp; Health Electives</td>
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<td>ACFI 703</td>
<td>International Financial Management</td>
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<td>ANTH 610M</td>
<td>Medical Anthropology: Illness and Healing</td>
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<tr>
<td>ANTH #627</td>
<td>Urbanization in Africa</td>
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<td>ANTH 680</td>
<td>Globalization, Development, and Poverty</td>
</tr>
<tr>
<td>ANTH 685</td>
<td>Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa</td>
</tr>
</tbody>
</table>
### International Affairs Minor

**http://www.cola.unh.edu/international-affairs**

<table>
<thead>
<tr>
<th>Description</th>
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</table>

The international affairs (IA) minor adds a recognized distinction and global context to any primary major in any college at UNH. It was developed for those students who, due to the demands of their primary majors, are unable to complete the more rigorous requirements of the IA dual major.

Students who wish to declare the international affairs minor must earn a C or better in all IA course requirements and have a 2.5 cumulative grade-point average. The minor is declared when the fifth course is being taken. The student should obtain the declaration form from the IA program assistant.
### Requirements

#### Required Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IA 401</td>
<td>International Perspectives</td>
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<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
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<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td></td>
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</table>

International Affairs Language Requirement ¹

International Experience - Study Abroad ²

#### Electives

Choose one course from each category list (2 courses total): ³

<table>
<thead>
<tr>
<th>Politics, Culture, &amp; History</th>
<th>Science, Environment, Economy, &amp; Health</th>
</tr>
</thead>
</table>

Total Credits: 20

¹ **International Affairs Language Requirement**

Functional reading, writing, and speaking ability equivalent to a second-year, second-semester college level (504). Students may take placement tests to establish equivalency, include language study on the international experience, or transfer credits from other institutions.

² **International Experience - Study Abroad**

Minimum of three weeks (or 4 credits). The international experience may include study (https://www.unh.edu/global/education-abroad), directed research, internship or service/volunteer experience abroad. Students should plan with the Study Abroad Advisors to plan for their international experience well in advance.

³ See elective category lists under IA dual major heading. Elective courses may count towards Discovery, Honors, Writing Intensive, and major requirements.

### Programs

- Italian Studies Major (B.A.) (p. 79)
- Italian Studies Minor (p. 80)

### Faculty

https://cola.unh.edu/chi/program/italian-studies-ba/faculty

### Description

The Italian studies program offers courses in Italian language, culture, literature, history, and cinema, as well as courses on Italian American culture. Italian courses can also be used to fulfill Discovery Program requirements and the Bachelor of Arts foreign language proficiency requirement. The program provides opportunities both to achieve high competence in Italian language and culture and to apply these knowledge skills to other disciplines. The Italian studies program encourages independent and innovative thinking and research so that students may pursue and achieve individualized goals while they prepare for the challenges of thriving in the world community.

### Requirements

The Italian studies major curriculum consists of 10 courses (40 credits) that include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ITAL 632</td>
<td>Advanced Conversation and Composition II</td>
<td>4</td>
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<tr>
<td></td>
<td>(or equivalent proficiency 0-24)</td>
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</tbody>
</table>

Select sixteen credits minimum at 600-level or above (including ITAL 631 and ITAL 632)

Select a minimum of one semester approved immersion experience abroad

Select two complementary courses from approved complementary disciplines of classics and humanities (courses from other disciplines must be approved by advisor)

Select one of the following Discovery capstone requirements:

<table>
<thead>
<tr>
<th>Thesis</th>
<th>ITAL 795 Independent Study in Italian Language and Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>or ITAL 796 Independent Study in Italian Language and Literature</td>
</tr>
</tbody>
</table>

Seminar:

Select one 700-level ITAL course

Internship:

ITAL 595A Practicum

Select any additional ITAL courses needed to reach 40 credits

Total Credits: 40

### Additional Requirements

The minimum grade for each major course is a C. Once students declare the Italian studies major, they must maintain a 2.5 cumulative grade point average in order to fulfill the study abroad requirement. Major department
courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

**List of POTENTIAL Complementary Discipline Elective Courses**

This list of electives is not exhaustive. Courses from other departments can only be used to satisfy the Italian Studies major requirements after consultation with and subject to the approval of the student’s advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
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<td>ARTS 574</td>
<td>Introduction to Architectural History</td>
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<tr>
<td>ARTS 677</td>
<td>Early Medieval Art</td>
<td>4</td>
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<tr>
<td>ARTS 678</td>
<td>Romanesque and Gothic Art</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 681</td>
<td>Early Renaissance Art in Italy</td>
<td>4</td>
</tr>
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<td>ARTS 682</td>
<td>The High Renaissance</td>
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<td>ARTS 683</td>
<td>Baroque Art</td>
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<td>ARTS 685</td>
<td>Graphic Art of the Renaissance and Baroque Periods</td>
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<tr>
<td>ARTS 695I</td>
<td>Problems in Visual Arts/Italy</td>
<td>4</td>
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<tr>
<td>ECON 645</td>
<td>International Economics</td>
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<td>EDUC 500</td>
<td>Exploring Teaching</td>
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<td>ENGL 619</td>
<td>Critical Approaches to Literature</td>
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<td>ENGL 651</td>
<td>Comparative Literature</td>
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<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
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<tr>
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<td>Medieval Military History</td>
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<td>Origins of Modern Science</td>
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<td>Foundations of Medieval History. 300-1300 CE</td>
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<td>Women in Modern Europe</td>
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<td>Holy War in the Holy Land: The Medieval Crusades</td>
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<td>Europe after the Black Death</td>
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<td>HIST 642</td>
<td>Saints, Sinners, and Heretics: Europe in the Age of Religious Reform</td>
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<td>Topics in European Intellectual History</td>
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<td>LLC 551</td>
<td>Comparative Literature: Masterpieces of World Literature I</td>
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<td>LLC 552</td>
<td>Comparative Literature: Masterpieces of World Literature II</td>
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<td>LING 605</td>
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<td>History and Literature of Music</td>
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</tr>
<tr>
<td>MUSI 715</td>
<td>Survey of Opera</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 595</td>
<td>Mediterranean Diet and Culture</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 570</td>
<td>Ancient Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 580</td>
<td>Modern Philosophy from Descartes to Kant</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 620</td>
<td>20th Century European Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>POLT 552</td>
<td>Contemporary European Politics</td>
<td>4</td>
</tr>
<tr>
<td>POLT 560</td>
<td>World Politics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Italian Studies Minor**

http://cola.unh.edu/chi

**Description**

The Italian studies minor is offered by the Department of Classics, Humanities, and Italian Studies. It provides students with the opportunity to explore the language, culture, and society of Italy through an interdisciplinary program.

The Italian studies minor is advantageous for applicants to graduate and professional schools in Italian, modern languages, linguistics, film, history, theater, philosophy, and law. It is also a valuable asset for careers in economics, international affairs, international business, fashion, teaching, communications, translation, interpretation, government, and Foreign Service.

**Requirements**

The minor consists of five courses. At least four of these courses must be under the ITAL rubric. One course from a related field of study (subject to the approval of the Italian studies advisor) can be counted toward the minor. Students must demonstrate linguistic proficiency at the level of intermediate Italian (ITAL 504 Intermediate Italian II or equivalent). All courses for the Italian studies minor must be completed with a minimum grade of C.

New students will be assigned to the proper course in consultation with the section coordinator.

**Justice Studies (JUST)**

The justice studies dual major and minor is an interdisciplinary area that blends topics from humanities departments (e.g., philosophy), social science departments (e.g., psychology, sociology, women’s studies), departments that include both humanities and social science faculty (history, political science), and professionally oriented departments (education, family studies, social work). Topics studied include courts, family violence, rights, substance abuse, juvenile justice, school law, children as witnesses, hate crimes, and community policing. Students will be required to choose a first major before they will be able to declare justice studies as a second major. The goal is to produce graduates who have a higher level of knowledge about law and justice in American society and in the world so that they will mature into more knowledgeable and effective citizens. The justice studies dual major is intended for students who are looking for careers in the justice system or who seek graduate training in law or social sciences and humanities related to the law.

http://cola.unh.edu/justice-studies

**Programs**

- Justice Studies Dual Major (p. 81)
- Justice Studies Minor (p. 82)
- Forensics Minor (p. 82)

**Faculty**

https://cola.unh.edu/faculty/justice-studies
Justice Studies Dual Major
http://cola.unh.edu/justice-studies

Description
The dual major in justice studies requires students to take a minimum of eight courses (32 credits), each completed with a grade of a C- or better. Students are required to have a grade-point average of a 2.5 or better before they can be accepted into the program. The dual major cannot be declared until after a first major has been declared. Students can count no more than two courses for both the first major and dual major, and students are not allowed to take more than two courses from any one department (except for JUST). An unlimited number of dual major courses can be used to satisfy Discovery requirements.

Requirements

Required Courses
JUST 401  Introduction to Justice Studies  4
JUST 501  Research Methods  4
JUST 601  Internship (seniors only)  4
or JUST 602  Research Internship  4
JUST 701  Senior Seminar (writing-intensive course)  4
Select one of the following:  4
POLT 407  Law and Society  4
POLT 507  Politics of Crime and Justice  4
SOC 515  Introductory Criminology  4

Elective Courses
Select three elective courses from the justice studies approved course list  12

Total Credits  32

1 This course fulfills the program capstone requirement.

Elective Courses
This list is approved and published yearly by the Justice Studies Executive Committee.

ANTH 597  Special Topics (Introduction to Forensic Anthropology)  4
BIOL 420  Introduction to Forensic Sciences  4
CMN 703  Seminar in Rhetorical Theory  4
CMN 765  Police Talk  4
EDUC 767  Students, Teachers, and the Law  4
HDFS 772  International Approaches to Child Advocacy  4
HDFS 776  Children, Adolescents and the Law  4
HDFS 794  Families and the Law  4
HIST 509  Law in American Life  4
HIST 609  Special Topics in American Legal History  4
HIST 645  19th Century European Great Powers - Diplomacy and International Law  4
HMGT 625  Hospitality and Employment Law (only HMGT majors allowed)  4
HUMA 650  Humanities and the Law: The Problem of Justice in Western Civilization  4
JUST 405  Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime  4
JUST 520  Girls Gone Bad: Delinquent Girls in Cultural Context  4
JUST 530  Inside the Courtroom: Torn from the Headlines  4
JUST 550  Mock Trial & JUST 551  Mock Trial (must take 2 semesters to count as a JS elective)  4
JUST 591  Forensic Psychology or PSYC 591  Special Topics  4
JUST 595  Special Topics (no more than two courses)  4
JUST 650 & JUST 651  Special Studies in Comparative Justice Systems and Field Studies in the Hungarian Justice System  10
JUST 795  Reading and Research (variable credit)  4
MGT 647  Business Law I (only Business Administration, Accounting, and Business Administration and Management allowed)  4
NR 718  Law of Natural Resources and Environment  3
PHIL 436  Social and Political Philosophy  4
PHIL 635  Philosophy of Law  4
PHIL 660  Law, Medicine, and Ethics  4
PHIL 701  Topics in Value Theory  4
PHIL 740  Advanced Topics in the Philosophy of Law  4
POLT 444B  Cruel and Unusual in a Federal System  4
POLT 508  Supreme Court and the Constitution  4
POLT 513  Civil Rights and Liberties  4
POLT 520  Politics, Justice, and Morality  4
POLT 547  Race and Justice in the Americas: Insights from Film, Literature, and Politics  4
POLT 548  Drug Wars  4
POLT 568  Introduction to Intelligence (only when taught by Professor MacPherson)  4
POLT 701  Courts and Public Policy  4
POLT 798B  Seminar in American Politics  4
PSYC 591  Special Topics or JUST 591  Forensic Psychology  4
PSYC 755  Psychology and Law  4
PSYC 756  Psychology of Crime and Justice  4
RMP 772  Law and Public Policy in Leisure Services (must have junior/senior status)  4
SOC 525  Juvenile Crime and Delinquency  4
SOC 535  Homicide  4
SOC 620  Drugs and Society  4
SOC 655  Sociology of Law and Justice  4
SOC 656  Terrorism or POLT 570  Counterterrorism: Nation states’ responses to terrorist activity  4
SOC 715  Criminological Theory  4
SOC 720  Sociology of Drug Use  4
SOC 780  Social Conflict  4
The required minimum overall GPA in major coursework is 2.5.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Students who are interested in a dual major in justice studies will need to file an Intent to Dual Major form. The form is available in the justice studies office or can be downloaded from the program website at cola.unh.edu/justice-studies (http://www.cola.unh.edu/justice-studies). Program offices are located in Room 206 of Huddleston Hall and are open Monday through Friday from 8 a.m. to 12 p.m. and 1 p.m. to 4:30 p.m. For more information, please contact Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Deb Briand at (603) 862-1716, e-mail deborah.briand@unh.edu.

Justice Studies Minor
http://cola.unh.edu/justice-studies

Description

The minor in justice studies requires students to take a total of five courses (20 credits) each with a grade of C- or better in order to complete the program. Students are allowed to "double count" no more than two courses toward their major and minor, and are not allowed to take more than two courses from any one department (except for justice studies).

Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 401</td>
<td>Introduction to Justice Studies</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLT 407</td>
<td>Law and Society</td>
<td>4</td>
</tr>
<tr>
<td>POLT 507</td>
<td>Politics of Crime and Justice</td>
<td></td>
</tr>
<tr>
<td>SOC 515</td>
<td>Introductory Criminology</td>
<td></td>
</tr>
</tbody>
</table>

Elective Courses

Select three elective courses from the justice studies approved course list

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 515</td>
<td>Introductory Criminology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1 This list is approved and published yearly by the Justice Studies Executive Committee. Departmental offerings that are currently accepted for the minor are listed on the Justice Studies major page.

For program information on the forensics minor, see the Forensics Minor program page.

Forensics Minor
http://cola.unh.edu/justice-studies/program/forensics-minor

Description

The forensics minor provides students with the opportunity to explore the different components of forensics through the interdisciplinary study of biology, psychology, sociology, and justice studies. This well-rounded curriculum will enable students to build upon their interests in justice studies by specializing in an area of increasing importance. Students must receive a grade of a C- or better for a course to count toward the minor requirements. Once students have decided to pursue the minor, they are required to meet with the coordinator, academic counselor, or appropriate affiliated faculty adviser at least once per semester for regular review and assessment of their program, learning outcomes, and progress toward the degree.

Requirements

The forensic minor requires five courses (20 credits) drawn from a list of approved courses. The five courses include:

Introductory Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 401</td>
<td>Introduction to Justice Studies</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 420</td>
<td>Introduction to Forensic Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional Courses

Select three of the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 597</td>
<td>Special Topics (Introduction to Forensic Anthropology)</td>
<td></td>
</tr>
<tr>
<td>JUST 405</td>
<td>Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime</td>
<td></td>
</tr>
<tr>
<td>JUST/PSYC 591</td>
<td>Forensic Psychology</td>
<td>1</td>
</tr>
<tr>
<td>SOC 515</td>
<td>Introductory Criminology</td>
<td></td>
</tr>
<tr>
<td>SOC 535</td>
<td>Homicide</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1 If JUST 591 Forensic Psychology or PSYC 591 Special Topics is not being offered, you may take PSYC 755 Psychology and Law, or PSYC 756 Psychology of Crime and Justice, in its place.

Two courses can double count toward your justice studies dual major. These courses are most commonly JUST 401 Introduction to Justice Studies, and SOC 515 Introductory Criminology.

Languages, Literatures, and Cultures (LLC)

The Department of Languages, Literatures, and Cultures offers undergraduate majors in French, French studies, German, Russian, and Spanish, plus coursework in Arabic, Chinese, Japanese, and Portuguese. An M.A. in Spanish is also offered.

In addition, the department sponsors several study abroad programs and a variety of co-curricular activities, including conversation hours and language clubs.

A B.A. degree at the University requires the fulfillment of a foreign language requirement. Students must fulfill this requirement by the end of their sophomore year. Please see the Bachelor of Arts Degree Requirements.
Undergraduates who choose to pursue a major or minor in the Department of Languages, Literatures, and Cultures may wish to consider complementing their studies with the dual major in international affairs, with the teacher education program, or with any of the other majors and minors available through the University of New Hampshire. Such coursework will not only broaden a student’s intellectual horizons, but may also serve to enhance his or her employment opportunities or prospects for graduate education.

http://cola.unh.edu/llc

**Programs**

- Chinese (CHIN) (p. 46)
- French (FREN) (p. 66)
- German (GERM) (p. 70)
- Russian (RUSS) (p. 104)
- Spanish (SPAN) (p. 107)

**Faculty**

http://cola.unh.edu/faculty/llc

**Latin American Studies**

**Programs**

- Latin American Studies Minor (p. 83)

**Latin American Studies Minor**

http://cola.unh.edu/interdisciplinary-studies/program/las

**Description**

Latin American studies is an interdisciplinary minor encompassing anthropology, communications, economics, geography, history, linguistics, political science, Spanish, and Portuguese. Knowledge of Latin America is especially valuable for students who plan to work in education, international organizations, government, social services, and business, or for graduate studies related to Latin America.

For more information on the Latin American studies minor, contact:

Mary Malone
Latin American studies minor coordinator
Horton Social Science Center
(603) 862-1406
e-mail: mary.malone@unh.edu.

**Requirements**

Students can complete the minor by selecting any five courses representing at least three disciplines. Latin American history (HIST 532 Modern Latin America) is required. A minimum of high-intermediate level proficiency in Spanish or Portuguese must be reached through coursework or other means (completion of SPAN 504 Intermediate Spanish II or PORT 504 Intermediate Portuguese at UNH, or equivalent courses or equivalency testing).

Enrollment in these five courses must follow the guidelines below to count for the minor:

1. At least three courses must be taken in residence.
2. All coursework required for the Latin American minor must be completed with a grade of C or better.
3. Courses for the minor may not be taken pass/fail.

Academic study in Latin America is strongly recommended: Speak with faculty to help you find the study abroad program that best fits your interests. UNH and its affiliates offer several short- and long-term programs throughout Latin America.

To see the courses offered this semester that count toward the minor and to learn more about the minor, visit cola.unh.edu/interdisciplinary-studies/program/las (http://cola.unh.edu/interdisciplinary-studies/program/las).

**Linguistics (LING)**

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. The program is an excellent liberal arts major or preprofessional major for education, law, medicine, clergy, and others. It is a particularly appropriate major for students who want to teach English as a second language. Dual majors with a foreign language, international affairs, business administration, and the like are quite feasible.

Students interested in the major or the minor should consult with the program coordinator or with any professor who teaches linguistics courses. To declare a major in linguistics, a student must meet with the linguistics coordinator to design a course of study. Information is available from the Advising Center, Hood House, and at cola.unh.edu/linguistics (http://www.cola.unh.edu/linguistics).

http://cola.unh.edu/linguistics

**Programs**

- Linguistics Major (B.A.) (p. 83)
- Linguistics Minor (p. 85)
- TESOL Minor (p. 85)

**Faculty**

http://cola.unh.edu/faculty/linguistics

**Linguistics Major (B.A.)**

http://cola.unh.edu/linguistics

**Description**

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. The program is an excellent liberal arts major or preprofessional major for education, law, medicine, clergy, and
others. It is a particularly appropriate major for students who want to teach English as a second language. Dual majors with a foreign language, international affairs, business administration, and the like are quite feasible.

Students interested in the major should consult with the program coordinator or with any professor who teaches linguistics courses. To declare a major in linguistics, a student must meet with the linguistics coordinator to design a course of study. Information is available from the Advising Center, Hood House, and at cola.unh.edu/linguistics (http://www.cola.unh.edu/linguistics).

### Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 405</td>
<td>Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>LING 605</td>
<td>Intermediate Linguistic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>LING 793</td>
<td>Phonetics and Phonology</td>
<td>4</td>
</tr>
<tr>
<td>LING 794</td>
<td>Syntax</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Select one course in historical linguistics of the following:</strong></td>
<td></td>
</tr>
<tr>
<td>CLAS 506</td>
<td>Introduction to Comparative and Historical Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 752</td>
<td>History of the English Language</td>
<td></td>
</tr>
<tr>
<td>ITAL 733</td>
<td>History and Development of the Italian Language</td>
<td></td>
</tr>
<tr>
<td>LING/ENGL 719</td>
<td>Sociolinguistics Survey</td>
<td></td>
</tr>
<tr>
<td>RUSS 733</td>
<td>History of Slavic Languages and Culture</td>
<td></td>
</tr>
<tr>
<td>SPAN 798</td>
<td>Topics in Hispanic Linguistics and Cultural Studies (Subtopic A)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Two years of college study (or equivalent) of one foreign language</strong></td>
<td>4-16</td>
</tr>
<tr>
<td></td>
<td><strong>Select one of the following cognate specialties:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One year study (or equivalent) of a second foreign language from a different language family or subfamily</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Select two elective courses from list below, one of which must be a 600- or 700- level LING or ENGL course</strong></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Discovery Program Capstone Experience:</td>
<td></td>
</tr>
<tr>
<td>LING 779</td>
<td>Linguistic Field Methods</td>
<td>4</td>
</tr>
<tr>
<td>or LING 695</td>
<td>Senior Honors</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>44-56</td>
</tr>
</tbody>
</table>

1. Old English may count as the second foreign language if the first foreign language is not in the Germanic family.
2. With its prerequisite, either PSYC 512 Psychology of Primates or PSYC 513 Cognitive Psychology
3. History of the English Language or Sociolinguistics can be used as an elective if the other one is used for the Variation/Historical requirement.

### Elective Courses

#### Anthropology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 670</td>
<td>Language and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 795</td>
<td>Reading and Research (Subtopic B)</td>
<td>1-8</td>
</tr>
<tr>
<td>ANTH 796</td>
<td>Reading and Research (Subtopic B)</td>
<td>1-8</td>
</tr>
</tbody>
</table>

#### Communication

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 572</td>
<td>Analysis of Language and Social Interaction</td>
<td>4</td>
</tr>
<tr>
<td>CMN 666</td>
<td>Conversation Analysis</td>
<td>4</td>
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</tbody>
</table>

#### Communication Science and Disorders

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 738</td>
<td>Linguistics of American Sign Language</td>
<td>4</td>
</tr>
</tbody>
</table>

#### English

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 606</td>
<td>Languages of the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 715</td>
<td>Teaching English as a Second Language: Theory and Methods</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 719</td>
<td>Sociolinguistics Survey</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 727</td>
<td>Issues in Second Language Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 752</td>
<td>History of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 790</td>
<td>Special Topics in Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
</tbody>
</table>

#### LLC

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLC 791</td>
<td>Methods of Foreign Language Teaching</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Italian

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 733</td>
<td>History and Development of the Italian Language</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Latin

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATN 795</td>
<td>Special Studies (when topic is appropriate)</td>
<td>4</td>
</tr>
<tr>
<td>LATN 796</td>
<td>Special Studies (when topic is appropriate)</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Linguistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 606</td>
<td>Languages of the World</td>
<td>4</td>
</tr>
<tr>
<td>LING 620</td>
<td>Applied Experience in Linguistics</td>
<td>1-4</td>
</tr>
<tr>
<td>LING 719</td>
<td>Sociolinguistics Survey</td>
<td>4</td>
</tr>
<tr>
<td>LING 790</td>
<td>Special Topics in Linguistics Theory</td>
<td>4</td>
</tr>
<tr>
<td>LING 795</td>
<td>Independent Study</td>
<td>1-4</td>
</tr>
<tr>
<td>LING 796</td>
<td>Independent Study</td>
<td>1-4</td>
</tr>
</tbody>
</table>

#### Psychology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 512</td>
<td>Psychology of Primates</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 513</td>
<td>Cognitive Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Russian

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 733</td>
<td>History of Slavic Languages and Culture</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Spanish

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 641</td>
<td>Spanish Phonetics</td>
<td>4</td>
</tr>
<tr>
<td>SPAN 645</td>
<td>Intro to Spanish Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>SPAN 798</td>
<td>Topics in Hispanic Linguistics and Cultural Studies (Subtopic A)</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Students may count either PSYC 512 Psychology of Primates or PSYC 513 Cognitive Psychology toward the linguistics major or minor, but not both.

Other courses may be substituted, with the permission of the student’s adviser and the linguistics committee, when they are pertinent to the needs of the student’s program.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.
Linguistics Minor

http://cola.unh.edu/linguistics

Description

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. Students interested in the minor should consult with the program coordinator or with any professor who teaches linguistics courses.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING/ENGL 405</td>
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<tr>
<td>ENGL/LING 790</td>
<td>4</td>
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<tr>
<td>ENGL/LING 790</td>
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<tr>
<td>LLC 791</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

TESOL Minor

http://cola.unh.edu/linguistics

Description

The TESOL minor is a set of courses that are related to teaching English to speakers of other languages. This minor primarily is for students who are interested in teaching English to speakers of other languages, but it is also appropriate for students who are going into social work or other professions that require regular interaction with nonnative English speakers.

The TESOL minor will not certify students to teach in New Hampshire public schools (K-12). For that purpose, students must complete the ESL certification program that is offered at the graduate level by the Education and English departments. However, the coursework in this minor will provide a very good start for students who want to later pursue ESL certification or an M.A. in TESOL at UNH or another institution.

Requirements

The TESOL minor requires the following five courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 715</td>
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</tr>
<tr>
<td>ENGL 716</td>
<td>4</td>
</tr>
<tr>
<td>ENGL/LING 405</td>
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</tr>
<tr>
<td>ENGL/LING 790</td>
<td>4</td>
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<tr>
<td>LLC 791</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Middle Eastern Studies

Programs

- Middle Eastern Studies Minor (p. 85)

Middle Eastern Studies Minor

http://cola.unh.edu/interdisciplinary-studies/program/mes

Description

The minor in Middle Eastern studies introduces students to the many facets of Middle Eastern cultures and societies through the interdisciplinary study of languages, history, politics, geography, and anthropology. Minor coursework enables students’ understanding of the Middle East as a dynamic region in a global and comparative context. This minor therefore encompasses not only the study of the region itself, but also the flows and circulation of migration, diasporas, refugees, ideas, literatures, social movements, war, and natural resources that make the region pivotal to world history and the global economy. In addition, participation in the minor prepares students for study abroad experiences, helps them acquire skills and qualifications for graduate study, and enhances employment opportunities.

Students interested in the minor should contact the coordinator and/or affiliated faculty to discuss their program of study. The coordinator, Sara Wolper, may be reached at esw@unh.edu, (603) 862-3884.

Requirements

The Middle Eastern studies minor requires five courses (20 credits) drawn from the list of approved courses or from exceptional courses and opportunities approved by the affiliate faculty in respective disciplines. The five-course requirement will include one general introductory course.

Introductory Course

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HIST 425</td>
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<tr>
<td>Foreign Cultures</td>
<td></td>
</tr>
</tbody>
</table>
The University of New Hampshire Department of Music is an accredited institutional member of the National Association of Schools of Music.

Prospective majors in music are advised to contact the department for information on acceptance into the major.

All music students must earn grades of C- or better in all required music and music education courses. The required minimum overall GPA in required music and music education coursework is 2.0.

Bachelor of Arts in Music

The bachelor of arts in music program offers students an opportunity to major in music within the liberal arts curriculum. This program is intended for those who wish to pursue the serious study of music and to acquire at the same time a broad general education; it is recommended for those considering graduate study leading to the M.M. or D.M.A. degrees.

To be admitted formally to the B.A. program, students must demonstrate a high degree of musical competence or significant creative ability during an audition or examination. Selection is made on the professional requirements appropriate to each option. Students must formally declare the B.M. as a degree program before the beginning of the sophomore year. Continuation into the upper level of the program is subject to review by the department faculty.

Four degrees are offered in the bachelor of music curriculum: bachelor of music in music education1, bachelor of music in performance1; bachelor of music in composition2, and bachelor of music pre-teaching2.

1 Degree program has final approval from the National Association of Schools of Music.
2 Degree program has plan approval from the National Association of Schools of Music.

http://www.unh.edu/music

Programs

• Music Major: Composition Option (B.A.) (p. 86)
• Music Major: Music Liberal Studies Option (B.A.) (p. 87)
• Music Major: Performance Study Option (B.A.) (p. 88)
• Composition Major (B.M.) (p. 89)
• Music Education Major (B.M.) (p. 89)
• Performance Major (B.M.) (p. 90)
• Pre-Teaching Major (B.M.) (p. 92)
• Music Minor (p. 93)

Faculty

http://cola.unh.edu/faculty/music

Music Major: Composition Option (B.A.)

http://www.unh.edu/music

Description

Students wanting to declare composition as their option must submit a music portfolio in addition to an audition on their major instrument.

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the composition option, there is a choice of completing a half lecture, half lecture-recital, or a half recital including at least one original composition.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.
Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

**Requirements**

### Bachelor of Arts in Music Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 471 &amp; MUSI 472</td>
<td>Theory I and Theory I</td>
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</tr>
<tr>
<td>MUSI 473 &amp; MUSI 474</td>
<td>Ear Training I and Ear Training I</td>
<td>2</td>
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<tr>
<td>MUSI 475 &amp; MUSI 476</td>
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<tr>
<td>MUSI 571 &amp; MUSI 572</td>
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<td>MUSI 573 &amp; MUSI 574</td>
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<td>MUSI 575 &amp; MUSI 576</td>
<td>Functional Piano II and Functional Piano II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501 &amp; MUSI 502</td>
<td>History and Literature of Music and History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
</tbody>
</table>

Select 3 credits of MUSI 703-MUSI 715 Advanced Music History

Select one of the following:

- MUSI 771 Counterpoint
- MUSI 781W Analysis: Form and Structure
- MUSI 782W Analysis: Form and Structure

Select variable credits of MUSI 541-MUSI 564, MUSI 741-MUSI 764 Performance Study (Applied Lessons)

Select variable credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 36

1. Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.
2. A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.

### Music Composition Option Requirements

Degree program has plan approval from the National Association of Schools of Music.

Select 6 credits of the following:

- MUSI 771 Counterpoint
- MUSI 779 Orchestration
- MUSI 781W Analysis: Form and Structure
- MUSI 782W Analysis: Form and Structure

Select 8 credits of the following:

- MUSI 775 Composition
- MUSI 776 Composition
- MUSI 777 Advanced Composition
- MUSI 731 Conducting

Select 4 credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764 Performance Study (Applied Lessons)

Select 8 credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 28

Students in the composition option, if not in a lesson studio, will attend composition seminar.

### Music Major: Music Liberal Studies Option (B.A.)

http://www.unh.edu/music

**Description**

Students enrolling in the B.A. music liberal studies program—a program that stresses the development of skills in analysis, writing, and critical thinking about a wide variety of music and the larger connection with history, culture, and society—are required to submit a writing sample and interview with one of the music liberal studies program faculty members. The writing sample should be non-fiction, preferably an assignment for a course in English, history, or a similar subject, 500 words or more in length.

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the music liberal studies option, there is a choice of completing a half recital or comparable final project.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

### Requirements

### Bachelor of Arts in Music Core Curriculum

<table>
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<td>MUSI 475 &amp; MUSI 476</td>
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<td>MUSI 501 &amp; MUSI 502</td>
<td>History and Literature of Music and History and Literature of Music</td>
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<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
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</table>

Select 3 credits of MUSI 703-MUSI 715 Advanced Music History

Select one of the following:

- MUSI 771 Counterpoint
- MUSI 781W Analysis: Form and Structure
- MUSI 782W Analysis: Form and Structure

Select variable credits of MUSI 541-MUSI 564, MUSI 741-MUSI 764 Performance Study (Applied Lessons)

Select variable credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 36

1. Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.
2. A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.
Select 3 credits of MUSI 703-MUSI 715 Advanced Music History
Select one of the following:
MUSI 771 Counterpoint
MUSI 781W Analysis: Form and Structure
MUSI 782W Analysis: Form and Structure
Select variable credits of MUSI 541-MUSI 564, MUSI 741-MUSI 764
Performance Study (Applied Lessons)
Select variable credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 36
Students will be given the opportunity to test out of MUSI 475 Functional Piano I
-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.
A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.

Music Liberal Studies Option Requirements

Degree program has plan approval from the National Association of Schools of Music.

Select 12 credits of the following:
MUSI 771 Counterpoint
MUSI 775-MUSI 777
MUSI 779 Orchestration
MUSI 781W Analysis: Form and Structure
MUSI 782W Analysis: Form and Structure
MUSI 703-MUSI 715
Select 8 credits of the following:
MUSI 536-MUSI 564
MUSI 736-MUSI 764
MUSI 441-MUSI 464

Total Credits: 20

Any combination of advanced theory and history (12 credits) in addition to the core curriculum.
Any combination of performance and/or ensemble study (8 credits total).

Music Major: Performance Study Option (B.A.)
http://www.unh.edu/music

Description

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the performance study option, a full recital is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

Requirements

Bachelor of Arts in Music Core Curriculum

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td>MUSI 471</td>
<td>Theory I</td>
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<tr>
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<td>MUSI 473</td>
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<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
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</table>

Select 3 credits of MUSI 703-MUSI 715 Advanced Music History
Select one of the following:
MUSI 771 Counterpoint
MUSI 781W Analysis: Form and Structure
MUSI 782W Analysis: Form and Structure
Select variable credits of MUSI 541-MUSI 564, MUSI 741-MUSI 764
Performance Study (Applied Lessons)
Select variable credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 30

Any combination of advanced theory and history (12 credits) in addition to the core curriculum.
Any combination of performance and/or ensemble study (8 credits total).

Performing Study Option Requirements

Degree program has final approval from the National Association of Schools of Music.

MUSI 731 Conducting                                   2
Select 16 credits of MUSI 541-MUSI 565/MUSI 741-MUSI 764
Performance Study (Applied Lessons)
Select 4 credits of MUSI 520-MUSI 521 Diction for Singers I & II
Select 8 credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 30

2 credits per semester
Required for vocal performance option only
Composition Major (B.M.)
http://www.unh.edu/music

Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the composition option, a full lecture, lecture-recital, or recital including at least one original composition is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

Requirements

Bachelor of Music Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td>MUSI 471 &amp; MUSI 472</td>
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<td>MUSI 475 &amp; MUSI 476</td>
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<tr>
<td>MUSI 571 &amp; MUSI 572</td>
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<td>Music in World Cultures</td>
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<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
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<tr>
<td>Select any course between MUSI 703-MUSI 715</td>
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<td>Select one of the following:</td>
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<td>MUSI 771</td>
<td>Counterpoint</td>
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<tr>
<td>MUSI 781W</td>
<td>Analysis: Form and Structure</td>
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<tr>
<td>MUSI 782W</td>
<td>Analysis: Form and Structure</td>
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<tr>
<td>Select variable credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764</td>
<td>Variable Performance Study (Applied Lessons)</td>
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<tr>
<td>Select variable credits of MUSI 441-MUSI 464 Performing Ensemble</td>
<td>Variable</td>
<td></td>
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<tr>
<td>Total Credits</td>
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<td>38</td>
</tr>
</tbody>
</table>

1 Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.

Bachelor of Music in Composition

Degree program has plan approval from the National Association of Schools of Music.

Select 9 credits of MUSI 771, MUSI 795 (Independent Study/Advanced Counterpoint), MUSI 781W, and MUSI 782W 9
Select 4 credits of MUSI 775-MUSI 776 4
Select 12 credits of MUSI 777 12
MUSI 779 Orchestration 3
MUSI 795 Special Studies (Advanced Music Theory) 1 3
MUSI 795 Special Studies (Electronic Music) 2
Select 3 credits of MUSI 703-MUSI 715 Advanced Music History 2 3
Select 8 credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764 Performance Study 8
Select 8 credits of MUSI 441-MUSI 464 Performing Ensemble 8
Total Credits 52

1 This is in addition to the other 700-level theory classes outlined above.
2 This is in addition to the core required 700-level music history class.

Students in the bachelor of music in composition degree program may use a maximum of 8 ensemble credits toward graduation.

Students in the bachelor of music in composition degree are required to attend 8 semesters of composition seminar.

Music Education Major (B.M.)
http://www.unh.edu/music

Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the music education option, a half recital is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement. Additionally, B.M. music education and preteaching majors may use MUSI 501 History and Literature of Music to satisfy the Fine and Performing Arts Discovery category requirement.

The bachelor of music degree in music education provides a route to undergraduate certification leading to state of New Hampshire teacher certification in music, grades K-12 (cert. #612.13). New Hampshire also participates in a reciprocal agreement with many other states: the Interstate Certification Compact.
Continuation in the B.M. music education program is made with the recommendation of the appropriate faculty members and contingent upon personal commitment to the teacher licensure program.

Students in music education must maintain an overall minimum 2.8 grade-point average at the time of application for student teaching (February 15 of junior year). Any education course taken for a teacher licensure requirement must be completed with a B- or better.

B.M. music education majors may use MUSI 501 History and Literature of Music (a required core course for the major) to satisfy the Fine and Performing Arts Discovery category requirement. In addition, they may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

The four-year bachelor of music in music education curriculum is highly structured due to the number of required courses to complete. In the table below is the list of additional classes required to earn a degree and a certificate to teach. Students may elect a vocal/choral or instrumental emphasis. See curriculum chart for differing requirements.

### Bachelor of Music Core Curriculum

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<td>Functional Piano I and Functional Piano I</td>
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<td>MUSI 517 &amp; MUSI 572</td>
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<td>MUSI 515</td>
<td>Music in World Cultures</td>
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<td>MUSI 731</td>
<td>Conducting</td>
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<tr>
<td>Select any course between MUSI 703-MUSI 715</td>
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<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- MUSI 771 Counterpoint
- MUSI 781W Analysis: Form and Structure
- MUSI 782W Analysis: Form and Structure

Select variable credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764 Variable Performance Study (Applied Lessons)

Select variable credits of MUSI 441-MUSI 464 Performing Ensemble Variable

Total Credits: 38

1 Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.

### Bachelor of Music in Music Education Curriculum

Degree program has final approval from the National Association of Schools of Music.

- MUED 741 Techniques and Methods in Choral Music 2
- MUED 745 Techniques and Methods in String Instruments 2
- MUED 747 Techniques and Methods in Woodwind Instruments 2-3
- MUED 749 Techniques and Methods in Brass Instruments 2
- MUED 751 Techniques and Methods in Percussion Instruments 2
- MUED 755 Vocal Pedagogy 1-2
- MUED 765 Instrumental Music Methods 2
- MUED 790 Teaching Elementary School Music 3
- MUED 791 Teaching Secondary School Music 2
- MUSI 520 Diction for Singers I 4
- MUSI 732 Conducting 2
- MUSI 779 Orchestration 3

Select 8 credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764 8

Performance Study (Applied Lessons)

Select 8 credits of MUSI 441-MUSI 464 Performing Ensemble 8

- EDUC 500 Exploring Teaching 4
- EDUC 700 Educational Structure and Change 4
- EDUC 701 Human Development and Learning: Educational Psychology 4
- EDUC 705 Contemporary Educational Perspectives 4
- EDUC 751B Educating Exceptional Learners: Secondary 4
- EDUC 694 Courses in Supervised Teaching 8

Total Credits: 69-71

1 Vocal track students take 2 credits. Instrumental track students take 3 credits.
2 Instrumental track students take 1 credit. Vocal track students take 2 credits.
3 Required for Instrumental track.
4 Required for Vocal track.
5 Students in the bachelor of music in music education degree program may use a maximum of 8 ensemble credits toward graduation. Of the 8 credits in ensemble performance (MUSI 441 Concert Choir-MUSI 464 Guitar Ensemble) required during the course of study, it is required that at least 4 credits will be from the following: Concert Choir (MUSI 441 Concert Choir), Symphony (MUSI 450 Symphony), Wind Symphony (MUSI 452 Wind Symphony), Symphonic Band (MUSI 453 Symphonic Band), and/or Concert Band (MUSI 451 Concert Band). At least 1 credit of performance in a jazz ensemble (MUSI 460 Jazz Band) and 1 credit of Marching Band (MUSI 454 UNH Marching Band) are highly desirable.

### Performance Major (B.M.)

- http://www.unh.edu/music
Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the performance option, a full recital is required. Students in the bachelor of music in performance degree program are required to perform a half junior recital.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

Requirements

Bachelor of Music Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 471</td>
<td>Theory I</td>
<td>6</td>
</tr>
<tr>
<td>&amp; MUSI 472</td>
<td>and Theory I</td>
<td></td>
</tr>
<tr>
<td>MUSI 473</td>
<td>Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>&amp; MUSI 474</td>
<td>and Ear Training I</td>
<td></td>
</tr>
<tr>
<td>MUSI 475</td>
<td>Functional Piano I</td>
<td>2</td>
</tr>
<tr>
<td>&amp; MUSI 476</td>
<td>and Functional Piano I</td>
<td></td>
</tr>
<tr>
<td>MUSI 571</td>
<td>Theory II</td>
<td>6</td>
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<tr>
<td>&amp; MUSI 572</td>
<td>and Theory II</td>
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<tr>
<td>MUSI 573</td>
<td>Ear Training II</td>
<td>2</td>
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<td>and Ear Training II</td>
<td></td>
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<td>MUSI 575</td>
<td>Functional Piano II</td>
<td>2</td>
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<tr>
<td>&amp; MUSI 576</td>
<td>and Functional Piano II</td>
<td></td>
</tr>
<tr>
<td>MUSI 501</td>
<td>History and Literature of Music</td>
<td>6</td>
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<tr>
<td>&amp; MUSI 502</td>
<td>and History and Literature of Music</td>
<td></td>
</tr>
<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
</tr>
<tr>
<td>Select any course between MUSI 703-MUSI 715</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MUSI 771 Counterpoint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 781W Analysis: Form and Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 782W Analysis: Form and Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select variable credits of MUSI 541-MUSI 564/MUSI 741-MUSI 764</td>
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<tr>
<td>Variable Performance Study (Applied Lessons)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select variable credits of MUSI 441-MUSI 464 Performing Ensemble</td>
<td></td>
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</tr>
</tbody>
</table>

Total Credits 38

1 Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.

Bachelor of Music in Performance (Voice)

Degree program has final approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUED 741</td>
<td>Techniques and Methods in Choral Music</td>
<td>2</td>
</tr>
<tr>
<td>MUED 755</td>
<td>Vocal Pedagogy</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 520</td>
<td>Diction for Singers I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; MUSI 521</td>
<td>and Diction for Singers II</td>
<td></td>
</tr>
<tr>
<td>MUSI 713</td>
<td>Art Song</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 715</td>
<td>Survey of Opera</td>
<td></td>
</tr>
<tr>
<td>MUSI 545/745</td>
<td>Voice (voice lessons)</td>
<td>25</td>
</tr>
</tbody>
</table>

Select 8 credits of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 441</td>
<td>Concert Choir 2</td>
<td></td>
</tr>
<tr>
<td>MUSI 442</td>
<td>Chamber Singers</td>
<td></td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Opera Workshop</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following: 8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 401</td>
<td>Elementary Italian I</td>
<td></td>
</tr>
<tr>
<td>&amp; ITAL 402</td>
<td>and Elementary Italian II</td>
<td></td>
</tr>
<tr>
<td>GERM 401</td>
<td>Elementary German I</td>
<td></td>
</tr>
<tr>
<td>&amp; GERM 402</td>
<td>and Elementary German II</td>
<td></td>
</tr>
<tr>
<td>FREN 401</td>
<td>Elementary French I</td>
<td></td>
</tr>
<tr>
<td>&amp; FREN 402</td>
<td>and Elementary French II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 52

1 Three credits of lessons each semester until the student's senior recital semester; then it is 4 credits.

Bachelor of Music in Performance (Piano)

Degree program has final approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 541/741</td>
<td>Piano (piano lessons)</td>
<td>25</td>
</tr>
<tr>
<td>MUSI 545</td>
<td>Piano Ensemble</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 541/745</td>
<td>Piano (piano lessons)</td>
<td>25</td>
</tr>
</tbody>
</table>

Select 4 credits of MUSI 441-MUSI 464 Performing Ensemble 4

Total Credits 47-48

1 A B.M. piano performance major must take a total of two of these three courses: MUSI 771 Counterpoint, MUSI 781W Analysis: Form and Structure, and MUSI 782W Analysis: Form and Structure.

2 A B.M. piano performance major must take an additional 700-level music history or music theory course.
Three credits of lessons each semester until the semester of the senior recital; then it is 4 credits.

Bachelor of Music in Performance (All other Instruments)

Degree program has final approval from the National Association of Schools of Music.

Select 2-3 credits of MUSD 745-MUSD 751 Techniques & Methods

Select 3 credits of MUSI 700-level Advanced Music History or Advanced Music Theory

Select 25 credits of MUSI 541-MUSI 546/MUSI 741-MUSI 764 Performance Study

Select 12 credits of MUSI 441-MUSI 464 Performing Ensemble

Total Credits: 42-43

1 B.M. instrumental performance majors take one methods class in the appropriate instrumental family, e.g., a trumpet player would take MUSD 749 Techniques and Methods in Brass Instruments, to fulfill this requirement.

2 This is in addition to the advanced music history and advanced music theory class already required.

3 Three credits of lessons are taken each semester until the student’s senior recital semester; then it is 4 credits.

Pre-Teaching Major (B.M.)

http://www.unh.edu/music/pre-teaching

Requirements

Bachelor of Music Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 471 &amp; MUSI 472</td>
<td>Theory I and Theory I</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 473 &amp; MUSI 474</td>
<td>Ear Training I and Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 475 &amp; MUSI 476</td>
<td>Functional Piano I and Functional Piano I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 571 &amp; MUSI 572</td>
<td>Theory II and Theory II</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 573 &amp; MUSI 574</td>
<td>Ear Training II and Ear Training II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 575 &amp; MUSI 576</td>
<td>Functional Piano II and Functional Piano II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501 &amp; MUSI 502</td>
<td>History and Literature of Music and History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 771</td>
<td>Counterpoint</td>
<td></td>
</tr>
<tr>
<td>MUSI 781W</td>
<td>Analysis: Form and Structure</td>
<td></td>
</tr>
<tr>
<td>MUSI 782W</td>
<td>Analysis: Form and Structure</td>
<td></td>
</tr>
<tr>
<td>MUSI 732</td>
<td>Teaching Elementary School Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 731</td>
<td>Teaching Secondary School Music</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 520</td>
<td>Diction for Singers I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 732</td>
<td>Conducting</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 779</td>
<td>Orchestration</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 38

Bachelor of Music Pre-Teaching Curriculum

Degree program has plan approval from the National Association of Schools of Music.

| MUSD 741 | Techniques and Methods in Choral Music     | 2       |
| MUSD 745 | Techniques and Methods in String Instruments| 2       |
| MUSD 747 | Techniques and Methods in Woodwind Instruments | 2-3 |
| MUSD 749 | Techniques and Methods in Brass Instruments | 2       |
| MUSD 751 | Techniques and Methods in Percussion Instruments | 2 |
| MUSD 755 | Vocal Pedagogy                             | 2       |
| MUSD 765 | Instrumental Music Methods                 | 2       |
| MUSD 790 | Teaching Elementary School Music           | 3       |
| MUSD 791 | Teaching Secondary School Music            | 2       |
| MUSI 520 | Diction for Singers I                      | 2       |
| MUSI 732 | Conducting                                | 2       |
| MUSI 779 | Orchestration                             | 3       |

Students will be given the opportunity to test out of MUSI 475 Functional Piano I-MUSI 476 Functional Piano I and MUSI 575 Functional Piano II-MUSI 576 Functional Piano II.

Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the pre-teaching option, a half recital is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement. Additionally, B.M. music education and preteaching majors may use MUSI 501 History and Literature of Music to satisfy the Fine and Performing Arts Discovery category requirement.

The bachelor of music pre-teaching degree is the program of choice for most students seeking a five-year, combined bachelor’s and master’s degree program that includes certification to teach music in the public schools. Students will complete all of the skill and knowledge content requirements in this undergraduate program leaving a year-long internship and some advanced study in music and education for the fifth year. The B.M. pre-teaching curriculum is the same as the B.M. music education curriculum with the lone exception being the omission of student teaching during the undergraduate years. Therefore, students should enroll as B.M. music education when admitted and change to B.M. pre-teaching in their junior year.
Select 8 credits of the following MUSI 541-MUSI 564/MUSI 741-MUSI 764 Performance Study (Applied Lessons)  
Select 8 credits of the following MUSI 441-MUSI 464 Performing Ensemble  
EDUC 500 Exploring Teaching  
EDUC 700 Educational Structure and Change  
EDUC 701 Human Development and Learning: Educational Psychology  
EDUC 705 Contemporary Educational Perspectives  
EDUC 751B Educating Exceptional Learners: Secondary  
Total Credits  
1 Vocal track students take 2 credits. Instrumental track students take 3 credits.  
2 Instrumental track students take 1 credit. Vocal track students take 2 credits.  
3 Required for Instrumental track.  
4 Required for Vocal track.  
5 Students in the bachelor of music pre-teaching degree program may use a maximum of 8 ensemble credits toward graduation. Of the 8 credits in ensemble performance (MUSI 441 Concert Choir-MUSI 464 Guitar Ensemble) required during the course of study, it is required that at least 4 credits will be from the following: Concert Choir (MUSI 441 Concert Choir), Symphony (MUSI 450 Symphony), Wind Symphony (MUSI 452 Wind Symphony), Symphonic Band (MUSI 453 Symphonic Band), and/or Concert Band (MUSI 451 Concert Band). At least 1 credit of performance in a jazz ensemble (MUSI 460 Jazz Band) and 1 credit of Marching Band (MUSI 454 UNH Marching Band) are highly desirable.

Music Minor

http://www.unh.edu/music

Description

A music minor is a great option for students who are passionate about the discipline of music but choose to major in another field. The minor includes required coursework in music theory and literature.

Requirements

All students wishing to receive a minor in music must complete a minimum of 20 credits of coursework in music, of which the following are required:

Select one of the following options:  

| Option A |  
| --- | --- |  
| MUSI 471 Theory I | MUSI 472 and Theory I | MUSI 473 and Ear Training I | MUSI 474 and Ear Training I |

| Option B |  
| --- | --- |  
| MUSI 411 Fundamentals of Music Theory | MUSI 412 and Fundamentals of Music Theory |

Select two of the following:  

<table>
<thead>
<tr>
<th>MUSI 401 Introduction to Music</th>
</tr>
</thead>
</table>

Select 4 credits of MUSI electives  
Total Credits 20

Neuroscience and Behavior (NSB)

Neuroscience is one of the fastest-growing scientific fields, and the discoveries that are being made today are having an immediate and significant impact on our society. The importance of understanding animal behavior is likewise increasing, particularly in the face of a rapidly-changing environment. The B.S. in Neuroscience and Behavior is a great way for students to combine interests in neurobiology and animal behavior. The curriculum prepares students for various post-graduate degrees, including medical, veterinary, and graduate school, and we offer students a variety of opportunities to get hands-on research experience.

http://cola.unh.edu/interdisciplinary-studies/program/neuroscience-and-behavior-bs

Programs

- Neuroscience and Behavior Major (B.S.) (p. 93)

Neuroscience and Behavior Major (B.S.)

http://cola.unh.edu/interdisciplinary-studies/program/neuroscience-and-behavior-bs

Description

The major in neuroscience and behavior (NSB) offers an interdisciplinary approach to human and non-human behavior, focusing on the evolution and adaptiveness of certain behaviors, as well as their underlying neural mechanisms. Students who have always been fascinated by how the brain functions will be well served by this major, as will those who love wild animals and wish to better understand their behavior. The B.S. in neuroscience and behavior is based on a solid foundation in biology, chemistry, physics, statistics, and genetics (foundation courses). These are followed by a two-semester course sequence that covers the fundamentals of neuroscience and behavior. Students can then pick five or more electives focusing on areas of interest.

NSB students are encouraged to take advantage of research experiences in the laboratories of the psychology and biology faculty in the program. This provides valuable experience with cutting-edge equipment and techniques. Some students may share aspects of a larger project, whereas others may be relatively independent and design their own project under supervision. In either case, important skills are gained.
by the discipline of gathering data, analyzing and interpreting it, and presenting it to a broader audience.

The curriculum provides most of the requirements and recommended courses for students seeking admission to graduate school and to professional schools in medicine and veterinary medicine. Students who might choose not to go on to advanced degrees are well-prepared for employment as skilled technicians in research laboratories or, if their interests are in animal behavior, as field research assistants or animal trainers. With additional courses in education, the B.S. in NSB also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty participating in the NSB major combine a love of teaching and student mentoring with a passion for research, and encourage student participation. Research facilities that students can use include the aviary, the confocal imaging center, the Hubbard Center for Genomic Studies, and the many marine, freshwater, and estuarine laboratories associated with UNH programs. Students can also take summer courses at the Shoals Marine Laboratory.

**Requirements**

Students majoring in NSB are required to take foundation courses in basic science, core courses, and five electives from an extensive list of courses, including some offered by other departments including biochemistry, molecular and cellular biology, and natural resources. Finally, a capstone experience is required. This may be independent research, an advanced seminar, or other special student activity. It is meant to integrate prior experience and take the student to a new level in an area of special interest.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NSB 400</td>
<td>Topics Neuroscience &amp; Behavior</td>
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</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>8</td>
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<tr>
<td>&amp; BIOL 412</td>
<td>and Introductory Biology: Evolution, Biodiversity</td>
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<tr>
<td>&amp; CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
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<tr>
<td>&amp; CHEM 404</td>
<td>General Chemistry II (2 semesters)</td>
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<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
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<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
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<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology or BIOL 528</td>
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<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
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<td>GEN 604</td>
<td>Principles of Genetics</td>
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<td>Fundamentals of Neuroscience and Behavior I</td>
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<td>and Fundamentals of Neuroscience and Behavior I</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>NSB 502</td>
<td>Fundamentals of Neuroscience and Behavior II/</td>
<td>5</td>
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<tr>
<td>&amp; NSB 503</td>
<td>Systems Neuroscience and Fundamentals of Neuroscience and Behavior II</td>
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<td>Electives (Choose 5)</td>
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<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
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<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
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<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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</tr>
<tr>
<td>&amp; BMS 508</td>
<td>and Human Anatomy and Physiology II</td>
<td></td>
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<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
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<tr>
<td>BMS 711</td>
<td>Toxicology</td>
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<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
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<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
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<tr>
<td>KIN 706</td>
<td>Neurology</td>
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<tr>
<td>&amp; KIN 707</td>
<td>and Neurology Lab</td>
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<td>MEFB 714</td>
<td>Field Animal Behavior (SML, C)</td>
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<tr>
<td>NSB 705</td>
<td>Molecular and Cellular Neurobiology (C)</td>
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</tr>
<tr>
<td>NSB 727</td>
<td>Animal Communication (C)</td>
<td></td>
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<tr>
<td>NSB 728</td>
<td>Research Methods in Animal Behavior (C)</td>
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<tr>
<td>PHIL 630</td>
<td>Neuroscience and Philosophy</td>
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<tr>
<td>PSYC 511</td>
<td>Sensation and Perception</td>
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<tr>
<td>PSYC 512</td>
<td>Psychology of Primates</td>
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<tr>
<td>PSYC 513</td>
<td>Cognitive Psychology</td>
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<tr>
<td>PSYC 521</td>
<td>Behavior Analysis</td>
<td></td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 716</td>
<td>Cognitive Neuroscience (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 720</td>
<td>Animal Cognition (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Drugs and Behavior (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 735</td>
<td>Neurobiology of Mood Disorders (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 736</td>
<td>Attention Disorders (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 737</td>
<td>Behavioral Medicine (C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 741</td>
<td>Advanced Topics (Behavioral Neuroscience, C)</td>
<td></td>
</tr>
<tr>
<td>PSYC 741W</td>
<td>Advanced Topics (Neuroscience of Memory, C)</td>
<td></td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>&amp; ZOOL 626</td>
<td>and Animal Physiology Laboratory (C)</td>
<td></td>
</tr>
<tr>
<td>ZOOL 690</td>
<td>Evolution (C)</td>
<td></td>
</tr>
<tr>
<td>ZOOL 726</td>
<td>Conservation Behavior (C)</td>
<td></td>
</tr>
<tr>
<td>ZOOL 733</td>
<td>Behavioral Ecology (C)</td>
<td></td>
</tr>
<tr>
<td>ZOOL 736</td>
<td>Genes and Behavior (C)</td>
<td></td>
</tr>
<tr>
<td>795/796 or 799 Independent Study, C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Capstone**

Both must be taken to count as one of the 5 required major electives

1 Courses that are eligible to fulfill the Capstone requirement are indicated with a (C) and must be taken senior year. You can:
   1. designate a course as a Capstone course, with additional requirements as determined by the instructor;
   2. complete one semester of Capstone Research (BIOL 795, PSYC 795, or INCO 790);
   3. do an honors thesis in Neuroscience (NSB 799H) or Biology or Psychology (BIOL 799 or PSYC 797/799) or, 4) participate in an advanced graduate seminar.

**Philosophy (PHIL)**

Philosophy has always been at the heart of liberal education, deepening and enriching the lives of those who pursue it. The philosophy major provides students with the opportunity to confront a wide variety of questions, especially those that cannot be dealt with in the framework of other disciplines. Such questions include those about the ultimate nature
of reality: Does God exist? Are minds distinct from bodies? Are there more things between heaven and Earth than are dreamed of in science? Other questions probe what it is to know. Do we know that material bodies external to our minds exist? What does it mean to justify a belief? Still other questions are about how we ought to be or act: What is a good person? Are there moral rules? How are they justified? Must we obey them?

Philosophy also concerns itself with other disciplines: What makes something a work of art? What distinguishes a scientific theory from a religious theory or myth? Is capitalism amoral? Is legal authority moral or political?

The Department of Philosophy offers a wide range of courses exposing students to the full scope of philosophical activity. Grappling with major primary texts from the history of philosophy is an important emphasis of the program, for philosophy today is the continuation of a conversation that extends back to the ancient Greeks and the Vedric scriptures. Philosophy also always has wrestled with cutting-edge topics emerging in the current culture. Some recent examples are: What are the prospects for machines with mental lives? What are the implications of new views in cosmology? How do we handle the pressing ethical dilemmas brought on by emerging medical technologies, or by the historically unparalleled rate of destruction of the Earth’s environment? Are gender and race socially constructed concepts rather than biological concepts?

Each semester, detailed course descriptions are posted in the department office and on the department web page.

Career Opportunities

Philosophy offers excellent training for a variety of careers by providing a unique combination of lifelong skills: analytic and interpretive skills; critical reasoning skills; the enhanced capacity to detect problems and to solve them; excellence in oral and written presentation and defense of one’s ideas; skill at asking probing and central questions about the ideas of others (as well as about one’s own ideas); and skill at effectively understanding, organizing, and evaluating complex systems of thought.

Considering these skills, it is not surprising that philosophy majors score in the very top percentiles on the GRE, LSAT, and GMAT standardized exams. For example, in a recent GRE study, philosophy majors were ranked among the very top majors in their mean scores on the verbal, analytic, and quantitative components of the exam; in a recent LSAT study, philosophy majors had a higher mean score than even prelaw majors; and for recent GMAT tests, the mean score for philosophy majors exceeded that of any type of business major. Virtually no other major does this well on such a wide cross-section of standardized exams.

These results reflect the fact that the unique combination of skills acquired in philosophy, along with the breadth of subject matter, provide the philosophy major with an extremely adaptive and resilient mindset. Philosophy provides superior preparation for a variety of vocational and professional endeavors, and perhaps more importantly, for being a professional.

http://cola.unh.edu/philosophy

Programs

- Philosophy Major (B.A.) (p. 95)
- Philosophy Major: Ethics and Social Responsibility Option (B.A.) (p. 96)
- Philosophy Minor (p. 96)

Faculty

http://cola.unh.edu/faculty/philosophy

Philosophy Major (B.A.)

http://cola.unh.edu/philosophy

Description

UNH philosophy majors acquire the ability to think systematically and imaginatively about fundamental and enduring issues such as morality, justice, happiness, beauty, gender, race, nature, artificial intelligence, space, time, and the meaning of life and death. Our internationally-renowned professors emphasize discussion, debate and writing in our courses. Wrestling with the “big questions” from diverse and global perspectives will prepare you exceptionally well for a variety of fulfilling careers. A lively and nurturing community personally invested in the success of our high achieving students, we take pride in watching our graduates excel in top law and graduate schools, innovative social justice programs, and various positions from Wall Street to Silicon Valley and beyond that seek hard workers who can think rigorously and communicate clearly.

Ethics and Social Responsibility Option

While completing the major, students may select the option in Ethics and Social Responsibility. This option provides official recognition for those who choose to emphasize concern with moral responsibility in personal and social contexts, including the political and corporate arenas. See the option requirements (p. 96).

Graduate Preparatory Emphasis

This emphasis is strongly recommended for students who plan to do graduate work in philosophy. Beyond the 10 program courses, such students should select, with their advisers’ approval, two additional philosophy courses above the 400 level, for a total of 12 courses.

Distinction on Senior Thesis

Distinction on Senior Thesis is granted by a unanimous determination of the student’s committee that the thesis exceeds A-level work and is worthy of special recognition.

Honors in Philosophy

To graduate “With Honors” in Philosophy, students will be expected to pursue a philosophy curriculum that demands greater depth and rigor than what is required by the major; they will be expected to complete the curriculum at a consistently high level of achievement; they will be expected to have an overall GPA of 3.5 or above; they will engage in independent study and research (under the supervision of a faculty member) beyond the requirements of their coursework; and they will be expected to present and defend a culminating project that synthesizes aspects of their study. Students can demonstrate these expectations in either of two ways: a thesis option or a portfolio option. Consult the Department of Philosophy website for more details.
Requirements

Majors must take a total of 10 philosophy courses.

Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 412</td>
<td>Beginning Logic</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 500</td>
<td>Workshop</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 570</td>
<td>Ancient Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 580</td>
<td>Modern Philosophy from Descartes to Kant</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following additional courses in the history of philosophy:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 525</td>
<td>Existentialism</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 610</td>
<td>Topics in History of Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 620</td>
<td>20th Century European Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

An approved seminar

Discovery Capstone Requirement

Select two 700-level seminars of the student’s choice, at least one of these should be taken in the senior year

Electives

Any two additional philosophy courses

Total Credits: 40

1 As with all courses counting for the major, a grade of C- or better is required.

Please note that a single course can satisfy multiple requirements for the major. PHIL 495 Tutorial Reading and PHIL 795 Independent Study normally do not count toward fulfilling major requirement credits; exceptions may be granted by special permission.

Note that it is in the nature of 700-level seminars to presuppose by default that students have completed the main 400-level and 500-level core requirements (PHIL 412 Beginning Logic, PHIL 500 Workshop, PHIL 530 Ethics, PHIL 570 Ancient Philosophy, PHIL 580 Modern Philosophy from Descartes to Kant) and so free reference is made to materials, views, techniques, etc. covered in those lower-level core requirements.

Although not required, students are strongly encouraged to consider the possibility of doing honors-in-major (and therefore writing a thesis or an honors portfolio), and/or presenting research at the Undergraduate Research Conference, and/or fulfilling an undergraduate research grant in their senior year. This is especially encouraged for students considering graduate school in philosophy.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major and with the exception of PHIL 412 Beginning Logic, which may be used to satisfy both.

Philosophy Major: Ethics and Social Responsibility Option (B.A.)

http://cola.unh.edu/philosophy

Description

While completing the philosophy major, students may select the option in ethics and social responsibility. This option provides official recognition for those who choose to emphasize concern with moral responsibility in personal and social contexts, including the political and corporate arenas.

Requirements

Students must fulfill the requirements of the philosophy major (p. 96).

This option requires four courses (16 credits) from those listed below, with one (PHIL 530) already strictly required for the major. Some others (PHIL 520, 525, 701, 740) can also be used to satisfy requirements for the major.

Select four of the following courses: 16

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 410</td>
<td>Happiness, Well-Being, and a Good Life</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 424</td>
<td>Science, Technology, and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 424H</td>
<td>Honors/Science, Technology and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 430</td>
<td>Ethics and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 430H</td>
<td>Honors/Ethics and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 430W</td>
<td>Ethics and Society</td>
<td></td>
</tr>
<tr>
<td>PHIL 436</td>
<td>Social and Political Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 436H</td>
<td>Honors/Social and Political Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 436W</td>
<td>Social and Political Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 440</td>
<td>Just Business: The Ethics of Markets and Money</td>
<td></td>
</tr>
<tr>
<td>PHIL 444</td>
<td>Remaking Nature/The Ethics and Politics of Genetic Engineering</td>
<td></td>
</tr>
<tr>
<td>PHIL 450</td>
<td>Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 450H</td>
<td>Honors/Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 510</td>
<td>Philosophy and Feminism</td>
<td></td>
</tr>
<tr>
<td>PHIL 520</td>
<td>Introduction to Eastern Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 525</td>
<td>Existentialism</td>
<td></td>
</tr>
<tr>
<td>PHIL 525H</td>
<td>Honors/Existentialism</td>
<td></td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 635</td>
<td>Philosophy of Law</td>
<td></td>
</tr>
<tr>
<td>PHIL 660</td>
<td>Law, Medicine, and Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 701</td>
<td>Topics in Value Theory</td>
<td></td>
</tr>
<tr>
<td>PHIL 740</td>
<td>Advanced Topics in the Philosophy of Law</td>
<td></td>
</tr>
</tbody>
</table>

Philosophy Minor

http://cola.unh.edu/philosophy

Description

UNH philosophy minors acquire the ability to think systematically and imaginatively about fundamental and enduring issues such as morality, justice, happiness, beauty, gender, race, nature, artificial intelligence,
space, time, and the meaning of life and death. Our internationally-renowned professors emphasize discussion, debate and writing in our courses. Wrestling with the "big questions" from diverse and global perspectives will prepare you exceptionally well for a variety of fulfilling careers. A lively and nurturing community personally invested in the success of our high achieving students, we take pride in watching our graduates excel in top law and graduate schools, innovative social justice programs, and various positions from Wall Street to Silicon Valley and beyond that seek hard workers who can think rigorously and communicate clearly.

Requirements

A philosophy minor consists of five philosophy courses with a grade of C- or above, one of which must be at the 500-level or higher (PHIL 495 Tutorial Reading and PHIL 795 Independent Study with special approval only).

You do not need to declare a minor; however, it might be wise to meet with a faculty member from the Philosophy Department to discuss your minor plan.

At the beginning of your final semester of study, you should complete a certification of completion of minor form (http://www.unh.edu/registrar/forms/minorform.pdf), obtain the necessary signatures, and submit it to your Dean's Office.

Political Science (POLT)

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions, their problems and behavior, and their interactions—at the national and international levels and at the local, state, and regional levels.

Much of the learning offered by the Department of Political Science also can be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces that lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession. For teaching, particularly at the college level, and for many types of government service, graduate work may be indispensable. An undergraduate major in political science will provide a helpful foundation for any further study of politics and related fields in the social sciences and humanities. Such an emphasis also will be valuable for students seeking careers in journalism, international organizations, and the public affairs and administrative aspects of labor, financial, and business organizations.

Internships and Advanced Study

In addition to the courses regularly offered, the department could have available selected topics, advanced study in political science, and internships. Interested students should check the department's website to learn about the offerings for a given semester.

The department also offers several internship opportunities that give students experience in various aspects of government, policy making, and the legal system at the local, state, and national levels. Student must have taken certain course prerequisites for each kind of internship. In addition, students must have junior or senior standing and normally have a 3.2 average or higher to be eligible for consideration. Students desiring to undertake internships must fully comply with the departmental guidelines as stated on the application forms, which are available on the department website. Applications must be received by the first day of the preregistration period prior to the semester the course will be undertaken. Internships can only fulfill non-subfield requirements at the 500-level. Washington placements are made either through the Department of Political Science or through the Washington Center located in the National Student Exchange Office in Hood House; major credit must be arranged through the department.

Political Science Language Requirement

The bachelor of arts degree at the University of New Hampshire requires that a student satisfy the foreign language proficiency requirement. The requirement may be met by demonstrating language proficiency equal to a one-year college-level course (401 and 402, 403 and 503, or 503 and above in spoken language). See University Requirements/Degrees (p. 29) for the full description of this requirement.

The Department of Political Science does not allow American Sign Language (ASL) to count toward the language requirement.

Exceptions to this must be petitioned and approved by the Department of Political Science's undergraduate committee and a student’s adviser.

Five-year B.A./M.A. Program

The five-year political science B.A./M.A. program (also known as a "dual degree, early admission" program) aims to

1. improve opportunities for excellent undergraduates to prepare for competitive Ph.D. programs or add an additional credential before entering a competitive job market; and
2. allow students interested in politics to advance and further specialize their political science education in only one additional year at UNH.

Students must fulfill all programmatic requirements for the current master's degree program, as well as fulfill all programmatic requirements for their bachelor's degree.

Interested students must submit a full graduate application by February 15 of their junior year. Minimum GPA required for admission is 3.2.

For additional information you may contact the graduate coordinator, Tama Andrews, (603) 862-2321, tama.andrews@unh.edu.

http://cola.unh.edu/political-science

Programs

• Political Science Major (B.A.) (p. 98)
• Political Science Minor (p. 98)

Faculty

http://cola.unh.edu/faculty/political-science
Political Science Major (B.A.)
http://cola.unh.edu/political-science

Description

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions, their problems and behavior, and their interactions—at the national and international levels and at the local, state, and regional levels.

Much of the learning offered by the Department of Political Science also can be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces that lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession. For teaching, particularly at the college level, and for many types of government service, graduate work may be indispensable. An undergraduate major in political science will provide a helpful foundation for any further study of politics and related fields in the social sciences and humanities. Such an emphasis also will be valuable for students seeking careers in journalism, international organizations, and the public affairs and administrative aspects of labor, financial, and business organizations.

Requirements

The major program in political science consists of at least 10 courses (40 credits) and not more than 12 courses (48 credits). The minimum grade requirement is C- per course. Any grade lower will not count toward major. Courses are to be distributed in the following way.

<table>
<thead>
<tr>
<th>Three 400-level courses:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 401 Politics and Society</td>
<td>4</td>
</tr>
<tr>
<td>POLT 402 American Politics and Government</td>
<td>4</td>
</tr>
<tr>
<td>POLT 403 United States in World Affairs</td>
<td>4</td>
</tr>
<tr>
<td>Six 500-level courses</td>
<td>24</td>
</tr>
</tbody>
</table>

Discovery Program Capstone Requirement:

Select any 700-level political science course | 4 |

Total Credits | 40 |

1 Once they declare the major, students must complete these three courses within the first calendar year. POLT 407 Law and Society and any of the 444’s do not count toward the major.

2 Of these, at least one shall be chosen from each of the four subfields in which the department’s courses are organized: American politics, political thought, comparative politics, and international politics. Students may use a microeconomics course (ECON 402 Principles of Economics (Micro) or ECON 605 Intermediate Microeconomic Analysis) or macroeconomics course (ECON 401 Principles of Economics (Macro) or ECON 611 Intermediate Macroeconomic Analysis) to count as the fifth or sixth electives in this sequence. Additional economics courses will be considered by petition. Only one economics course can count toward this requirement.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. If students substitute an economics course for a POLT 500-level course, this economics course cannot be used to satisfy Discovery category requirements.

Political Science Minor
http://cola.unh.edu/political-science

Description

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions, their problems and behavior, and their interactions—at the national and international levels and at the local, state, and regional levels.

Much of the learning offered by the Department of Political Science can also be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces which lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession.

Requirements

The political science minor consists of five courses (20 credits total). These courses may be taken in any combination of the four subfields and levels (400-700) offered. The fields to choose from are: American politics, political thought, comparative politics, and international politics. No more than two courses can be taken at the 400 level.

The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with a political science adviser to determine eligibility toward the minor.
Psychology (PSYC)

The Department of Psychology focuses on the scientific study of human and non-human behavior. Our bachelor of arts program in psychology is broad, with an emphasis on technical skills and the opportunity to specialize in areas that interest you. Courses cover such topics as clinical and counseling, social psychology, personality, psychological development, cognition in humans and non-humans, neuroscience, sensory psychology and the history of psychology. Opportunities abound to work informally in laboratories or to participate in both clinically-oriented and non-clinical internships.

The program in neuroscience and behavior, shared between Liberal Arts and Life Sciences and Agriculture, focuses on the scientific study of the brain and its relationship to behavior. This Bachelor of Science program is structured around a rigorous core sequence of courses that incorporates an extensive laboratory experience, with the opportunity for specialization. Courses include such topics as endocrinology, genetics, neurology, animal behavior, neuroscience and philosophy, drugs, sensory systems, mood disorders and ecology. A large number of laboratories are available that routinely incorporate undergraduate students.

Advising System

Undergraduate advising in the department is conducted jointly by the department coordinator and the full-time faculty. The department coordinator has primary responsibility for advising freshman and sophomore psychology majors and is the initial contact for all majors in a state of transition including readmitted, transfer, and newly declared students. The department coordinator assists students in all phases of educational planning and decision making, including registration, long-range academic planning, degree and program requirements, and career selection and planning. Continuing junior and senior psychology majors are assigned to a faculty adviser with appropriate consideration for student preferences. The advising relationship with a faculty member is designed to encourage refining career and educational decisions.

Undergraduate Awards for Majors

Each year the faculty chooses psychology undergraduates as the recipients of the following awards: the Herbert A. Carroll Award for an outstanding senior in psychology, the George M. Haslerud Award for an outstanding junior in psychology, and the Fuller Foundation Scholarship for an outstanding junior in psychology with demonstrated interests in clinical psychology. Psychology majors with at least a 3.2 grade-point average are eligible for these awards. Faculty nominate students from the eligibility list and final selection of recipients is made by vote of the full-time psychology faculty.

Honors Program in Psychology

The Department of Psychology sponsors an honors program for outstanding students in the major. Students may apply to the honors program in psychology in their sophomore or junior year.

Eligibility criteria include
1. Overall grade-point average of 3.5 or above and 3.5 in major courses
2. Completion of PSYC 401 Introduction to Psychology, PSYC 402 Statistics in Psychology and PSYC 502 Research Methods in Psychology with a grade of B or above in each.

Requirements of the program include
1. Designate three of the four 700-level psychology courses as honors or equivalent
2. PSYC 797 Senior Honors Tutorial (fall)
3. PSYC 799 Senior Honors Thesis (spring)

Students interested in applying to the honors program should contact the department coordinator by the end of their sophomore year.

Undergraduate Research Conference

The Department of Psychology sponsors the annual George M. Haslerud Undergraduate Research Conference each spring. Undergraduate honors students present their theses at the conference. Contact the department coordinator for more information.

http://cola.unh.edu/psychology

Programs

• Neuroscience and Behavior Major (B.S.) (p. 93)
• Psychology Major (B.A.) (p. 99)
• Psychology Minor (p. 100)

Faculty

http://cola.unh.edu/faculty/psychology

Psychology Major (B.A.)

http://cola.unh.edu/psychology

Description

The psychology major provides students with a broad education, while also allowing some specialization. The program exposes students to the scientific study of behavior and encourages an increased understanding of the behavior of humans and animals.

Students who wish to declare psychology as a major after enrolling in the University should consult with the department’s academic counselor for application procedures and criteria.

Students majoring in psychology must complete 44 credits with a minimum grade of C- in each course and a 2.0 overall average in all major requirements. The psychology department does not accept other departments’ statistics courses toward the psychology major. Students who have taken a statistics course other than PSYC 402 Statistics in Psychology must pass a competency exam in order to apply to the major and/or register for PSYC 402 Statistics in Psychology. Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. (PSYC 401 Introduction to Psychology cannot be used to fulfill a Social Science; PSYC 571 Pioneers of Psychology cannot be used to fulfill a Historical Perspective.) Students who use PSYC 402 Statistics in Psychology for the QR Discovery requirement must take an additional psychology course that is eligible for major credit to replace PSYC 402 Statistics in Psychology in the major. (PSYC 595 Applications of Psychology or PSYC 440A may not be used for this purpose.)
## Requirements

### Core Courses
- **PSYC 401** Introduction to Psychology 4
- **PSYC 402** Statistics in Psychology 4
- **PSYC 502** Research Methods in Psychology 4

### Breadth (500-level) courses
Select two of the following courses from Group I: 8
- **PSYC 511** Sensation and Perception
- **PSYC 512** Psychology of Primates
- **PSYC 513** Cognitive Psychology
- **PSYC 521** Behavior Analysis
- **PSYC 522** Behaviorism (offered in Manchester only)
- **PSYC 531** Psychobiology

Select two of the following courses from Group II: 8
- **PSYC 552** Social Psychology
- **PSYC 553** Personality
- **PSYC 561** Abnormal Behavior
- **PSYC 571** Pioneers of Psychology
- **PSYC 581** Child Development
- **PSYC 582** Adult Development and Aging (offered in Manchester only)

### Depth (700-level) courses
Select two of the following courses from Group I: 8
- **PSYC 702** Advanced Statistics and Research Methodology 1
- **PSYC 705** Tests and Measurement 1
- **PSYC 710** Visual Perception
- **PSYC 712** Psychology of Language (or PSYC 712W)
- **PSYC 713** Psychology of Consciousness
- **PSYC 720** Animal Cognition
- **PSYC 722** Behaviorism, Culture, and Contemporary Society
- **PSYC 731** Brain and Behavior
- **PSYC 733** Drugs and Behavior
- **PSYC 735** Neurobiology of Mood Disorders
- **PSYC 736** Attention Disorders
- **PSYC 737** Behavioral Medicine
- **PSYC 741** Advanced Topics (examples: Behavioral Neuroscience, ReShaping People: A History)

or **PSYC 741** Advanced Topics

Select two of the following courses from Group II: 8
- **PSYC 702** Advanced Statistics and Research Methodology 1
- **PSYC 705** Tests and Measurement 1
- **PSYC 755** Psychology and Law
- **PSYC 756** Psychology of Crime and Justice
- **PSYC 758** Health Psychology
- **PSYC 762** Counseling
- **PSYC 763** Community Psychology
- **PSYC 775** Madness in America
- **PSYC 780** Prenatal Development and Infancy
- **PSYC 783** Cognitive Development
- **PSYC 785** Social Development

Total Credits 44

1. **PSYC 702** Advanced Statistics and Research Methodology & **PSYC 705** Tests and Measurement can be used for group I or group II but cannot be used for the same group.

Note: Most offerings have one or more prerequisite courses. Students (with the help of their advisers) are expected to select breadth courses that will later enable them to select depth courses appropriate to their interests and career goals.

The Discovery Program capstone requirement, taken during the senior year, may be fulfilled by completing one of the following options:
1. The honors-in-major program with an honors project, honors seminar, and research presentation;
2. A 4-credit capstone designated independent study project (PSYC 795 Independent Study);
3. **PSYC 793** Internship;
4. Capstone-designated 700-level course.

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The distribution of these credits will be determined by the department’s academic counselor. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major. Only courses taken in a psychology department can be transferred into the psychology major. Of the four 700-level courses required for the major, at least three must be taken at UNH.

Specific course selections should be discussed with advisers. Exceptions to the requirements for the major require compelling circumstances and a petition to the department.

Psychology majors planning to go on to graduate study in psychology are advised to include **PSYC 702** Advanced Statistics and Research Methodology and/or **PSYC 705** Tests and Measurement among their courses.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

### Psychology Minor

http://cola.unh.edu/psychology

#### Description
See the department coordinator for details on the minor in psychology.
Requirements

PSYC 401 Introduction to Psychology 4
Two courses at the 500 level or higher 8
Two additional PSYC courses 8
Total Credits 20

- No more than 4 credits of PSYC 795 Independent Study may be applied to the minor.
- A maximum of 9 approved psychology transfer credits can be applied to the UNH psychology minor.
- Transfer courses must be evaluated for their equivalency. Only courses taken in a psychology department can be applied towards the minor.
- Three credit transfer courses can be applied as only three credits. Students must make up the credit deficit created by acceptance of transfer courses, with one exception: one three-credit course accepted in transfer may be applied for a total of 19 credits.
- AP Psychology transferred into UNH is equivalent as PSYC 401.

Queer Studies

Programs

- Queer Studies Minor (p. 101)

Queer Studies Minor

http://cola.unh.edu/womens-studies/program/queer-studies

Description

The queer studies minor provides students with opportunities to research and understand a rapidly growing field whose focus is the study of lesbian, gay, bisexual, trans, and allied peoples, their histories, and cultures. Queer studies is a method of inquiry that explores the role of same-sex desire and constructions of gender across and among cultures and histories. In these classes, students will consider sexualities and genders as identities and social statuses, as categories of knowledge, and as lenses that help to frame how we understand our world. The minor consists of interdisciplinary coursework in queer studies and is open to all students. Students who wish to pursue the queer studies minor should consult with Holly Cashman at holly.cashman@unh.edu or (603) 862-3123.

Requirements

The queer studies minor requires 5 courses (20 credits) from the queer studies course offerings list below. A grade of C- or better is required in all queer studies courses. One pre-approved elective from the electives list below may count toward the minor. Courses taken Pass/Fail may not be used for the minor. No more than 8 credits used to satisfy the requirements for a major may be used for the queer studies minor. If you wish to substitute a different course, consult with a queer studies faculty advisor.

Queer Studies Course Offerings

Please note that additional courses may count. Please visit the program’s website for the most up-to-date information.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 625</td>
<td>Sexuality in Cross-Cultural Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 685</td>
<td>Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa</td>
<td>4</td>
</tr>
<tr>
<td>CMN 697</td>
<td>Seminar in Rhetorical Study</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 746</td>
<td>Studies in American Drama</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 785</td>
<td>Major Women Writers</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 757/857</td>
<td>Race, Class, Gender, and Families</td>
<td>4</td>
</tr>
<tr>
<td>HIST 497</td>
<td>Explorations in Historical Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>HIST 595</td>
<td>Explorations (Only topics Gender and Sexuality in Pre-Modern Europe; Sex and Sexuality in Islamic History)</td>
<td>1-4</td>
</tr>
<tr>
<td>HIST 596</td>
<td>Explorations (Only topic Introduction to Gay and Lesbian History)</td>
<td>1-4</td>
</tr>
<tr>
<td>HIST 665</td>
<td>Themes in Women's History</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 401</td>
<td>Introduction to the Humanities</td>
<td>4</td>
</tr>
<tr>
<td>POLT 525</td>
<td>Multicultural Theory</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 595</td>
<td>Applications of Psychology (Research, Field, or Academic Experience)</td>
<td>1-4</td>
</tr>
<tr>
<td>SOC 520</td>
<td>Family</td>
<td>4</td>
</tr>
<tr>
<td>SOC 570</td>
<td>Sexual Behavior</td>
<td>4</td>
</tr>
<tr>
<td>SOC 630</td>
<td>Sociology of Gender</td>
<td>4</td>
</tr>
<tr>
<td>SW 715/815</td>
<td>Practice with Gay, Lesbian, Bisexual, and Transgender People</td>
<td>4</td>
</tr>
<tr>
<td>WS 405</td>
<td>Gender, Power and Privilege</td>
<td>4</td>
</tr>
<tr>
<td>WS 444</td>
<td>Trans/Forming Gender</td>
<td>4</td>
</tr>
<tr>
<td>WS 444B</td>
<td>Score!: Gender and Diversity in Sports</td>
<td>4</td>
</tr>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Only topics Violence Against Women; Gender, Race and Sexuality in Visual Culture)</td>
<td>4</td>
</tr>
<tr>
<td>WS 632</td>
<td>Feminist Thought (depending on instructor)</td>
<td>4</td>
</tr>
<tr>
<td>WS 795</td>
<td>Independent Study (or other departmental designation)</td>
<td>1-4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium (Only topics Race, Gender, and Representation; Gay Marriage and Kinship; Women in Prison)</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives (require program approval and may vary by instructor)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 567</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
<tr>
<td>CMN 697</td>
<td>Seminar in Rhetorical Study</td>
<td>4</td>
</tr>
<tr>
<td>EDUC #507</td>
<td>Mentoring Adolescents</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 705/805</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 618</td>
<td>Film Theory</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #685</td>
<td>Women's Literary Traditions</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 401</td>
<td>Introduction to the Humanities</td>
<td>4</td>
</tr>
<tr>
<td>INCO 450</td>
<td>Introduction to Race, Culture and Power</td>
<td>4</td>
</tr>
<tr>
<td>POLT 522</td>
<td>Dissent and the Political Community</td>
<td>4</td>
</tr>
</tbody>
</table>
POLT 721/821 Feminist Political Theory 4
PSYC 763 Community Psychology 4
SOC 630 Sociology of Gender 4
SOC 570 Sexual Behavior 4
SOC 697 Special Topics (Only topic Women, Health, and Illness) 4
SW 840 Implications of Race, Culture, and Oppression for Social Work Practice 3
WS 401 Introduction to Women’s Studies 4
WS 444A Race Matters 4
WS 595 Special Topics (Only topics Feminisms and Global Perspectives; Activism: VAW, Poverty, Repro Rights) 1-4
WS 632 Feminist Thought 4
WS 796 Advanced Topics 4
WS 797 Internship 4
WS 798 Colloquium (Only topic Violence Against Women/Activism) 4

Race and Ethnic Studies

Programs

• Race and Ethnic Studies Minor (p. 102)

Race and Ethnic Studies Minor
http://cola.unh.edu/interdisciplinary-studies/program/res

Description

The race and ethnic studies (RES) minor examines how racial and ethnic categories are created and maintained—politically, socially, and culturally. RES uses critical, interdisciplinary, and comparative approaches to study race relations as they intersect with factors including gender and sexuality, class, religion, and immigration status. The minor prepares students for life and work in a world increasingly characterized by difference derived from racial and ethnic identities.

Learning Outcomes

Facilitate understanding of how the social constructions of race affect the social fabric of our historical and contemporary world; Enhance students’ abilities to appreciate differences and to actively and critically engage in civic responsibilities, especially with respect to social justice; Prepare students to negotiate an increasingly interconnected world and apply their education in a wide range of occupations; Gain exposure to the theories and methods of ethnic studies; Compare representations of borderlands, hybridity, migration, and diaspora from different cultures to comprehend how national boundaries, as well as local, national, and transnational cultures and politics, affect the constitution of racial and ethnic categories.

Classes for the RES minor are housed in a variety of departments in the College of Liberal Arts, offering students a truly interdisciplinary experience.

Requirements

The race and ethnic studies minor consists of five courses or 20 credits. To complete a minor, students are required to:

1. Enroll in an introductory-level course. (These are listed on the minor website each semester.)
2. Enroll in at least one course at the 600/700-level.
3. Understand that no more than 8 credits used to satisfy the requirements for a major may be used for a minor.
4. Earn a C- or better in each course and maintain a 2.0 grade-point average in courses taken for the minor.

List of Courses Approved for the Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMST 444B</td>
<td>New Orleans: Place, Meaning, and Context</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (when focus is Latin America, Sub-Saharan Africa or Middle East/North Africa)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 610</td>
<td>Medical Anthropology: Illness and Healing</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 616</td>
<td>Religion, Culture, and Society</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 625</td>
<td>Sexuality in Cross-Cultural Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 680</td>
<td>Globalization, Development, and Poverty</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 697/ENGL 693</td>
<td>Special Topics (American Roots Music)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 740</td>
<td>Teaching Race</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>CMN 515</td>
<td>Analysis of News</td>
<td>4</td>
</tr>
<tr>
<td>CMN 567</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
<tr>
<td>CMN 696</td>
<td>Seminar in Media Studies (Topics in Film/Race, Class, Gender)</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 717</td>
<td>Growing up Male in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 444G</td>
<td>Ethnic America: Readings in African American, Asian American, Native American and Latino/a Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 581</td>
<td>Introduction to Postcolonial Literatures in English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 585</td>
<td>Introduction to Women in Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Intro/Caribbean Lit in English ONLINE)</td>
<td>1-4</td>
</tr>
<tr>
<td>ENGL 606</td>
<td>Languages of the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 619</td>
<td>Critical Approaches to Literature (Special Topic: “On Race”)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>Studies in American Literature and Culture (Latino/A Literature, Comics &amp; Graphic Narratives, Consumer Culture)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 750</td>
<td>Special Studies in American Literature (Latin Literature)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 778/WS 798</td>
<td>Race and Gender in Film and Popular Culture</td>
<td>4</td>
</tr>
</tbody>
</table>
HDFS 444  We Don't All Play the Violin: Stories and Stereotypes of Asians in America 4
HIST 505  African American History 4
HIST 506  African American History 4
HIST 532  Modern Latin America 4
HIST 588  History of Modern Africa: 1870 to the Present 4
HIST #589  Islam in Africa 4
HIST 625  Southern History and Literature since the Civil War 4
HIST 632  Latin American History: Topics 4
HUMA 730  Special Studies (Race Theory) 4
POLT 546  Wealth and Politics in Asia 4
POLT 565  United States Policy in Latin America 4
POLT 725  Politics and Literature 4
PSYC 571  Pioneers of Psychology 4
PSYC 791  Advanced Topics (Psychology and Race) 4
SPAN 526  Latin American Civilization and Culture 4
SPAN 798  Topics in Hispanic Linguistics and Cultural Studies (Language & Id in Spanish) 4
SW 697  Special Topics in Social Welfare (Exploring Social Justice) 4
WS 401  Introduction to Women's Studies 4
WS 405  Gender, Power and Privilege 4
WS 444A  Race Matters 4
WS 444C  On the Roads to Equality 4
WS 444D  Cyborgs, Avatars, and Feminists: Gender in the Virtual World 4
WS 505  Survey in Women's Studies (Only topics: Leadership for Social Change, Queer Cinema, Queer Sustainability, Gobal Sex Industry, Race, Gender and Enviromental Jutscie, Feminist Perspectives on Media) 4
WS 632  Feminist Thought 4
WS 798  Colloquium (Women in Prison) 4

Additional Information

Courses taken pass/fail may not be used toward a minor. A relevant internship may be substituted for one of the electives.

After completing the 20-credit sequence, the student submits the Certification of Completion of Minor form, available online or from the RES coordinator. Once this certification is approved by the RES coordinator and major adviser, the form goes to the college dean and the registrar to be recorded on the transcript. The certification form must be completed by the beginning of the student's final semester at the University.

Religious Studies (RS)

Programs

- Religious Studies Minor (p. 103)

Religious Studies Minor

http://cola.unh.edu/interdisciplinary-studies/program-religious-studies-minor

Description

The religious studies program at the University of New Hampshire currently offers an interdisciplinary minor, bringing together courses in several fields that address religion as a cultural, logical, or expressive phenomenon in human history. A religious studies major is available through the self-designed major program. Religious studies courses at UNH avoid theological or confessional biases and emphasize multicultural tolerance and diversity.

For more information, consult the director:

Funso Afolayan
Department of History
415 Horton Social Science Center
(603) 862-3026
e-mail funso.afolayan@unh.edu.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS 483W/</td>
<td></td>
</tr>
<tr>
<td>HIST 483</td>
<td></td>
</tr>
<tr>
<td>RS 699</td>
<td></td>
</tr>
<tr>
<td>Seminar in Religious Studies (to be taken in the senior year)</td>
<td>4</td>
</tr>
<tr>
<td>Select at least three courses either cross-listed in religious studies or otherwise relevant to the study of religion (by student's petition to the program director)</td>
<td>12</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Students especially interested in religious studies are encouraged to combine the minor with further pertinent coursework in one of the established departments contributing to the program: history, philosophy, anthropology, and English. The religious studies self-designed major involves seven courses beyond the minor requirements, at least five of which are 600 level or higher. The program director can aid in advising such a major program.

Courses ordinarily have some degree of focus on issues related to the academic study of religion, conceptualizing religion, or religious influences as a principal problem, asking comparative questions, and/or developing models of cross-cultural usefulness. Courses listed here generally are offered at least once every two years:

Historical-Cultural

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS 483W/</td>
<td></td>
</tr>
<tr>
<td>HIST 483</td>
<td></td>
</tr>
<tr>
<td>HIST 585</td>
<td></td>
</tr>
<tr>
<td>Medieval Islam</td>
<td>4</td>
</tr>
<tr>
<td>HIST 587</td>
<td></td>
</tr>
<tr>
<td>History of Africa from the Earliest Times to 1870</td>
<td>4</td>
</tr>
<tr>
<td>HIST #589</td>
<td></td>
</tr>
<tr>
<td>Islam in Africa</td>
<td>4</td>
</tr>
<tr>
<td>HIST 642</td>
<td></td>
</tr>
<tr>
<td>Saints, Sinners, and Heretics: Europe in the Age of Religious Reform</td>
<td>4</td>
</tr>
</tbody>
</table>

Theoretical

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 417</td>
<td></td>
</tr>
<tr>
<td>God, Religion, and the Meaning of Life</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 616</td>
<td></td>
</tr>
<tr>
<td>Religion, Culture, and Society</td>
<td>4</td>
</tr>
</tbody>
</table>
RS 699  Seminar in Religious Studies  4

Textual
ENGL 518  Bible as Literature  4
RS/HIST 601  Seminar in Religious Texts  4

Interested students also should be alert for special topics courses in history (HIST 600 Explorations), English, anthropology (ANTH 500 Peoples and Cultures of the World), religious studies (RS 600 Special Topics), and other disciplines that might be relevant to the study of religion.

Students interested in the religious studies minor should see the director to fill out an intent-to-minor form by the beginning of their junior year.

Russian (RUSS)

The Russian program provides students with an opportunity to study one of the world’s most important languages, its literature, and its culture. In addition to the intrinsic value of Russian language, literature, and culture as a liberal arts experience, the Russian major leads to a number of careers, such as teaching, translation and interpreting, government, and the Foreign Service. It is also a valuable asset in preparing for careers in law, economics, and international trade, and it can serve as a double major with business administration, international affairs, the natural and physical sciences, and other liberal arts fields such as English, history, political science, sociology, philosophy, theatre, communication, linguistics, and other foreign languages.

http://cola.unh.edu/llc

Programs

• Russian Major (B.A.) (p. 104)
• Russian Minor (p. 105)
• Russian Studies Minor (p. 105)

Faculty

http://cola.unh.edu/llc/program/russian-ba/faculty

Russian Major (B.A.)

http://cola.unh.edu/llc

Requirements

New students will be assigned to the proper course after consultation with the Russian faculty. A student may not receive UNH credit for elementary Russian courses if he or she has had two or more years of secondary school Russian; however, a student may petition the Russian program to be admitted to the 400-level courses for credit. In the 503-790 range, a grade of C or better is required to advance to the next course in the language series (503, 504, 631, 632, 790).

The Russian major consists of a minimum of 40 credits above RUSS 402 Elementary Russian II. Specific course requirements are:

Language Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 503</td>
<td>Intermediate Russian I</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 504</td>
<td>Intermediate Russian II</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 601</td>
<td>Russian Conversation and Phonetics</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 631</td>
<td>Advanced Russian Conversation and Composition</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 632</td>
<td>Advanced Russian Conversation and Composition</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 790</td>
<td>Advanced Language and Style</td>
<td>4</td>
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</table>

One Culture Course

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>RUSS 425</td>
<td>Introduction to Russia: Contemporary Society and Culture</td>
</tr>
<tr>
<td>RUSS 425M</td>
<td>Topics in Russian Culture and Society in Moscow</td>
</tr>
<tr>
<td>RUSS 525</td>
<td>Russia: Mythology and Propaganda</td>
</tr>
<tr>
<td>RUSS 525M</td>
<td>Russia: Mythology and Propaganda in Moscow</td>
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Two Literature Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 691</td>
<td>Readings in Russian Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 500</td>
<td>Selected Topics in World Literature</td>
</tr>
<tr>
<td>RUSS 521</td>
<td>Devils, Deities, and Madness in Russian Literature</td>
</tr>
<tr>
<td>RUSS 522W</td>
<td>Morality, Sex and Revolution in Russian Literature</td>
</tr>
</tbody>
</table>

Capstone Course

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 721</td>
<td>Topics in Contemporary Russian Literature: From Chekhov to Post-Modernism</td>
</tr>
<tr>
<td>RUSS 725</td>
<td>Topics in Russian Culture and Society</td>
</tr>
<tr>
<td>RUSS 733</td>
<td>History of Slavic Languages and Culture</td>
</tr>
</tbody>
</table>

Study Abroad

Majors are required to spend a semester or summer on an approved study abroad program in Russia, RUSS 685 or RUSS 686

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Total Credits 40

Majors are required to take RUSS 631 Advanced Russian Conversation and Composition-RUSS 632 Advanced Russian Conversation and Composition and at least one 700-level Russian course at the Durham campus.

Transfer students must earn a minimum of 12 major credits at the Durham campus.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.
Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. However, majors may use the required study abroad experience to satisfy the World Cultures Discovery category requirement. Russian majors may take RUSS 521 Devils, Deities, and Madness in Russian Literature to satisfy both a Discovery Inquiry requirement and a major requirement.

The required minimum overall GPA in major coursework is 2.0.

**Russian Minor**

http://cola.unh.edu/llc

**Description**

The Russian program provides you the opportunity to minor. The minor consist of 5 courses where students develop language proficiency and knowledge of Russian culture while also concentrating in another field of study such as social service, law, nursing, education and business. Foreign language skills and cultural competencies will open doors for you that you would not have had access to without the minor in Russian. Check out our alumni stories here (http://cola.unh.edu/spotlight/llc).

**Requirements**

The minor in Russian consists of a minimum of 20 credits above RUSS 402 Elementary Russian II; it must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 503</td>
<td>Intermediate Russian I</td>
<td>4</td>
</tr>
<tr>
<td>&amp;</td>
<td>RUSS 504 Intermediate Russian II</td>
<td>8</td>
</tr>
<tr>
<td>RUSS 631</td>
<td>Advanced Russian Conversation and Composition</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 691</td>
<td>Readings in Russian Literature</td>
<td></td>
</tr>
<tr>
<td>RUSS 721</td>
<td>Topics in Contemporary Russian Literature: From Chekhov to Post-Modernism</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 725</td>
<td>Topics in Russian Culture and Society</td>
<td></td>
</tr>
<tr>
<td>RUSS 790</td>
<td>Advanced Language and Style</td>
<td></td>
</tr>
<tr>
<td>Select two elective RUSS courses above RUSS 402</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 20

**Russian Studies Minor**

http://cola.unh.edu/llc

**Description**

The Russian studies minor offers students an opportunity to pursue area study of Russia and the new states through an interdisciplinary program.

Students wishing to minor in Russian studies should consult with any faculty member in Russian studies.

**Requirements**

The minor consists of a minimum of 20 credits (five courses) with a minimum grade of C. In addition to the required courses and electives, students must demonstrate a Russian language proficiency at the level of RUSS 504 Intermediate Russian II or an equivalent.

**Security Studies**

**Programs**

- Security Studies Minor (p. 105)

**Security Studies Minor**

http://cola.unh.edu/security-studies

**Description**

The security studies minor will provide students with the opportunity to explore the many dimensions of security through the interdisciplinary study of political science, anthropology, communication, geography, history, humanities, justice studies, sociology, women’s studies, economics, and aerospace studies. This well-rounded curriculum will enable students to build upon their interest in political science by specializing in an area of increasing importance—domestic and global security.

The field of security studies has always been important within the discipline of political science, but the concept of security has broadened and become more problematic in recent years. Following the terrorist attacks of 9/11, federal, state, and local governments created thousands of jobs that require knowledge of security issues and the ability to conduct research. Leaders at all levels count on staff with analytical skills to design and conduct research to support decision-making, and communicate the results of this research effectively to policy-makers. Individuals who understand the national security environment and have the ability to design and conduct research are in critical demand in the public sector, private sector, and not-for-profit entities.

For more information, contact Mary Malone, mary.malone@unh.edu, (603) 862-1406.

**Requirements**

1. Five courses (20 credits)
2. Students must receive a grade of C or better for a course to count toward the minor requirements.
3. No more than 8 credits may double count between majors and minors. Thus, political science majors pursuing the security studies minor can only double count up to two of the three required political science courses below. The third required course must be taken in addition to courses taken to fulfill major requirements.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 560</td>
<td>World Politics</td>
<td>4</td>
</tr>
<tr>
<td>POLT 562</td>
<td>Strategy and National Security Policy</td>
<td></td>
</tr>
<tr>
<td>POLT 568</td>
<td>Introduction to Intelligence</td>
<td></td>
</tr>
<tr>
<td>Select two intermediate POLT courses of the following:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>POLT 513</td>
<td>Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>POLT 548</td>
<td>Drug Wars</td>
<td></td>
</tr>
</tbody>
</table>
POLT 559 Comparative Politics of the Middle East
POLT 560 World Politics ¹
POLT 562 Strategy and National Security Policy ¹
POLT 563 The Global Information Grid’s Disruptive Impact on Government, Politics, and Society
POLT 565 United States Policy in Latin America
POLT 567 Politics of Global Resources
POLT 568 Introduction to Intelligence ¹
POLT 570 Counterterrorism: Nation states’ responses to terrorist activity
POLT 595 Smart Politics
POLT 765 Security Intelligence Study
POLT 778 International Organization

Electives
Select two electives from other disciplines (at least one must be in a humanities department or program) 8

Total Credits 20

¹ If not counted for core requirement.

Electives within humanities departments and programs:

ANTH 411 Global Perspectives on the Human Condition: An Introduction to Anthropology 4
ANTH 680 Globalization, Development, and Poverty 4
GEOG 402 Regional Geography of the Non-Western World 4
HIST 444C World War Propaganda in Britain and the United States 4
HIST 444E American at War: Society, Culture, and the Home Front 4
HIST 537 Espionage and History 4
HIST 613 American Ways of War 4
HIST 620 Foreign Relations of the United States 4
HIST 679 Rights Revolution 4
HIST 680 Historical Geography 4
PHIL 430 Ethics and Society 4
PHIL 436 Social and Political Philosophy 4
or PHIL #437 Social and Political Philosophy 4
PHIL 635 Philosophy of Law 4
WS 405 Gender, Power and Privilege 4
WS 798 Colloquium 4

Electives outside humanities departments and programs:

AERO 681 National Security Affairs I 4
AERO 682 National Security Affairs II 4
CMN 456 Propaganda and Persuasion 4
CMN 772 Seminar in Media Theory 4
JUST 405 Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime 4
PSYC 756 Psychology of Crime and Justice 4
SOC 515 Introductory Criminology 4
SOC 540 Contemporary Social Problems 4
SOC 656 Terrorism 4
SOC 693 Global Social Change 4

Other POLT courses can be approved by the core faculty upon request.

Once students have declared the minor, they are required to meet with the coordinator or appropriate affiliated faculty adviser at least once per semester for regular review and assessment of their program, learning outcomes, and progress toward the degree.

Transfer credits may be approved by the coordinator to count toward the minor. If the transfer credit is accepted by the University and fits within the scope of the minor, it will be considered.

Sociology (SOC)

Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations, and societies, and how people interact within these contexts.

Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender, and social class to the shared beliefs of a common culture.

http://cola.unh.edu/sociology

Programs

• Sociology Major (B.A.) (p. 106)
• Sociology Minor (p. 107)

Faculty

http://cola.unh.edu/faculty/sociology

Sociology Major (B.A.)

http://cola.unh.edu/sociology

Description

Majoring in sociology provides a solid, multifaceted foundation in the liberal arts, including analytical thinking and writing, and skills in collecting and analyzing data. Students learn diverse theoretical approaches to the social world and acquire tools for conducting and understanding social science research. The wide range of substantive areas taught in the UNH Department of Sociology include courses concentrating on family and work; environmental sociology; social policy; inequalities of race, class, and gender; criminology, social control, and deviant behavior; medical sociology; and religion.

Undergraduate training in sociology is an excellent background for a variety of careers, including the business world, where majors might work in marketing and sales or human resources; government and nonprofit services, where majors might work in education, health services, social welfare, or criminal justice; and research. An undergraduate degree in sociology is also excellent preparation for graduate work in law, social work, criminal justice, counseling, public administration, public health, business administration, urban planning, or further studies in sociology.
To declare a major in sociology, students must have completed at least one introductory-level sociology course with a grade of C or better. New students who declare the major upon admission to UNH must enroll in SOC 400 Introductory Sociology during their first semester and earn a grade of C to maintain status in the program.

Conjoint minors (allowing double-counting of one or two courses) are available for justice studies; gerontology; American studies; race, culture, and power; women’s studies; and other approved minors. Students also have the opportunity to pursue a second major, including justice studies. Students interested in social work or teaching can develop programs in conjunction with the appropriate departments. The departmental honors program is recommended for students with cumulative grade-point averages over 3.4, and especially for those anticipating graduate study.

**Requirements**

Majors must complete a minimum of 40 semester credits in sociology courses with grades of C or better in each course and a GPA of 2.0 or better in sociology courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>SOC 599</td>
<td>Sociological Analysis ¹</td>
<td>4</td>
</tr>
<tr>
<td>SOC 601</td>
<td>Methods of Social Research</td>
<td>4</td>
</tr>
<tr>
<td>SOC 611</td>
<td>Sociological Theory ³</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery Program Capstone Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select five additional major courses, at least two must be at the 600 or 700 level (upper-level electives)</td>
<td>20</td>
</tr>
</tbody>
</table>

Total Credits: 40

¹ SOC 599 Sociological Analysis must be completed no later than the junior year and is a prerequisite for majors taking 600- and 700-level courses.
² Both SOC 502 Statistics and SOC 599 Sociological Analysis are prerequisites for SOC 601 Methods of Social Research.
³ Complete SOC 611 Sociological Theory during senior year.

SOC 595 Independent Reading and Research can be used to fulfill one lower-level elective or SOC 699 Senior Thesis can be used to fulfill one upper-level elective. Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. SOC 599 Sociological Analysis can be used to satisfy both a major requirement and the Inquiry Discovery requirement. (Statistics courses taken in other disciplines are generally not acceptable as a substitute for SOC 502 Statistics.)

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.A. candidates must also satisfy the foreign language proficiency requirement.

Students interested in majoring in sociology should consult with the chair of the undergraduate committee in the sociology department for guidance. It is the responsibility of all sociology majors to obtain the latest information from the department office.

### Sociology Language Requirement

The bachelor of arts degree at the University of New Hampshire requires that students satisfy the foreign language proficiency requirement. The requirement may be met by demonstrating language proficiency equal to a one-year college-level course (401 and 402, 403 and 503, 501 [Latin only], or 503 and above in a spoken language). American Sign Language courses do not meet the foreign language requirement for sociology majors.

The Department of Sociology requires all students declaring the major after fall 2006 to choose from one of the following languages: Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. Exceptions to this list must be petitioned and approved by the Department of Sociology's Undergraduate Committee and a student's adviser.

### Sociology Minor

http://cola.unh.edu/sociology

**Description**

Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations, and societies, and how people interact within these contexts.

Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender, and social class to the shared beliefs of a common culture.

**Requirements**

A minor consists of any five 4-credit courses in sociology with a C- or better in each course and a grade-point average of 2.0 or better in these courses.

### Spanish (SPAN)

The Spanish program major and minor in the Department of Languages, Literatures, and Cultures helps students develop Spanish language proficiency and an enhanced knowledge of the cultural and literary achievements of Hispanic societies around the globe. This dual emphasis on communication and cultural analysis prepares students to live in communities where Spanish is increasingly important professionally and personally.

In addition, the program offers courses in Portuguese. Students also have the option to complete honors in the major providing they complete the necessary classes and a senior thesis in Spanish.

The UNH study abroad program in Granada, Spain, open to majors and nonmajors, offers students the opportunity to live and study abroad for a spring semester. A six-week summer immersion program in Costa Rica also is available to students. Financial aid is available for eligible students. Visit cola.unh.edu/lhc/program/spain-granada (http://www.cola.unh.edu/lhc/program/spain-granada), cola.unh.edu/lhc/program/costa-rica-san-joaquin-de-flores (http://www.cola.unh.edu/lhc/program/costa-rica-san-joaquin-de-flores), or contact the departmental program directors for further information.

http://cola.unh.edu/lhc
Programs

- Spanish Major (B.A.) (p. 108)
- Spanish Minor (p. 108)

Faculty

http://cola.unh.edu/llc/program/spanish-ba/faculty

Spanish Major (B.A.)

http://cola.unh.edu/llc

Description

When you major in Spanish you are opening your opportunities to a variety of fields in which proficiency in the Spanish language and knowledge of Hispanic cultures are desirable or required. Such fields might include international relations, business administration, government, social service, and communications (click here to see what our Alumni are doing (http://cola.unh.edu/spotlight/llc)). In addition, students can prepare to teach Spanish at the elementary and secondary levels and in bilingual education programs through UNH's foreign language teacher education program. The undergraduate major also provides a basis for graduate study in preparation for scholarly research and teaching at the college level. When combined with coursework or a dual major in other disciplines, the major prepares students for work in Spanish-speaking areas of the world as well as in bilingual regions of the United States.

Requirements

The major consists of a minimum of 40 credits. All coursework required for the Spanish major must be completed with a grade of C or better. Specific course requirements are:

- SPAN 631 Advanced Conversation and Composition I
- SPAN 632 Advanced Conversation and Composition II
- Select five of the following culture, linguistics, and literature electives or equivalent:
  - SPAN 641 Spanish Phonetics
  - SPAN 645 Intro to Spanish Linguistics
  - SPAN 647 Hispanic Cultural Studies
  - SPAN 648 Readings in Current Periodicals
  - SPAN 650 Introduction to Critical Analysis
  - SPAN 651 Introduction to Spanish Literature and Thought
  - SPAN 652 Introduction to Spanish Literature and Thought
  - SPAN 653 Introduction to Latin American Literature and Thought
  - SPAN 654 Introduction to Latin American Literature and Thought
  - SPAN 525 Spanish Civilization and Culture or SPAN 526 Latin American Civilization and Culture

Select three courses taught in Spanish at the 700 level

Total Credits

1 SPAN 525 Spanish Civilization and Culture or SPAN 526 Latin American Civilization and Culture may be used to satisfy one of these electives, but students are strongly encouraged to select courses taught in Spanish to meet their major requirements. Only one course taught in English may be counted toward the Spanish major.

An approved foreign study experience in a Spanish-speaking country of a minimum of one semester is required; a full academic year is highly recommended. The Discovery Program capstone requirement may be fulfilled by completing SPAN 797 Topics in Hispanic Literary and Cultural Studies (topic R only) in the fall semester or any 700-level Spanish course in the spring semester. Students completing their Discovery capstone in the spring semester must designate one class as their capstone and present their final work in that class at the Undergraduate Research Conference that semester.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major. However, majors may use the required study abroad experience to satisfy the World Cultures Discovery category requirement.

Spanish Minor

http://cola.unh.edu/llc

Description

When you minor in Spanish you are expanding upon opportunities and opening doors to careers in your field of interest. Many other disciplines such as social service, nursing, teaching, and business require Spanish as a second language since Spanish is the second most spoken language in the United States. Increasingly, employers in government at municipal, state and federal levels and business as well as related careers, are viewing such experience and language skills favorably.

Requirements

At least three courses must be taken in residence at UNH. All coursework required for the Spanish minor must be completed with a grade of C or better and may not be taken pass/fail.

- 5 courses (20 credits) in SPAN 503 or above, which must include:
  - SPAN 631 Advanced Conversation and Composition I
  - SPAN 632 Advanced Conversation and Composition II

Total Credits

Theatre and Dance (THDA)

The Department of Theatre and Dance offers a general theatre degree plus options in acting, dance, design and theatre technology, musical theatre, secondary education, and youth drama. Performance opportunities include six faculty-directed productions; three touring productions; and more than 20 student-directed productions including
plays, musical theatre, dance, puppetry, improvisation, comedy, and creative drama.

The award-winning faculty provide theatre majors with superlative training within a broad liberal arts context. Students may take courses in acting; voice and movement; dialects; directing; choreography; design and theatre technology; the history, theory, and criticism of drama and theatre; youth drama; secondary theatre education; playwriting; storytelling; puppetry; ballet; theatre dance (jazz and tap); aerial dance; and musical theatre. Students interested in performance, technical, and historical aspects are trained to step into professional careers. The program affords means for independent study and internships, special projects, and active personal involvement in lecture and laboratory classes, with the possibility for integration with other departments. To assist with financial needs, the department awards scholarships to selected majors each spring.

In addition to general liberal arts preparation, six specific course sequences are available within the theatre major:

1. courses leading to a theatre major with an option in acting;
2. courses leading to a theatre major with an option in dance: ballet, theatre dance (tap and jazz), and aerial dance. Students also have the option of pursuing dance education leading to K-12 dance teacher certification. To achieve certification, the dance education option should be combined with requirements of the Department of Education, in conjunction with a fifth year master of arts in teaching (M.A.T.) or master of education (M.Ed.) program;
3. courses leading to a theatre major with an option in design and theatre technology;
4. courses leading to a theatre major with an option in musical theatre;
5. courses leading to a theatre major that, if desired, may be combined with requirements of the Department of Education, in conjunction with a fifth year master of arts in teaching (M.A.T.) or master of education (M.Ed.) program, to prepare students for secondary school certification with an undergraduate option in secondary theatre education;
6. courses leading to a theatre major that, if desired, may be combined with requirements of the Department of Education, in conjunction with a fifth year master of education (M.Ed.) program, to prepare students for elementary school certification with an undergraduate option in youth drama.

Auditions are required for the Acting, Dance and Musical Theatre options. Interviews are strongly encouraged for all other areas. The audition session will last approximately two and a half hours. In addition to the audition, students will have an opportunity to ask questions during a comprehensive department overview. Please note that entrance into Department of Theatre and Dance options is contingent upon acceptance into the University of New Hampshire. Prospective students who live more than 250 miles away may contact the department to discuss other audition options. Audition dates, as well as detailed entrance requirements, can be found at the Department of Theatre and Dance website.

Minoring in Theatre and Dance

A minor acknowledges a level of competence and academic focus without the depth a major requires. Students may pursue a minor while majoring in another subject when the demands of that major prevent the possibility of a double major.

http://cola.unh.edu/theatre-dance

Programs

- Theatre Major (B.A.) (p. 109)
- Theatre Major: Acting Option (B.A.) (p. 110)
- Theatre Major: Dance Option (B.A.) (p. 111)
- Theatre Major: Design & Theatre Technology Option (B.A.) (p. 112)
- Theatre Major: Musical Theatre Option (B.A.) (p. 113)
- Theatre Major: Secondary Theatre Education Option (B.A.) (p. 113)
- Theatre Major: Youth Drama Option (B.A.) (p. 114)
- Dance Minor (p. 115)
- Musical Theatre Minor (p. 116)
- Theatre Minor (p. 116)
- Youth Drama Minor (p. 116)

Faculty

http://cola.unh.edu/faculty/theatre-dance

Theatre Major (B.A.)

http://cola.unh.edu/theatre-dance

Description

The general theatre major allows students to explore a variety of areas. Contact David Richman, Paul Creative Arts Center, (603) 862-2218, david.richman@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

Required Courses

http://cola.unh.edu/faculty/theatre-dance

Programs

- Theatre Major (B.A.) (p. 109)
- Theatre Major: Acting Option (B.A.) (p. 110)
- Theatre Major: Dance Option (B.A.) (p. 111)
- Theatre Major: Design & Theatre Technology Option (B.A.) (p. 112)
- Theatre Major: Musical Theatre Option (B.A.) (p. 113)
- Theatre Major: Secondary Theatre Education Option (B.A.) (p. 113)
- Theatre Major: Youth Drama Option (B.A.) (p. 114)
- Dance Minor (p. 115)
- Musical Theatre Minor (p. 116)
- Theatre Minor (p. 116)
- Youth Drama Minor (p. 116)
### Theory/History

Select 4 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 438</td>
<td>History of Theatre II</td>
<td></td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 798</td>
<td>Senior Thesis</td>
<td>2</td>
</tr>
<tr>
<td>or THDA 799</td>
<td>Capstone Project</td>
<td></td>
</tr>
</tbody>
</table>

### Design/Theatre

Select 4 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 458</td>
<td>Costume Construction</td>
<td>4</td>
</tr>
<tr>
<td>THDA 475</td>
<td>Stage Makeup</td>
<td></td>
</tr>
<tr>
<td>THDA 496</td>
<td>Costume Design for the Theatre</td>
<td></td>
</tr>
<tr>
<td>THDA 497</td>
<td>Stage Properties</td>
<td></td>
</tr>
<tr>
<td>THDA 498</td>
<td>Stage Lighting Design and Execution</td>
<td></td>
</tr>
<tr>
<td>THDA 583</td>
<td>Introduction to Puppetry</td>
<td></td>
</tr>
<tr>
<td>THDA 641</td>
<td>Stage Management</td>
<td></td>
</tr>
<tr>
<td>THDA 650</td>
<td>Scene Painting for the Theatre</td>
<td></td>
</tr>
<tr>
<td>THDA 651</td>
<td>Rendering for the Theatre</td>
<td></td>
</tr>
<tr>
<td>THDA 652</td>
<td>Scene Design</td>
<td></td>
</tr>
<tr>
<td>THDA 683</td>
<td>Advanced Puppetry</td>
<td></td>
</tr>
</tbody>
</table>

### Performance

Select 4 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 470</td>
<td>Movement and Vocal Production</td>
<td></td>
</tr>
<tr>
<td>THDA 522</td>
<td>Storytelling, Story Theatre, and Involvement Dramatics</td>
<td></td>
</tr>
<tr>
<td>THDA 532</td>
<td>The London Experience</td>
<td></td>
</tr>
<tr>
<td>THDA 552</td>
<td>Acting II</td>
<td></td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
<td></td>
</tr>
<tr>
<td>THDA 592A</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td></td>
</tr>
<tr>
<td>THDA 655</td>
<td>Musical Theatre Scene Study</td>
<td></td>
</tr>
</tbody>
</table>

### 600-800-Level Courses

Select 8 credits of any 600- to 800-level course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 691/791</td>
<td>Internship</td>
<td>8</td>
</tr>
<tr>
<td>THDA 795/796</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>THDA 798</td>
<td>Senior Thesis</td>
<td></td>
</tr>
<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits: 46-50**

1. The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

2. Includes those in Sections II, III, and IV

### Theatre Major: Acting Option (B.A.)

http://cola.unh.edu/theatre-dance

#### Description

The acting option was created for students with an intense interest in acting and/or directing. The option was designed to develop all aspects of the actor and the director as both an interpretive and creative artist. Students in the acting option are expected to strive for excellence in all areas of the art and craft of acting through highly challenging coursework, performance-based projects, and productions and special workshops with guest artists and instructors.

Contact David Kaye, Paul Creative Arts Center, (603) 862-0667, djk@unh.edu.

#### Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.
All UNH B.A. degrees require a minimum of 128 credit hours.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 438</td>
<td>History of Theatre II</td>
<td>4</td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 470</td>
<td>Movement and Vocal Production</td>
<td>4</td>
</tr>
<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 552</td>
<td>Acting II</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 758</td>
<td>Acting III</td>
<td>4</td>
</tr>
<tr>
<td>THDA 759</td>
<td>Acting: Period and Style</td>
<td>4</td>
</tr>
<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
<td>2</td>
</tr>
</tbody>
</table>

**Theory/History**

Select 4 credits of the following: 4

- THDA 450 History of Musical Theatre in America 4
- THDA 632 Interpretation of Shakespeare in Theatre 4
- THDA 638 American Theatre: 1920-1970 4
- THDA 640 Playwriting 4
- THDA 657 Play Reading 4

**Any THDA Course Offering**

Select 12 credits of any THDA course offering 12

**Total Credits**

62-66

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1. The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

**Theatre Major: Dance Option (B.A.)**

http://cola.unh.edu/theatre-dance

**Description**

A diverse program in dance is offered as an option within the Department of Theatre and Dance. This option is designed to give the dance teacher, choreographer, and/or performer the skills needed to embark on a successful career. Technique courses in ballet, pointe, tap, jazz, and the aerial arts are at the core of this program. Courses in pedagogy, composition, dance history, and choreography allow dancers to explore a variety of disciplines in the dance field. In addition, dancers are introduced to the technical aspects involved in staging a full-scale performance. Performance opportunities include yearly faculty-directed dance concerts and student-created dance showcases each semester. Dancers may focus on one or all dance forms.

Contact Gay Nardone, Newman Dance Studio, (603) 862-1728, gay.nardone@unh.edu.

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**Requirements**

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
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<tr>
<td>or THDA 460</td>
<td>Elements of Design</td>
<td></td>
</tr>
<tr>
<td>THDA 487</td>
<td>History of Dance</td>
<td>4</td>
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<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 795W</td>
<td>Independent Study</td>
<td>2</td>
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<tr>
<td>&amp; THDA 796W</td>
<td>Independent Study (Writing Intensive)</td>
<td>2</td>
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<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
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**Theory Courses**

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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>THDA 633</td>
<td>Dance Composition</td>
<td>4</td>
</tr>
<tr>
<td>THDA 732</td>
<td>Choreography</td>
<td>4</td>
</tr>
<tr>
<td>THDA 786</td>
<td>Dance Pedagogy</td>
<td>4</td>
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**Fine Arts**

Select 8 credits of the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MUSI 411</td>
<td>Fundamentals of Music Theory</td>
</tr>
<tr>
<td>or MUSI 412</td>
<td>Fundamentals of Music Theory</td>
</tr>
<tr>
<td>MUSI 709</td>
<td>Music of the Romantic Period</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>Music of the 20th and 21st Centuries</td>
</tr>
<tr>
<td>PHIL 421</td>
<td>Philosophy and the Arts</td>
</tr>
<tr>
<td>THDA 444B</td>
<td>Famous Dancers of the 20th Century</td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
</tr>
<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
</tr>
<tr>
<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
</tr>
<tr>
<td>THDA 564</td>
<td>Composcinema</td>
</tr>
<tr>
<td>THDA 655</td>
<td>Musical Theatre Scene Study</td>
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<td>THDA 798</td>
<td>Senior Thesis</td>
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Select 16 credits of the following:

<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 562</td>
<td>Ballet II (May be repeated to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 563</td>
<td>Theatre Dance II (May be repeated to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 576</td>
<td>Pointe</td>
<td>4</td>
</tr>
<tr>
<td>THDA 597</td>
<td>Dance Theatre Performance (Repeatable to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 662</td>
<td>Ballet III (May be repeated to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 663</td>
<td>Theatre Dance III (May be repeated to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 665</td>
<td>Aerial Dance (May be repeated to 16 cr)</td>
<td>4</td>
</tr>
<tr>
<td>THDA 684</td>
<td>Special Topics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 56-60

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

Theatre Major: Design & Theatre Technology Option (B.A.)

http://cola.unh.edu/theatre-dance

Description

The design and theatre technology option prepares students for both practical and aesthetic work in the theatre through class work, production assignments, and everyday problem solving. UNH’s theatre technicians and designers are in demand throughout the country, utilizing transferrable skills not only in the theatre but in the allied arts and beyond. UNH-trained graduates hold careers across the nation as lighting, scenic, and costume designers; technical directors; property masters; head electricians; and scenic artists.

Contact Szu-Feng Chen, Paul Creative Arts Center, (603) 862-4445, szu-feng.chen@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 438</td>
<td>History of Theatre II</td>
<td>4</td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A- D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
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Select 12 credits of the following:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
<td>4</td>
</tr>
<tr>
<td>THDA 641</td>
<td>Stage Management</td>
<td>4</td>
</tr>
<tr>
<td>THDA 652</td>
<td>Scene Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 741</td>
<td>Directing</td>
<td>4</td>
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</tbody>
</table>

Select 12 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>THDA 458</td>
<td>Costume Construction</td>
<td>4</td>
</tr>
<tr>
<td>THDA 475</td>
<td>Stage Makeup</td>
<td>4</td>
</tr>
<tr>
<td>THDA 541</td>
<td>Art and Theatre Administration</td>
<td>4</td>
</tr>
<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 547</td>
<td>Stage Properties</td>
<td>4</td>
</tr>
<tr>
<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
<td>4</td>
</tr>
<tr>
<td>THDA 641</td>
<td>Stage Management</td>
<td>4</td>
</tr>
<tr>
<td>THDA 650</td>
<td>Scene Painting for the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 651</td>
<td>Rendering for the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 652</td>
<td>Scene Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 741</td>
<td>Directing</td>
<td>4</td>
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Select 8 credits of the following:

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARTS 455</td>
<td>Architectural Design Studio</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 525</td>
<td>Introductory Woodworking</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>THDA 532</td>
<td>The London Experience</td>
<td>4</td>
</tr>
<tr>
<td>THDA 583</td>
<td>Introduction to Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 691</td>
<td>Internship &amp; THDA 791</td>
<td>4</td>
</tr>
<tr>
<td>THDA 795</td>
<td>Independent Study &amp; THDA 796</td>
<td>4</td>
</tr>
<tr>
<td>THDA 796</td>
<td>Independent Study</td>
<td>4</td>
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</table>

Select only one of the following:

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 631</td>
<td>Introduction to Digital Reporting</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 746</td>
<td>Studies in American Drama</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 758</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 781</td>
<td>English Drama, 1660-1800</td>
<td>4</td>
</tr>
</tbody>
</table>
ENGL 782  Modern Drama  
Total Credits  58-62

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

Theatre Major: Musical Theatre Option (B.A.)
http://cola.unh.edu/theatre-dance

Description

The musical theatre option is designed to cultivate and nurture the creative artistry of those highly motivated students who wish to develop their combined talent as singers, actors, and dancers. Students in the musical theatre option will thrive in this intense and dynamic program of coursework, practical application, performance-based projects, faculty- and student-directed productions, and special workshops with guest artists and instructors. Students will be expected to fully integrate their rigorous training as actors, dancers, and singers with the outstanding liberal arts education they will receive at UNH to become well-rounded and marketable musical theatre artists.

Contact John Berst, Paul Creative Arts Center, (603) 862-3288, john.berst@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

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Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
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<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
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<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>2-4</td>
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<tr>
<td>or THDA 562</td>
<td>Ballet II</td>
<td></td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>2-4</td>
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<tr>
<td>or THDA 563</td>
<td>Theatre Dance II</td>
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<tr>
<td>THDA 470</td>
<td>Movement and Vocal Production</td>
<td>4</td>
</tr>
<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D) 1</td>
<td>4-8</td>
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<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
<td>2</td>
</tr>
<tr>
<td>THDA 450</td>
<td>History of Musical Theatre in America</td>
<td>4</td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 655</td>
<td>Musical Theatre Scene Study</td>
<td>4</td>
</tr>
<tr>
<td>THDA 755</td>
<td>Advanced Musical Theatre</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 411</td>
<td>Fundamentals of Music Theory</td>
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<td>THDA/MUSI credits 2</td>
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<tr>
<td>THDA 500</td>
<td>Musical Theatre Voice I</td>
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<td>THDA 600</td>
<td>Musical Theatre Voice II</td>
<td>1</td>
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<tr>
<td>THDA 700</td>
<td>Musical Theatre Voice III (repeatable)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits  57-65

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

2 Choose four credits of any THDA course or any MUSI course that involves vocal training/performance, music theory, ear training, or piano.

Theatre Major: Secondary Theatre Education Option (B.A.)
http://cola.unh.edu/theatre-dance

Description

For candidates who want to teach drama courses and/or direct high school productions, the secondary theatre education option offers practical and theoretical training for teachers. Through laboratory work, students obtain hands-on theatre teaching experience, so that by the time they reach their graduate school internship, they have spent significant hours working with the K-12 age group. Students are provided with extensive training and practical teaching experience specifically geared toward the goal of being a theatre teacher, either in a traditional classroom or as a teaching artist. Students will be expected to fully integrate education and theatre coursework so that they leave UNH prepared for the rigorous task of teaching.

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade
requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 438</td>
<td>History of Theatre II</td>
<td>4</td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 475</td>
<td>Stage Makeup</td>
<td>2</td>
</tr>
<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
</tr>
<tr>
<td>THDA 721</td>
<td>Arts Integration</td>
<td>4</td>
</tr>
<tr>
<td>THDA 727</td>
<td>Methods of Teaching Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 729</td>
<td>Community Oriented Drama Programs</td>
<td>4</td>
</tr>
<tr>
<td>THDA 741</td>
<td>Directing</td>
<td>4</td>
</tr>
<tr>
<td>THDA 760</td>
<td>Teacher Planning for Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 799</td>
<td>Capstone Project (must be taken in senior year)</td>
<td>2</td>
</tr>
</tbody>
</table>

**Design/Theatre Technology**

Select 4 credits of the following:

- THDA 458 Costume Construction
- THDA 546 Costume Design for the Theatre
- THDA 548 Stage Lighting Design and Execution

**Education**

- EDUC 500 Exploring Teaching

**THDA Electives**

Select at least 8 credits of the following (one of which should be another design course):

- THDA 450 History of Musical Theatre in America
- THDA 520 Creative Drama
- THDA 522 Storytelling, Story Theatre, and Involvement Dramatics
- THDA 547 Stage Properties
- THDA 583 Introduction to Puppetry
- THDA 632 Interpretation of Shakespeare in Theatre
- THDA 638 American Theatre: 1920-1970
- THDA 640 Playwriting
- THDA 641 Stage Management
- THDA 652 Scene Design
- THDA 657 Play Reading
- THDA 683 Advanced Puppetry

**Total Credits** 72-76

1 Students are required to take at least one practicum for every semester they are a major in the Department of Theatre and Dance. In addition, each student must take each type of practicum at least once (Technical, Costume, Performance, Marketing, and Promotion).

2 May be taken at the undergraduate level or the graduate level.

**State K-12 Teacher Certification**

In order to obtain state theatre arts certification, students must apply to either the UNH Department of Education or another university for acceptance into a fifth-year master of arts in teaching (M.A.T.) or master of education (M.Ed.) degree program that fulfills state requirements for certification. It is understood that students involved in the above course curriculum in order to get state theatre arts certification must satisfy either the UNH Department of Education or another university for acceptance into a fifth-year master of arts in teaching (M.A.T.) or master of education (M.Ed.) degree program that fulfills state requirements for certification.

**Education Courses Required for Certification**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 700/800</td>
<td>Educational Structure and Change</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 701/801</td>
<td>Human Development and Learning; Educational Psychology</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 705/805</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 751B/851B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 16

1 May be taken at the undergraduate level or the graduate level.
Description

The youth drama option is for those students who wish to use dramatic arts as a teaching tool, either in the elementary classroom or as a teaching artist. Our comprehensive curriculum is specifically designed to train teachers. Through laboratory work, students obtain hands-on theatrical teaching experience, so that by the time they reach their graduate school internship, they have spent significant hours working with children. Students will be expected to fully integrate education and theatre coursework so that they leave UNH with sound theoretical training in addition to practical instruction on how to use drama to enhance learning outcomes, address classroom discipline issues, and, of course, bring the arts to life in the classroom.

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 402 American Sign Language II (American Sign Language) satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology, and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student's sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

All UNH B.A. degrees require a minimum of 128 credit hours.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 520</td>
<td>Creative Drama</td>
<td>4</td>
</tr>
<tr>
<td>THDA 522</td>
<td>Storytelling, Story Theatre, and Involvement Dramatics</td>
<td>4</td>
</tr>
<tr>
<td>THDA 583</td>
<td>Introduction to Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
</tr>
<tr>
<td>THDA 683</td>
<td>Advanced Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 721</td>
<td>Arts Integration</td>
<td>4</td>
</tr>
<tr>
<td>THDA 727</td>
<td>Methods of Teaching Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 729</td>
<td>Community Oriented Drama Programs</td>
<td>4</td>
</tr>
<tr>
<td>THDA 760</td>
<td>Teacher Planning for Theatre</td>
<td>4</td>
</tr>
</tbody>
</table>

THDA 799 Capstone Project (must be taken in senior year) 2

Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 58-62

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

2 Must be taken before student teaching internship.

State Teacher Certification

Youth Drama options often pursue elementary education certification. In order to obtain state licensure, students must apply to either the UNH Department of Education or another university for acceptance into a fifth year masters of education (M.Ed.) degree program, which fulfills state requirements for certification. Students who are accepted into early graduate admission may take up to 12 credits toward the 32 credit masters while finishing their undergraduate degree. For further clarification regarding fifth-year certification options, contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

Education Courses Required for Certification 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 700/800</td>
<td>Educational Structure and Change</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 701/801</td>
<td>Human Development and Learning: Educational Psychology</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 703F/803F</td>
<td>Teaching Elementary School Science</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 703M/803M</td>
<td>Teaching Elementary Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 705/805</td>
<td>Contemporary Educational Perspectives 2</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 706/806</td>
<td>Introduction to Reading in the Elementary School 2</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 751A/851A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td>4</td>
</tr>
</tbody>
</table>

Required Math Education Course

Select 4 credits of the following: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 601</td>
<td>Exploring Mathematics for Teachers I</td>
<td></td>
</tr>
<tr>
<td>or MATH 602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 621</td>
<td>Number Systems for Teachers</td>
<td></td>
</tr>
<tr>
<td>MATH 622</td>
<td>Geometry for Teachers</td>
<td></td>
</tr>
<tr>
<td>MATH 623</td>
<td>Probability and Statistics for Teachers</td>
<td></td>
</tr>
<tr>
<td>MATH 703</td>
<td>Teaching of Mathematics, K-6</td>
<td></td>
</tr>
<tr>
<td>MATH 910</td>
<td>Selected Topics in Mathematics Education for Teachers</td>
<td></td>
</tr>
<tr>
<td>EDUC 741/841</td>
<td>Exploring Mathematics with Young Children</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 28

1 May be taken at undergraduate or graduate level.

2 Must be taken before student teaching internship.

Dance Minor

http://cola.unh.edu/theatre-dance
Description

Students completing the dance minor demonstrate a basic knowledge in the two areas of dance learning: technique and non-technique courses. A student will minor in dance to keep open the option of pursuing a career in dance by maintaining a level of dance skill.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

Requirements

Select up to 16 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
</tr>
<tr>
<td>THDA 562</td>
<td>Ballet II</td>
</tr>
<tr>
<td>THDA 662</td>
<td>Ballet III</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
</tr>
<tr>
<td>THDA 563</td>
<td>Theatre Dance II</td>
</tr>
<tr>
<td>THDA 663</td>
<td>Theatre Dance III</td>
</tr>
<tr>
<td>THDA 665</td>
<td>Aerial Dance</td>
</tr>
<tr>
<td>THDA 597</td>
<td>Dance Theatre Performance</td>
</tr>
<tr>
<td>THDA 576</td>
<td>Pointe</td>
</tr>
</tbody>
</table>

Select at least 4 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 487</td>
<td>History of Dance</td>
</tr>
<tr>
<td>THDA 564</td>
<td>Compocinema</td>
</tr>
<tr>
<td>THDA 633</td>
<td>Dance Composition</td>
</tr>
<tr>
<td>THDA 684</td>
<td>Special Topics</td>
</tr>
<tr>
<td>THDA 732</td>
<td>Choreography</td>
</tr>
<tr>
<td>THDA 786</td>
<td>Dance Pedagogy</td>
</tr>
</tbody>
</table>

Total Credits: 20

Musical Theatre Minor

http://cola.unh.edu/theatre-dance

Description

The musical theatre minor offers the student basic knowledge of the history and canon of this uniquely American art form while providing for hands-on experience in both singing and dancing.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THDA 441</td>
<td>Exploring Musical Theatre</td>
</tr>
<tr>
<td>or THDA 450</td>
<td>History of Musical Theatre in America</td>
</tr>
<tr>
<td>THDA 442</td>
<td>Introduction to the Art of Acting</td>
</tr>
<tr>
<td>or THDA 551</td>
<td>Acting I</td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
</tr>
<tr>
<td>Select one THDA course</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 20

Women's Studies (WS)

Women's studies provides students with an understanding of the status of women in various cultures and historical eras, in the nexus of race, class, sexuality, religious and disability studies. Students learn the use
of gender as a category of analysis and increase their knowledge of women’s contributions to many fields. Women’s studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity.

As a relatively small program in the College of Liberal Arts, we provide students with a sense of community and opportunities to contribute directly to changing the campus climate. In a rigorous academic environment, women's studies offers students a springboard for activism. Our internship program enables students to gain first-hand work experience across many fields.

A major or minor in women's studies prepares students for careers where the changing roles of women are having a perceptible impact. Women's studies graduates go on to law school and graduate school in a variety of disciplines. Some have taken positions with social change or family service agencies, while others have found work in such fields as health care, journalism, education, human rights, social and environmental justice, and the arts.

http://cola.unh.edu/womens-studies

Programs

- Women's Studies Major (B.A.) (p. 117)
- Social Justice Leadership Minor (p. 118)
- Women's Studies Minor (p. 119)

Faculty

http://cola.unh.edu/faculty/womens-studies

Women's Studies Major (B.A.)

http://cola.unh.edu/womens-studies

Description

A major or minor in women's studies prepares students for careers where the changing roles of women, and gender more broadly, have a perceptible impact. Many women's studies graduates go on to law school and graduate school in a variety of disciplines. With a women's studies degree, students often take positions with social change or family service agencies, and in fields such as politics, communications, community organizing, education, affirmative action, healthcare, and human resources.

Students who wish to major in women's studies should consult with the coordinator or academic/student services assistant, 203 Huddleston Hall, (603) 862-2194.

Requirements

The women's studies major requires students to complete 40 credits of major-approved coursework with grades of C- or better and an overall grade point average in major courses of 2.00 or higher.

WS 401 Introduction to Women's Studies 4
or WS 405 Gender, Power and Privilege

WS 632 Feminist Thought (Only offered Spring Semester) 4

Discovery Program Capstone Requirement:

WS 798 Colloquium 4
or WS 799 Honors Thesis

Select seven additional courses chosen in consultation with a WS academic advisor 1

Total Credits 40

1 At least two of the courses must be WS courses. The remaining courses may be either WS courses or WS-faculty-approved courses offered in departments or programs outside of WS (cross-counted courses). A list of cross-counted courses can be found each semester at: http://cola.unh.edu/womens-studies/courses.

At least five courses for the major must be taken at the 600 level or above. Only two 400-level courses may be used to satisfy major requirements.

WS topic courses include WS 444s, WS 505s, WS 510, WS 515, and WS 798s:

444 Inquiry Courses

WS 444 Trans/Forming Gender 4
WS 444A Race Matters 4
WS 444B Score!: Gender and Diversity in Sports 4
WS 444C On the Roads to Equality 4
WS 444D Cyborgs, Avatars, and Feminists: Gender in the Virtual World 4

505 Surveys

WS 505 Survey in Women's Studies

- Sustainability & Spirituality
- Fashion This!
- Race, Gender, and Environmental Justice
- Intro to LGBTQ+ Studies
- Weight Matters: Intro to Fat Studies
- The Care Economy
- Queer Cinema
- Queer Sustainability

WS 510 Framing Feminism: Gender Politics in Film
WS 515 Game Girl: The Social Construction of Gender Identities in Video Games

798 Colloquiums

WS 798 Colloquium

- Feminist Studies in Film
- Jewish Feminism, Politics, and Culture
- Global Feminist Issues
- Transgender Feminism
- Theater as a Provocative Act
- The Moral Limits of the Market
- Native and Indigenous Women
- Queer Sustainability
For a list of currently-approved cross-counted offerings from other departments, please check: http://cola.unh.edu/womens-studies/courses

A practicum, internship course, and/or research with faculty is strongly recommended.

Major department courses may not be used to satisfy Discovery category requirements, unless women's studies is your second major. First and second majors may double count no more than two courses between the WS major and another major or minor.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement. ASL: COMM 401 American Sign Language I and COMM 402 American Sign Language II may be used to satisfy the language competency requirement.

### Social Justice Leadership Minor

http://cola.unh.edu/womens-studies

#### Description

The minor in social justice leadership engages students in an exploration of policies, power dynamics, institutions, and structures that promote and hinder equity and processes of change required for social justice. Students will examine various forms of injustice such as sexism, racism, classism, ableism, and environmental degradation. The minor is grounded in three pillars — a theory component, a leadership component, and experiential learning activities. The minor is interdisciplinary in nature, drawing on disciplines such as anthropology, education, English, history, philosophy, political science, social work, and sociology. After completing the curriculum, students will have gained a historical perspective, theoretical understanding, and applied leadership skills. The minor certifies students' knowledge regarding, and commitment to, social justice leadership, which will be useful in postgraduate pursuits.

#### Requirements

##### THEORY

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 401</td>
<td>Introduction to Women's Studies</td>
<td>4</td>
</tr>
<tr>
<td>or WS 405</td>
<td>Gender, Power and Privilege</td>
<td></td>
</tr>
</tbody>
</table>

##### LEADERSHIP

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Leadership Part I)</td>
<td>4</td>
</tr>
<tr>
<td>or WS 796</td>
<td>Advanced Topics</td>
<td></td>
</tr>
</tbody>
</table>

##### APPLIED

Choose one capstone course from the following (normally taken at the end of the course sequence):  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics</td>
<td></td>
</tr>
<tr>
<td>WS 797</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium (such as Women in Prison)</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose two electives in Social Justice and/or Leadership (see list below)  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (Sub-Saharan Africa)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 625</td>
<td>Sexuality in Cross-Cultural Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 680</td>
<td>Globalization, Development, and Poverty</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 685</td>
<td>Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 740</td>
<td>Teaching Race</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>CMN 505</td>
<td>Analysis of Popular Culture</td>
<td>4</td>
</tr>
<tr>
<td>CMN 567</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
<tr>
<td>CMN 757</td>
<td>Public Address and the American Experience</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 444B</td>
<td>Be the Change You Want to See: Active Citizenship in a Multicultural World</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 717</td>
<td>Growing up Male in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 585</td>
<td>Introduction to Women in Literature (Dreamgirls: Studies in Beautiful Blackness)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>Studies in American Literature and Culture (Latino/o Literature, Playing in the Dark: Race &amp; Sex in American Literature, American Literature &amp; Consumer Culture)</td>
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<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature (Literary Responses to the Holocaust)</td>
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<tr>
<td>ENGL 733</td>
<td>Special Studies in Film (Race &amp; Gender)</td>
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<tr>
<td>ENGL 738</td>
<td>Topics in Asian American Studies (Beauty Queens &amp; Silver Screens)</td>
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<tr>
<td>ENGL 739</td>
<td>American Indian Literature</td>
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<tr>
<td>ENGL 785</td>
<td>Major Women Writers</td>
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<tr>
<td>HIST 566</td>
<td>Comparative Revolutions: How to Make a Revolution in the World before Marx</td>
<td>4</td>
</tr>
<tr>
<td>HIST 624</td>
<td>Topics in Modern United States Social History (Reform Movements &amp; Popular Protest)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 665</td>
<td>Themes in Women's History (Gender &amp; Politics)</td>
<td>4</td>
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</tbody>
</table>

Total Credits: 20
### Description

Women's studies provides students with an understanding of the status of women in various cultures and historical eras, in the nexus of race, class, sexuality, religious and disability studies. Students learn the use of gender as a category of analysis and increase their knowledge of women's contributions to many fields. Women's studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity.

As a relatively small program in the College of Liberal Arts, we provide students with a sense of community and opportunities to contribute directly to changing the campus climate. In a rigorous academic environment, women's studies offers students a springboard for activism. Our internship program enables students to gain first-hand work experience across many fields.

A major or minor in women's studies prepares students for careers where the changing roles of women are having a perceptible impact. Women's studies graduates go on to law school and graduate school in a variety of disciplines. Some have taken positions with social change or family service agencies, while others have found work in such fields as health care, journalism, education, human rights, social and environmental justice, and the arts.

Students who wish to minor in women's studies should consult with the coordinator or academic/student services assistant, 203 Huddleston Hall, (603) 862-2194.

### Requirements

For the women's studies minor, students must complete 20 credits of women's studies courses with a grade of C- or better. Courses taken pass/fail may not be used toward the minor. No more than eight credits used to satisfy the requirements for another major may be used for the women's studies minor. Students electing the women's studies minor must complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 401</td>
<td>Introduction to Women's Studies</td>
<td>4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium (normally taken at the end of the course sequence)</td>
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</tr>
</tbody>
</table>

Complete three other women's studies courses, either program courses or those that are cross-counted with other departments: 12 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WS 405</td>
<td>Gender, Power and Privilege</td>
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</tr>
<tr>
<td>WS 795</td>
<td>Independent Study, Advanced Topics, Internship, or Honors Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 20

1 It may be possible to substitute WS 795 Independent Study, WS 796 Advanced Topics, WS 797 Internship, and WS 799 Honors Thesis for WS 798 Colloquium with permission from a women's studies adviser.

### Courses in the College of Health and Human Services

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
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<tr>
<td>NURS 595</td>
<td>Women's Health</td>
<td>4</td>
</tr>
<tr>
<td>OT 513</td>
<td>Stressed Out: The Science and Nature of Human Stress</td>
<td>4</td>
</tr>
<tr>
<td>SW 697</td>
<td>Special Topics in Social Welfare (Exploring Social Justice &amp; Cultural Competency)</td>
<td>4</td>
</tr>
<tr>
<td>SW 715</td>
<td>Practice with Gay, Lesbian, Bisexual, and Transgender People</td>
<td>4</td>
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</tbody>
</table>

Courses in the Paul College of Business and Economics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 669</td>
<td>Women and Economic Development</td>
<td>4</td>
</tr>
</tbody>
</table>
College of Engineering and Physical Sciences

Wayne E. Jones, Jr., Dean
Charles K. Zercher, Associate Dean for Academic Affairs

The College of Engineering and Physical Sciences (CEPS) provides an opportunity for students to achieve educational objectives appropriate to their interests in engineering, computer science, information technology, mathematics, the physical sciences, and the teaching of mathematics and physical sciences. The college offers an education in each of its primary disciplines leading to the bachelor of science, as well as bachelor of art degrees with majors in mathematics and each of the three physical sciences. All programs include an opportunity for study in the arts, humanities, and social sciences.

The key to an undergraduate program in the college is flexibility, with a strong emphasis on personal and individualized education. In addition to specific programs, a wide range of options within several majors are available. Special programs can be developed to meet the specific interests of individual students.

Degree Requirement

MATH 425 Calculus I and MATH 426 Calculus II or the equivalent in transfer credits or advanced placement approved by the Department of Mathematics and Statistics are required by all departments of the college. The exception is the information technology major, which only requires MATH 425 Calculus I. The prerequisites for calculus are three years of college-preparatory mathematics, including a half-year of trigonometry. Before students can register for MATH 425 Calculus I, they are required to take the Mathematics Placement Test or have taken MATH 418 Analysis and Applications of Functions (or its equivalent) and received a grade of C or better.

Mathematics Placement

First-year students arrive with a wide range of mathematical skills based upon their high school preparation. The college wants students to have a solid mathematics foundation so that they will enjoy an enriched first-semester experience. A student’s mathematics development will be assessed as part of the June orientation program. Based upon the Mathematics Placement Test, students are enrolled in the mathematics class that will allow them to continue that development. The initial mathematics entry course is MATH 418 Analysis and Applications of Functions. However, a student is placed into MATH 425 Calculus I if he or she demonstrated a certain level of proficiency in algebra and precalculus through the Mathematics Placement Test. Students with AP credit for Calculus I and/or Calculus II may elect to accept those credits and continue with a math course at the next level.

Accreditation

The baccalaureate-level programs in chemical, civil, computer, electrical, environmental, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. The baccalaureate-level program in computer science and bioinformatics is accredited by the Computing Accreditation Commission of ABET, Inc. ABET contact information:

111 Market Place
Suite 1050
Baltimore, MD 21202-401

(410) 347-7700.

The Department of Chemistry’s undergraduate bachelor of science program is approved by the American Chemical Society.

Degrees

Bachelor of Arts

Programs leading to a bachelor of arts degree are offered in the departments of chemistry, earth sciences, mathematics, and physics. These programs provide a broad liberal education along with a major in one of these fields.

Bachelor of Science

The programs leading to the bachelor of science degree, offered in each of the departments of the college, emphasize students’ preparation for a professional career and continuing or graduate education.

The degree requirements for the bachelor of science include the University Academic Requirements and the specific departmental requirements for graduation. A minimum grade-point average of 2.0 must be achieved. Graduation credit requirements established by the departments range from 128 to 134. There are entrance requirements in some programs, and it is not possible to guarantee all change-of-major requests.

Interdisciplinary Programs

Bachelor of Science in Environmental Sciences

The environmental sciences program is offered jointly with the College of Life Sciences and Agriculture (COLSA).

Minors

Interdisciplinary minors enable students to obtain experience in a specialized area and to retain identification with their major professional area.

Other Programs

Independent Study and Projects

All departments within the college offer independent study opportunities and projects. The content of these courses varies and is based upon current scientific and technological needs in addition to the interests of the student and faculty involved.

Permission of the faculty member and/or department chairperson is required. One should review the course descriptions for the independent study and project courses for specific requirements. Students interested in working with a faculty member on a project or independent study should discuss this with the faculty member and their academic adviser prior to registering for the course.

Research Opportunities

The talents and expertise of the faculty in all departments are reflected in the number of ongoing research projects. Undergraduates are included in many of these research projects with the intent that they will discover and foster their creative talents. When involved with a funded research project, students may have an opportunity to receive pay while learning about the research area.

The college has world-class laboratories and computer facilities in many areas. A few of these are coastal and ocean mapping, space science, environmental engineering and science, fluid dynamics, wind turbulence,
information systems, materials science, nanotechnology, sustainability, and medical imaging. These and other ongoing research areas within the college are described on the college's website: https://ceps.unh.edu/research-facilities.

Students have the opportunity to acquire applied experience by working with faculty members who undertake sponsored professional projects in technical and managerial areas for business, industry, and federal, state, and local governments.

Special Provisions
The requirement of a given topic/course prescribed to meet the requirements of major curriculum may be waived by the faculty of a student's department. This rule offers students the opportunity to develop a somewhat individualized plan of study with intellectual incentives and opportunities in addition to those found in a regular curriculum. The student's petition must be approved by his/her major adviser and the dean of the college. This power usually will be delegated by the faculty to the dean or to a committee (Senate Rule 05.21(s): Waiver of Requirements in a Prescribed Curriculum).

A student with senior status and a grade point average of 3.2 may petition to take a graduate course for undergraduate credit. In addition, upon the recommendation of the department chairperson, a superior student may be allowed to count credits from up to two 800-level courses toward both a bachelor's degree and a master's degree, provided that the student has been admitted to the master's program.

Study Abroad Programs
Scotland, Heriot-Watt University Exchange Program
College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. The current program is designed for civil and environmental engineering majors. For more information, contact Ray Cook at (603) 862-1411 or the Center for International Education, Hood House.

Global E3 Exchange Programs
Engineering and computer science majors are eligible to participate in international exchange programs through the Global E3 program. Programs are offered in the fall, spring, and summer, as well as for the full academic year. For more information on Global E3, please refer to www.iee.org/programs/globale3 (http://www.iee.org/programs/globale3). For more information on eligibility as student in the College of Engineering and Physical Sciences, contact Caitlin Baldwin at caitlin.baldwin@unh.edu.

Preparing for Teaching
Students interested in mathematics education (elementary, middle/junior high, or secondary) or Earth science teaching should refer to the appropriate department for a description of the program requirements.

Combined Programs of Study
In addition to pursuing a single major, students may combine programs of study as follows:

Minors: See University Academic Requirements; see also Degrees and Major Programs of Study and Departmental Programs of Study.

Second majors: See University Academic Requirements.

Interdisciplinary majors: Many departments in the college offer programs that combine a major with another field of interest. See the descriptions that follow.

Dual-degree programs: See University Academic Requirements.

Student-designed majors: See Special University Programs.

Other combined and interdisciplinary opportunities: See Special University Programs.

http://www.ceps.unh.edu

Departments

• Chemical Engineering (CHE) (p. 123)
• Chemistry (CHEM) (p. 127)
• Civil & Environmental Engineering (CEE) (p. 131)
• Computer Science (CS) (p. 136)
• Earth Sciences (ESCI) (p. 142)
• Electrical and Computer Engineering (ECE) (p. 147)
• Mathematics and Statistics (MATH) (p. 151)
• Materials Science (MS) (p. 151)
• Mechanical Engineering (ME) (p. 159)
• Physics (PHYS) (p. 164)

Programs of Study

• Bioengineering (BENG) (p. 121)
• Chemical Engineering (CHE) (p. 123)
• Chemistry (CHEM) (p. 127)
• Civil & Environmental Engineering (CEE) (p. 131)
• Computer Science (CS) (p. 136)
• Earth Sciences (ESCI) (p. 142)
• Electrical and Computer Engineering (ECE) (p. 147)
• Environmental Sciences (p. 151)
• Materials Science (MS) (p. 151)
• Mathematics and Statistics (MATH) (p. 152)
• Mechanical Engineering (ME) (p. 159)
• Ocean Engineering (OE) (p. 162)
• Physics (PHYS) (p. 164)

Bioengineering (BENG)
Bioengineering, as defined by the NIH, is “the application of life sciences, mathematics, and engineering principles to define and solve problems in biology, medicine, health care, and other fields.”

Mission
Our Bioengineering program empowers students with broad preparation for pursuing careers related to biotechnology, biomedical and engineering fields.

Program Educational Objectives
The bioengineering program seeks to provide an environment and opportunities that enable students to pursue their goals in an innovative program with a diversity of offerings that is rigorous and challenging.
The program has the following major educational objectives with the expectation that our alumni will have successful careers in the many diverse areas of bioengineering profession. Within a few years of obtaining a bachelor's degree in bioengineering, we expect our graduates to have the following attributes:

**Depth:** To be effective in applying life science concepts and bioengineering principles in engineering practice or for advanced study.

**Breadth:** To have productive careers in the many diverse areas of bioengineering or in pursuit of graduate studies in engineering, law, medicine or business.

**Professionalism:** To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

http://www.unh.edu/chemical-engineering/bachelor-science-bioengineering

### Programs

- Bioengineering Major (B.S.) (p. 122)

### Faculty

http://ceps.unh.edu/faculty/chemical-engineering

### Bioengineering Major (B.S.)

http://ceps.unh.edu/chemical-engineering/bioengineering-bs

### Description

Bioengineering, as defined by the NIH, is "the application of life sciences, mathematics, and engineering principles to define and solve problems in biology, medicine, health care, and other fields."

The bioengineering program will train graduates in biology and physiology as well as engineering. The program will provide graduates with capabilities in advanced mathematics (including differential equations and statics), science, and engineering. Graduates will be conversant with solving problems at the interface of biology and engineering that may arise in the fields of biotechnology and pharmaceuticals, as well as medicine and biofuels. By graduation, students will have experience measuring and interpreting data from living systems and addressing the interactions between living and non-living materials.

Students are required to obtain a minimum 2.0 grade-point average in CHE 501 Introduction to Chemical Engineering I/CHE 502 Introduction to Chemical Engineering II and in overall standing at the end of the sophomore year in order to continue in the major. Study abroad (Exchange) students are required to have a cumulative GPA of 3.0 or better in math, physics, chemistry, and other required courses at the end of the semester prior to their exchange semester.

For more information on the bioengineering program, please contact Russell Carr, professor and chair, Russell.Carr@unh.edu.

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>BENG 763</td>
<td>Bioengineering Design I</td>
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<td>BENG 764</td>
<td>Bioengineering Design II</td>
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<tr>
<td>BENG 766</td>
<td>Biomechanics</td>
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<tr>
<td>BMCB 658 &amp; BMCB 659 &amp; General Biochemistry Lab</td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>3</td>
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<tr>
<td>BMS 504</td>
<td>General Microbiology Laboratory</td>
<td>2</td>
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<tr>
<td>BIOL 410</td>
<td>Principles of Molecular and Cellular Biology</td>
<td>3</td>
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<tr>
<td>CHE 400</td>
<td>Chemical Engineering Lectures</td>
<td>1</td>
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<tr>
<td>CHE 501</td>
<td>Introduction to Chemical Engineering I</td>
<td>3</td>
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<td>CHE 502</td>
<td>Introduction to Chemical Engineering II</td>
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<tr>
<td>CHE 601</td>
<td>Fluid Mechanics and Unit Operations</td>
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<tr>
<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
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<td>CHE 614</td>
<td>Separation Processes</td>
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<td>CHE 761</td>
<td>Biochemical Engineering</td>
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<tr>
<td>CHE 762</td>
<td>Biomedical Engineering</td>
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<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<td>&amp; CHEM 546 &amp; Organic Chemistry Laboratory</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td>ZOOL 625 &amp; ZOOL 626 Principles of Animal Physiology</td>
<td>5</td>
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<tr>
<td>&amp; Animal Physiology Laboratory</td>
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</table>

**Total Credits:** 84

### Degree Plan

#### First Year

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CHE 400</td>
<td>Chemical Engineering Lectures</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 410</td>
<td>Principles of Molecular and Cellular Biology</td>
<td>3</td>
</tr>
<tr>
<td>Discovery Program Elective (1)</td>
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</tbody>
</table>

**Credits:** 16

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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</table>

**Credits:** 16
Second Year

Fall
CHE 501 Introduction to Chemical Engineering I 3
MATH 527 Differential Equations with Linear Algebra 4
BMS 503 General Microbiology 3
BMS 504 General Microbiology Laboratory 2
Discovery Program Elective (1) 4
Credits 16

Spring
CHE 502 Introduction to Chemical Engineering II 3
CHEM 545 Organic Chemistry 5
& CHEM 546 Organic Chemistry Laboratory 5
MATH 644 Statistics for Engineers and Scientists 4
Discovery Program Elective (1) 4
Credits 16

Third Year

Fall
CHE 601 Fluid Mechanics and Unit Operations 3
CHE 762 Biomedical Engineering 4
ZOOL 625 Principles of Animal Physiology 5
& ZOOL 626 Animal Physiology Laboratory 5
BENG 766 Biomaterials 4
Credits 16

Spring
CHE 604 Chemical Engineering Thermodynamics 3
CHE 761 Biochemical Engineering 4
BMCB 658 General Biochemistry 5
& BMCB 659 General Biochemistry Lab 5
Program Elective (1) 4
Credits 16

Fourth Year

Fall
BENG 763 Bioengineering Design I 1
Discovery Program Electives (1) 4
Bioengineering Electives (1) 4
Bioengineering Electives (2) 8
Credits 17

Spring
BENG 764 Bioengineering Design II 4
CHE 614 Separation Processes 3
Discovery Program Electives (1) 4
Bioengineering Electives (1) 4
Credits 15
Total Credits 128

1 MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.
2 CHEM 405 Chemical Principles for Engineers satisfies the Discovery Physical Science (with lab) category.
3 ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.
**Depth.** To be effective in applying chemical engineering principles in engineering practice or for advanced study in chemical engineering.

**Breadth.** To have a productive career in the many diverse fields of chemical engineering such as bioengineering, energy, and the environment, or in the pursuit of graduate education in disciplines such as chemical engineering, medicine, law, or business.

**Professionality.** To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

http://www.unh.edu/chemical-engineering/

### Programs

- Chemical Engineering Major (B.S.) (p. 124)
- Chemical Engineering Major: Bioengineering Option (B.S.) (p. 125)
- Chemical Engineering Major: Energy Option (B.S.) (p. 126)
- Chemical Engineering Major: Environmental Engineering Option (B.S.) (p. 127)

### Faculty

http://ceps.unh.edu/faculty/chemical-engineering

### Chemical Engineering Major (B.S.)

http://ceps.unh.edu/chemical-engineering/chemical-engineering-bs

### Description

Chemical engineering is concerned with the analysis and design of processes that deal with the transfer and transformation of energy and material.

The practice of chemical engineering includes the conception, development, design, and application of physicochemical processes and their products; the development, design, construction, operation, control, and management of plants for these processes; and activities relating to public service, education, and research.

The curriculum prepares students for productive careers in industry or government and provides a foundation for graduate studies. The program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy, environmental, or bioengineering.

Traditional employment areas in the chemical process industries include industrial chemicals, petroleum and petrochemicals, plastics, pharmaceuticals, metals, textiles, and food. Chemical engineers also are working in increasing numbers in the areas of energy engineering, pollution abatement, and biochemical and biomedical engineering; in addition, they are employed by many government laboratories and agencies as well as private industries and institutions.

Graduates from the program have the ability to apply knowledge of mathematics, science, and engineering to identify, formulate, and solve chemical engineering problems as well as to design and conduct experiments safely and analyze and interpret data. They are prepared to pursue advanced studies in chemical engineering. Program graduates gain a sense of professional and ethical responsibility with the ability to apply environmental, safety, economic, and ethical criteria in the design of engineering processes. They learn to function in individual and group working environments, and learn skills in written and oral communication and the effective use of computers for engineering practice, including information search in the library and on the Internet. They also understand the need for lifelong learning and the significance of societal and global issues relevant to chemical engineering.

A minimum of 129 credits is required for graduation with the degree of bachelor of science in chemical engineering. There are ten electives in the chemical engineering curriculum. Six of these are for the Discovery Program requirements. The remaining four electives should consist of three chemical engineering electives and one additional technical elective.

Students are required to obtain a minimum 2.0 grade-point average in CHE 501 Introduction to Chemical Engineering I-CHE 502 Introduction to Chemical Engineering II and in overall standing at the end of the sophomore year in order to continue in the major. Study abroad (Exchange) chemical engineering students are required to have a cumulative GPA of 3.0 or better in math, physics, chemistry, and CHE courses at the end of the semester prior to their exchange semester.

### Requirements

#### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 400</td>
<td>Chemical Engineering Lectures</td>
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<td>CHE 502</td>
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<tr>
<td>CHE 601</td>
<td>Fluid Mechanics and Unit Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHE 602</td>
<td>Heat Transfer and Unit Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHE 603</td>
<td>Applied Mathematics for Chemical Engineers</td>
<td>4</td>
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<tr>
<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHE 612</td>
<td>Chemical Engineering Laboratory I</td>
<td>3</td>
</tr>
<tr>
<td>CHE 614</td>
<td>Separation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CHE 703</td>
<td>Mass Transfer and Stagewise Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHE 707</td>
<td>Chemical Engineering Kinetics</td>
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<tr>
<td>CHE 708</td>
<td>Chemical Engineering Design</td>
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<td>CHE 713</td>
<td>Chemical Engineering Laboratory II</td>
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<tr>
<td>CHE 752</td>
<td>Process Dynamics and Control</td>
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<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 683</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 684</td>
<td>Physical Chemistry II</td>
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Elective Courses

Select three of the following:

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<td>Electrochemical Methods for Energy Applications</td>
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Degree Plan

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<td>Introduction to Chemical Engineering I</td>
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<td>MATH 740 or MATH 644</td>
<td>Design of Experiments I or Statistics for Engineers and Scientists</td>
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Third Year

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<td>CHE Electives</td>
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<table>
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1. ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.
2. MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.
3. PHYS 407 General Physics I or CHEM 405 Chemical Principles for Engineers satisfies the Discovery Physical Science (with lab) category.
4. CHE 502 Introduction to Chemical Engineering II satisfies the Discovery Inquiry requirement.
5. MATH 740 Design of Experiments I or MATH 644 Statistics for Engineers and Scientists is the recommended technical elective.
6. CHE 708 Chemical Engineering Design satisfies the Discovery Capstone Experience/Course.
7. CHE students do not have to take a course in the Discovery ETS category since they satisfy this requirement through a combination of courses in the CHE curriculum.

Chemical Engineering Major:
Bioengineering Option (B.S.)

http://ceps.unh.edu/chemical-engineering/bioengineering-option

Description

Under this option, the required courses deal with the application of basic biological sciences and chemical engineering principles to the design and operation of large-scale bioprocesses for the production of high-value medicinal, food and beverage, pharmaceutical, biomedical, genetic...
engineering, and health care products. The elective courses permit the student to study topics of special interest in more depth or gain a broader perspective in bioengineering or some closely related subjects such as biochemistry or biotechnology experience in manufacturing or research. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the bioengineering option should declare their intention to the department faculty during the sophomore year. They may consult with Russell Carr, (603) 862-1429.

### Requirements

**Chemical Engineering Major: Energy Option (B.S.)**

http://ceps.unh.edu/chemical-engineering/energy-option

#### Description

This option covers the major areas of current interest in the energy field. The required courses provide students with a general background knowledge of fossil fuels, nuclear power, solar energy, and other alternative energy resources. The elective courses will permit the student to study topics of special interest in more depth or gain a broader perspective on energy and some closely related subjects. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the energy option should declare their intention to the department faculty during the sophomore year. They may consult with Russell Carr, (603) 862-1429.

#### Requirements

**Required Courses**

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<td>Heat Transfer and Unit Operations</td>
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<td>Mass Transfer and Stagewise Operations</td>
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**Total Credits**: 107-109
Elective Courses

Select one of the following: 6-8

CHE 695      Chemical Engineering Project
CHE 696      Independent Study 1-4
CHE 761      Biochemical Engineering
ME 705      Thermal System Analysis and Design

Special Topics on Energy 1

Total Credits 108-113

1 This requires approval of the department; students should check with their advisor. Courses offered in the past include Renewable Electrical Power, Renewable Energy, and Peak Oil.

Chemical Engineering Major: Environmental Engineering Option (B.S.)
http://ceps.unh.edu/chemical-engineering/environmental-engineering-option

Description

The chemical engineering program, with its substantial requirements in chemistry, fluid dynamics, heat transfer, mass transfer, unit operations, and reaction kinetics, provides students with a unique preparation to deal with many aspects of environmental pollution problems. The option gives students a special focus on the application of chemical engineering principles and processes to the solution of problems relating to air pollution, water pollution, and the disposal of solid and hazardous waste. Three required courses must be selected, plus two electives from the electives list. Each course must carry a minimum of three credits. Students interested in the environmental engineering option should declare their intention to the department faculty during the sophomore year. They may consult with Russell Carr, (603) 862-1429.

Requirements

Required Courses

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Chemistry (CHEM)

A study in chemistry is the pathway to multiple options. These options include careers in education, law, forensics, medicine, biotechnology, environmental protection, technical sales, pharmaceutical research, semiconductors, and industrial chemical production. The potential is limitless. Students interested in pursuing chemistry as an undergraduate degree have two options available to them, which are based on their career plans. These are the bachelor of science degree (B.S.) and a bachelor of arts degree (B.A.). Since the required chemistry courses in each degree program are the same the first year, it is easy to change from one program to another. A chemistry faculty adviser is assigned to a student once she/he enters the program. The student’s adviser provides academic guidance concerning the choice of courses to meet requirements for the major and overall.

http://ceps.unh.edu/chemistry

Programs

• Chemistry Major (B.A.) (p. 127)
• Chemistry Major (B.S.) (p. 129)
• Chemistry Minor (p. 130)

Faculty

http://ceps.unh.edu/faculty/all

Chemistry Major (B.A.)

http://ceps.unh.edu/chemistry/chemistry-undergraduate-programs
Description

This curriculum offers students the opportunity to combine the chemistry major with other interests, such as pre-professional programs, education, or business.

Required Courses

<table>
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Advanced Chemistry Elective

Chemistry Related Elective

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Total Credits: 56

1 The B.A. major offers CHEM 698 Seminar as the capstone experience. Students work with the faculty member teaching the seminar to prepare a presentation based upon a research project or subject-driven professional engagement.

2 Advisor’s discretion: CHEM 696 Independent Study or any 700 or 800 level Chemistry course.

3 Advisor’s discretion: MATH 527 or MATH 528; PHYS 505; ESCI 741 or ESCI 752; CHE; CIE; or 700/800 level course.

Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
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Second Year

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<td>CHEM 574</td>
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<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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Total Credits: 17
Chemistry Major (B.S.)

http://ceps.unh.edu/chemistry/chemistry-undergraduate-programs

Description

This curriculum prepares students for careers requiring a thorough knowledge of chemistry and provides a strong foundation for careers in industry, professional schools (e.g., medical schools), and for graduate study in chemistry or in interdisciplinary areas. The curriculum requires a greater depth in chemistry and physics than do the other degree programs.

Requirements

Required Courses

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<tr>
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<td>CHEM 517</td>
<td>Quantitative Analysis</td>
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<td>&amp; CHEM 518</td>
<td>and Quantitative Analysis Laboratory</td>
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<tr>
<td>CHEM 547</td>
<td>Organic Chemistry I</td>
<td>5</td>
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<tr>
<td>&amp; CHEM 549</td>
<td>and Organic Chemistry Laboratory</td>
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<tr>
<td>CHEM 548</td>
<td>Organic Chemistry II</td>
<td>5</td>
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<tr>
<td>&amp; CHEM 550</td>
<td>and Organic Chemistry Laboratory</td>
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</table>

CHEM 574 | Chemistry Across the Periodic Table       | 4       |
BMCB 658 | General Biochemistry                      | 3       |
or BMCB 751 | Principles of Biochemistry               |
CHEM 683 | Physical Chemistry I                      | 5       |
& CHEM 685 | and Physical Chemistry Laboratory       |
CHEM 684 | Physical Chemistry II                     | 5       |
& CHEM 686 | and Physical Chemistry Laboratory       |
CHEM 762 | Instrumental Methods of Chemical Analysis| 5       |
& CHEM 763 | and Instrumental Methods of Chemical     |
                        | Analysis Laboratory                      |
CHEM 774 | Inorganic Chemistry                       | 5       |
& CHEM 775 | and Inorganic Chemistry Laboratory      |
CHEM 755 | Advanced Organic Chemistry                | 5       |
& CHEM 756 | and Advanced Organic Chemistry Laboratory|
CHEM 776 | Physical Chemistry III                    | 3       |
CHEM 698 | Seminar                                   | 1       |
CHEM 699 | Thesis (This is a year long course with 4 credits per semester) | 8

Electives

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<tr>
<th>Course</th>
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<tr>
<td>CHEM 696</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 708</td>
<td>Spectroscopic Investigations of Organic Molecules</td>
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CHEM 795 | Special Topics                             | 2-4     |
Chemistry Related Elective | 2 |
| MATH 425 | Calculus I                                | 4       |
| MATH 426 | Calculus II                               | 4       |
| PHYS 407 | General Physics I                         | 4       |
| PHYS 408 | General Physics II                        | 4       |

Total Credits | 94-99

1 Capstone experience

2 Advisor’s discretion: MATH 527 or MATH 528; PHYS 505; ESCI 741 or ESCI 752; CHE; CIE; any 700/800 level course.
Course | Title | Credits | Total Credits
--- | --- | --- | ---
**Second Year**
**Fall**
CHEM 517 | Quantitative Analysis | 4 | 4
CHEM 518 | Quantitative Analysis Laboratory | 1 | 1
CHEM 547 | Organic Chemistry I | 3 | 3
CHEM 549 | Organic Chemistry Laboratory | 2 | 2
PHYS 408 | General Physics II | 4 | 4
**Discovery Course** | | 4 | 4
**Total Credits** | | 16 | 16

Course | Title | Credits |
--- | --- | ---
**Second Year**
**Spring**
CHEM 548 | Organic Chemistry II | 3 | 3
CHEM 550 | Organic Chemistry Laboratory | 2 | 2
CHEM 574 | Chemistry Across the Periodic Table | 4 | 4
**Discovery Courses (2 Courses at 4 credits each)** | | 8 | 8
**Total Credits** | | 17 | 17

Course | Title | Credits |
--- | --- | ---
**Third Year**
**Fall**
CHEM 683 | Physical Chemistry I | 3 | 3
CHEM 685 | Physical Chemistry Laboratory | 2 | 2
CHEM 755 | Advanced Organic Chemistry | 3 | 3
CHEM 756 | Advanced Organic Chemistry Laboratory | 2-3 | 2-3
CHEM 774 | Inorganic Chemistry | 3 | 3
**Discovery Course** | | 4 | 4
**Credits** | | 17-18 | 17-18
**Total Credits** | | 18 | 18

Course | Title | Credits |
--- | --- | ---
**Third Year**
**Spring**
CHEM 684 | Physical Chemistry II | 3 | 3
CHEM 686 | Physical Chemistry Laboratory | 2 | 2
CHEM 775 | Inorganic Chemistry Laboratory | 2 | 2
Elective (Choose 2 courses at 4 credits each) | | 8 | 8
**Credits** | | 15 | 15
**Total Credits** | | 17-18 | 17-18

Course | Title | Credits |
--- | --- | ---
**Fourth Year**
**Fall**
CHEM 776 | Physical Chemistry III | 3 | 3
CHEM 699 | Thesis | 4 | 4
BMCB 658 | General Biochemistry | 3 | 3
**Elective** | | 4 | 4
**Total Credits** | | 14 | 14

Chemistry Minor

http://ceps.unh.edu/chemistry/chemistry-undergraduate-programs

Description

A chemistry minor is achieved by taking courses with a "CHEM" label. The student must have a total of 20 credit hours in chemistry unless she/he has completed CHEM 683 Physical Chemistry I and the accompanying laboratory course (CHEM 685 Physical Chemistry Laboratory), in which case 18 credit hours suffice.

If you are interested in obtaining a Chemistry Minor, please contact the Chemistry Department Office at 603-862-1550 to be connected with the Department’s Undergraduate Coordinator. He/she will meet with you to discuss your plans to minor in Chemistry.

Requirements

To obtain a minor in Chemistry, you must have a total of 20 credit hours in CHEM courses. We have a variety of courses to fulfill this requirement, however the following CHEM courses are not acceptable as part of the 20 credits:

- CHEM 400 | Freshman Seminar | 1
- CHEM 696 | Independent Study | 1-4
- CHEM 699 | Seminar | 1
- CHEM 501 & CHEM 502 | Peer-led Team Learning in Chemistry and Advanced Peer-led Team Leadership in Chemistry | 3

If your degree program requires you to take Chemistry courses, but you also want to minor in Chemistry:

1. No more than 8 credit hours of chemistry coursework required by the student’s major may be counted toward the chemistry minor.
2. The remaining credits must come from CHEM courses that are not required for the student’s major.
General requirements overall for a minor:

1. None of the chemistry courses for a chemistry minor can be taken on a pass/fail basis. A grade of C- or better is required in all chemistry minor coursework.
2. A cumulative GPA of 2.00 is also required for all chemistry minor coursework.
3. Biochemistry (BMCB) courses do not count toward a chemistry minor.
4. Transfer credits can only be applied to the chemistry minor with the permission of the Chemistry Department undergraduate coordinator or chair, and only up to a maximum of 8 credit hours. The transferred courses must meet the minimum grade requirements.

Civil & Environmental Engineering (CEE)

http://ceps.unh.edu/cee

Overview

Civil and Environmental Engineering involves the sustainable planning, design, and construction of public works for the benefit of society while minimizing environmental impact. Civil Engineering concerns the design of buildings, bridges, roads, dams, water transmission systems, water treatment systems, tunnels, and more. Environmental Engineering specializes in environmental cleanup, drinking water systems, wastewater treatment systems, and solid waste disposal systems. Resulting infrastructure facilities must provide efficient service, be cost effective, and be compatible with the environment. Moreover, civil and environmental engineers work under a code of ethics in which their primary, overriding responsibility, is to uphold the public's trust by working to plan, design, build, and restore safe, sustainable, and environmentally responsible public works.

The Department of Civil and Environmental Engineering has two degree programs: one resulting in a Bachelor of Science in Civil Engineering (the BSCIVE) and another resulting in a Bachelor of Science in Environmental Engineering (the BSENVE). Both programs are accredited by ABET.

As civil engineering is such a broad field, it is traditionally divided into sub-disciplines. At the University of New Hampshire, multiple courses are offered in six: civil engineering materials, environmental engineering, geotechnical engineering, structural engineering, sustainable engineering, and water resources engineering.

Environmental engineering focuses on environmental pollution and public health protection; water, wastewater, reuse and stormwater technology; solid and hazardous waste engineering and remediation; engineering sustainability; environmental microbiology and chemistry; contaminant transport and fate, hydraulics and hydrology.

Students may readily transfer between the BSCIVE and BSENVE programs within the first three semesters.

Both engineering degrees provide a firm base in mathematics and engineering, and all majors are expected to develop excellent communication and computer skills. Graduates are prepared to enter the profession and to pursue advanced study. Because of the broad technical background attained, some graduates also successfully pursue further education in business, architecture, education, and law.

Mission

The mission of the Department of Civil and Environmental Engineering at the University of New Hampshire is fourfold:

- To pursue and disseminate knowledge through teaching, scholarship, and public service.
- To provide excellent undergraduate and graduate education.
- To conduct research and engagement activities, advancing the state of the art in science and engineering.
- To enhance the quality of life for people in New Hampshire and beyond.

BSCIVE Program Overview

Civil engineers work as private consultants, for large contracting firms, and for government agencies in a wide variety of indoor and outdoor settings around the world. There is a strong and constant market for civil engineers due to the demands placed on the profession to construct, maintain, and repair the infrastructure.

Educational Objectives

In accordance with its University, College, and Department missions, the faculty of the Department of Civil & Environmental Engineering has established clear educational objectives for our BSCIVE graduates, five years after obtaining the degree:

1. Professional employment, primarily in the civil and environmental engineering disciplines.
2. Commitment to continuous learning through graduate and post-graduate education, coursework, and research.
3. Resourcefulness in finding solutions, and retaining ownership and accountability for their work.
4. Positions of leadership, directing the work of others.
5. Professional licensure or certification in civil and environmental engineering disciplines and other professions.
6. Positions and active participation in community, public, and professional service.

Student Outcomes

To enable our graduates to achieve our educational objectives, the BSCIVE program is designed to provide the following student outcomes at the time of graduation:

1. To have obtained a working knowledge\(^1\) in the civil engineering areas of materials, environmental, geotechnical, structural, sustainability, and water resources.
2. To be able to locate, assess, and compile data, to design and perform experiments to gather data, and analyze data to draw conclusions.
3. To have an ability to use and learn techniques, skills, or software necessary for engineering practice.
4. To be able to contribute as a member of multi-disciplinary teams.
5. To be able to effectively communicate and support ideas in documents and presentations to a variety of audiences.
6. To be able to apply principles of mathematics, science, and engineering to identify, formulate, and solve problems.
7. To have been prepared for the Fundamentals of Engineering examination.\(^2\)
8. To have the broad education necessary to have an understanding of contemporary issues and the interaction between sustainable and...
Given realistic economic, environmental, social, political, and ethical constraints, to be able to critically analyze and design equipment, structures, systems, or processes to meet society’s current needs without compromising the ability of future generations to meet theirs.

1 A “working knowledge” is defined as understanding and being able to apply a sub-discipline in analysis and design as demonstrated by successful completion of two or more courses with a substantial focus in that sub-discipline.

2 A specific Departmental goal is to have 85% of BSCE students take the exam before graduation with an 80% pass rate.

BSENVE Program Overview

Environmental engineers work as private consultants, in industry and for government agencies in a wide variety of indoor and outdoor settings around the world. There is a strong and constant market for environmental engineers due to the demands placed on the profession to construct, maintain, and repair the drinking water, wastewater, water reuse and stormwater, and solid and hazardous waste management infrastructure. The curriculum prepares students to plan, using triple bottom line considerations, and design systems to minimize the impact of human activity on the environment and protect human health.

Educational Objectives

The BSENVE program prepares students for productive careers in the public and private sectors and for graduate studies. The program emphasizes fundamental principles in environmental engineering and design, built upon a strong base of chemistry, physics, mathematics, and engineering science. The program prepares students to work in multidisciplinary teams that analyze, formulate, and communicate sustainable solutions to complex environmental problems. The importance of developing sustainable solutions that provide economic, social, and environmental benefits to society is emphasized. The program instills in its students an appreciation for the responsibilities engineers have to society and teaches them the skills necessary to continue learning and improving their professional expertise throughout their careers.

Student Outcomes

BSENVE program graduates will have the skills, experience, and knowledge to pursue successful careers as environmental engineers. They also will have demonstrated the ability to identify information needs; locate information resources and/or design laboratory or field experiments to attain required information; and evaluate and synthesize data with sound engineering principles, methodologies, and the latest technology into creative, sustainable, safe, and economical engineering solutions to environmental engineering problems. The solutions they develop will minimize the impact of human activities on the environment and protect human health. Program graduates will have a foundation for advanced studies in environmental engineering and oral and written communication skills that will enable them to clearly explain engineering options and recommend solutions to stakeholders. BSENVE program graduates will have demonstrated in-depth knowledge within environmental engineering and an awareness of potential social, economic, political, and environmental impacts of engineering practices. They will have an appreciation for the contribution of environmental engineers to the benefit of society and the responsibilities of a professional environmental engineer. They will work as part of multidisciplinary teams to arrive at solutions to environmental engineering problems. BSENVE program graduates will be prepared to obtain professional engineering licensure; have the capacity to continue learning and improving their professional expertise and skills by participating in professional associations, conferences, workshops and courses; and understand the importance of continued professional development.

Programs

- Civil Engineering Major (B.S) (p. 132)
- Environmental Engineering Major (B.S.) (p. 134)
- Environmental Engineering Minor (p. 136)

Faculty

http://ceps.unh.edu/faculty/cee

Civil Engineering Major (B.S)

http://ceps.unh.edu/cee/civil-engineering-bs

Description

Matriculating students should have strong aptitudes in mathematics and science along with imagination, spatial and graphic abilities, communication skills, and creativity. Students then follow a four-year program that conforms to the guidelines of, and is accredited by, the:

Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
(410) 347-7700.

The first two years of the program provide the necessary technical knowledge in mathematics, chemistry, and physics, while introducing and developing problem-solving techniques in eight courses tailored to civil engineering students. The junior year provides courses in each of the civil engineering sub-disciplines, providing students with skills in each and allowing students to determine which they wish to pursue further. The senior year is flexible, allowing students to choose where to focus attention by selecting from more than forty elective courses in civil and environmental engineering.

The required curriculum includes seven writing-intensive courses, thereby not only satisfying but exceeding the University’s writing requirement. (See University Academic Requirements.)

Requirements

Electives

More than half of the major’s total credits and nearly all of the senior-level courses are elected by the student. Of these, there are Discovery Program electives required by the University and other electives required by the
department in order to satisfy departmental objectives and accreditation requirements.

The Discovery Program is described in University Academic Requirements. Courses required by the BSCIVE program fulfill Discovery requirements in:

CEE 400 Introduction to Civil Engineering 4  
ENGL 401 First-Year Writing (Writing Skills) 4  
MATH 425 Calculus I (Quantitative Reasoning) 4  
PHYS 407 General Physics I (Physical Sciences and Discovery Lab) 4  
CEE 797 & CEE 798 Introduction to Project Planning and Design and Project Planning and Design 4

Therefore, students select electives to satisfy Discovery requirements in Humanities, Biological Science, Fine and Performing Arts, Historical Perspectives, Social Science, and World Cultures. The Discovery Social Science elective must be one of the following courses: CEP 415, CSL 401, ECON 401, ECON 402, ECON 444, EREC 411, GEOG 582, GEOG 584, or POLT 402. Students must take an AutoCAD Elective (TECH 564 or CT 427), a Spatial Metrics Elective (CEE 404, CT 446, NR 658, FORT 581, or both CT 423 and CT 425), a Technical Writing Elective (ENGL 502 or ENGL 602), and a Statistics Elective (MATH 539 or MATH 644). In the senior year, students take seven 700-level electives subject to the following restrictions: courses must be taken in four of six different concentration areas (environmental engineering, geotechnical engineering, civil engineering materials, structural engineering, sustainability, and water resources) and at least three design courses must be taken at least one of which must be designated as a project-based design elective. One of the seven 700-level courses is a senior technical elective, which can be any CEPS 700-level course of 3 credits or more including CEE courses, GEOG 757, and TECH 750. Lists of courses that fulfill the 700-level course electives are available from the Department.

### Additional Program Policies and Requirements

To transfer into the BSCE major, a student must satisfy the following:

1. Be a CEPS major or have at least 12 credits of graded work at UNH along with Calculus I, and either chemistry or calculus-based physics.
2. Have an overall UNH grade-point average of 2.33 or greater.
3. Have an overall grade-point average of 2.33 or greater in all CEE courses taken to date.
4. Have a grade-point average of 2.33 or greater in courses taken to date at UNH of MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500, and CEE 501.
5. Have a grade-point average of 2.33 or greater in courses taken to date of CEE 500 and CEE 501.

At the time of transferring into the BSCIVE program, only CEE 600-level and CEE 700-level classes with a grade of C- or better may be transferred in.

BSCE majors wishing to participate in domestic or international exchange programs must achieve a cumulative grade-point average of 2.50 or better in all CEE courses taken to date at the time of application to the exchange program.

To begin taking the required CEE 600-level courses in the junior year, students must meet the following requirements:

1. MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500, and CEE 501 must have been completed with passing grades.
2. The student must have a grade-point average of 2.00 or greater in all CEE courses.
3. The student must have a grade-point average of 2.00 or greater in MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500, and CEE 501.
4. The student must have a grade-point average of 2.00 or greater in CEE 500 and CEE 501.

To graduate with a bachelor of science in civil engineering, a student must achieve the following: 129 or more credits, credit for the civil engineering program's major and elective courses, satisfaction of the University's Discovery Program requirements, satisfaction of the University's writing-intensive course requirements, a cumulative grade-point average of 2.0 or better for all courses, a cumulative grade-point average of 2.0 or better in all CEE courses.

### Degree Plan

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Environmental Engineering Major (B.S.)

http://ceps.unh.edu/cee/environmental-engineering-bs

Description

The Environmental Engineering program is accredited by the:

Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012,
(410) 347-7700
http://www.abet.org

Environmental engineers graduating with a B.S. ENE degree will plan, design, and construct public and private facilities to minimize the impact of human activity on the environment and to protect human health. For example, environmental engineers design and build drinking water treatment systems, municipal and industrial wastewater treatment plants, solid waste management facilities, contaminated ground water remediation systems, and hazardous waste remediation facilities. These facilities must meet regulatory requirements, be cost effective to build and maintain, be safe to operate, and have minimal environmental impact. ENE students can also focus on sustainable engineering with a required course (CEE 705 Introduction to Sustainable Engineering) in junior year and two or three senior year electives, including design electives.

In CEE 420 Environmental Engineering Lectures I, students are introduced to the full spectrum of environmental engineering projects that they will subsequently explore in design teams during their degree program. As part of these experiences, students visit and tour field sites (CEE 520 Environmental Pollution and Protection: A Global Context), and through junior and senior year classes and seminars (ASCE, EWRI, EWB, SWB), they interact with engineers who talk about engineering consulting and design practices applied to local projects. As part of these projects, students:

1. analyze treatment alternatives;
2. recommend a system that meets regulatory operational needs, and is sustainable; and
3. prepare an implementation schedule and project budget.

Design projects are performed in CEE 731 Advanced Water Treatment Processes and two design electives. CEE 797 Introduction to Project Planning and Design/ and CEE 798 Project Planning and Design/ serve as a capstone design experience where students work on a multi-disciplinary environmental engineering project and apply skills learned in other courses while working with real-world problems/clients. ENE students do not have to take a course in the Discovery Biological Science category since they satisfy this category with CEE 724 Environmental Engineering Microbiology.

At the end of the sophomore year, students are required to have a minimum overall grade-point average of 2.00 and a grade-point average of 2.00 in the following to be permitted to enroll in junior-level courses:

- CEE 420 Environmental Engineering Lectures I 3
- MATH 425 Calculus I 4
- CHEM 405 Chemical Principles for Engineers 4
- PHYS 407 General Physics I 4
- MATH 426 Calculus II 4
- CEE 500 Statics for Civil Engineers 3
- CEE 520 Environmental Pollution and Protection: A Global Context 4

To qualify for graduation, an ENE major must: have satisfied the previously specified course requirements, have satisfied the University’s Academic Requirements, have a minimum cumulative grade-point average of 2.00, and have a minimum grade-point average of 2.00 in engineering courses.
Requirements

These are the required major courses. For a full listing of the requirements within the four years of study please refer to the degree plan tab.

CEE 420 Environmental Engineering Lectures I 3  
MATH 425 Calculus I 4  
CHEM 405 Chemical Principles for Engineers 4  
ENGL 401 First-Year Writing 4  
PHYS 407 General Physics I 4  
MATH 426 Calculus II 4  
ENGL 502 Professional and Technical Writing 4  
CEE 500 Statics for Civil Engineers 3  
CEE 520 Environmental Pollution and Protection: A Global Context 4  
MATH 527 Differential Equations with Linear Algebra 4  
TECH 564 Fundamentals of CAD 3  
CEE 502 Project Engineering 3  
CEE 705 Introduction to Sustainable Engineering 3  
CEE 620 Fundamental Aspects of Environmental Engineering 4  
CEE 724 Environmental Engineering Microbiology 4  
CEE 797 Introduction to Project Planning and Design 1  
CEE 723 Water Chemistry 4  
CEE 721 Environmental Sampling and Analysis 4  
CEE 798 Project Planning and Design 3  
CEE 731 Advanced Water Treatment Processes 4  
MATH 644 Statistics for Engineers and Scientists 4  
CEE 502 Project Engineering 3  
Public Health Elective 3-4  
Discovery or Geospatial Science Course 3-4  
Credits 18  
MATH 527 Differential Equations with Linear Algebra 4  
TECH 564 Fundamentals of CAD 3  
CEE 502 Project Engineering 3  
Public Health Elective 3-4  
Discovery or Geospatial Course 3-4  
Credits 17-19  

Degree Plan

The following schedule is a sample of a planned program for environmental engineering students completing the major.

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<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tr>
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<td>CEE 420</td>
<td>Environmental Engineering Lectures I</td>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
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<td>MATH 425</td>
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<td>Credits</td>
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<td>Spring</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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Second Year Fall
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<td>CEE 500</td>
<td>Statics for Civil Engineers</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
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<td>Discovery or Geospatial Course</td>
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<tr>
<td>Credits</td>
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Third Year Fall
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<td>CEE 705</td>
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<td>CEE 650</td>
<td>Fluid Mechanics</td>
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<td>CEE 720</td>
<td>Solid and Hazardous Waste Engineering</td>
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<td>ESCI 654</td>
<td>Fate and Transport in the Environment</td>
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</tr>
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<td>CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEE 620</td>
<td>Fundamental Aspects of Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CEE 724</td>
<td>Environmental Engineering Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>CEE 797</td>
<td>Introduction to Project Planning and Design</td>
<td>1</td>
</tr>
<tr>
<td>CEE 723</td>
<td>Water Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CEE 721</td>
<td>Environmental Sampling and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CEE 798</td>
<td>Project Planning and Design</td>
<td>3</td>
</tr>
<tr>
<td>CEE 731</td>
<td>Advanced Water Treatment Processes</td>
<td>4</td>
</tr>
<tr>
<td>CEE 724</td>
<td>Environmental Engineering Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>CEE 744</td>
<td>Environmental Engineering Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Hydrology Elective</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Discovery or Geospatial Science Course</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td>14-16</td>
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</table>

Fourth Year Fall
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<thead>
<tr>
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<tbody>
<tr>
<td>CEE 721</td>
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<td>4</td>
</tr>
<tr>
<td>CEE 723</td>
<td>Water Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CEE 797</td>
<td>Introduction to Project Planning and Design</td>
<td>1</td>
</tr>
<tr>
<td>CEE Design Electives</td>
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<tr>
<td>CEE Electives</td>
<td>3-4</td>
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<tr>
<td>Credits</td>
<td>15-17</td>
<td></td>
</tr>
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<td>Spring</td>
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<tr>
<td>CEE 731</td>
<td>Advanced Water Treatment Processes</td>
<td>4</td>
</tr>
<tr>
<td>CEE 798</td>
<td>Project Planning and Design</td>
<td>3</td>
</tr>
<tr>
<td>CEE Electives</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>CEE Electives</td>
<td>3-4</td>
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<tr>
<td>Hydraulics Elective</td>
<td>3-4</td>
<td></td>
</tr>
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<td>Credits</td>
<td>16-19</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>129-138</td>
<td></td>
</tr>
</tbody>
</table>
Students who are required to take MATH 418 Analysis and Applications of Functions because they did not pass the placement examination as determined by the Mathematics Department prior to the fall semester, will enroll in MATH 425 Calculus I during the spring semester. Subsequent MATH courses (MATH 426 Calculus II, MATH 527 Differential Equations with Linear Algebra, MATH 644 Statistics for Engineers and Scientists) will be taken one semester later than shown here.

See Discovery Program requirements. The Discovery requirements for Writing, Quantitative Reasoning, and Physical Science are fulfilled by ENGL 401 First-Year Writing, MATH 425 Calculus I, and PHYS 407 General Physics I, respectively. CEE 520 Environmental Pollution and Protection: A Global Context fulfills the Environmental, Technology, and Society requirement. CEE 797 Introduction to Project Planning and Design and CEE 798 Project Planning and Design fulfill the Senior Capstone requirement. Environmental Engineering Microbiology fulfills the Biological Science requirement. Courses in the ENE curriculum designated Discovery Electives can be selected from the University's approved Discovery Program courses in Fine and Performing Arts, Humanities, Historical Perspectives, World Cultures, and Social Science. One of these electives must have an Inquiry attribute.

GIS elective may also be taken in the third year with a second Discovery elective taken in second year.

Approved lists of technical, hydrology, hydraulics, and CEE design and non-design electives are available from the ENE undergraduate coordinator, Nancy Kinner. Students must take a minimum of four 700-level CEE electives totaling at least 12 credits. Two CEE elective courses must be from the design category.

Discovery elective or GIS elective can be taken here as appropriate.

The ENE program requires a minimum of 129 total credits for graduation.

Environmental Engineering Minor

Description

The environmental engineering minor is intended primarily for students in engineering and physical sciences who are not in the chemical, civil, or environmental engineering degree programs. Students contemplating such a minor should plan on a strong background in the sciences and mathematics (including differential equations).

The minor provides a comprehensive introduction to major areas of interest in environmental protection through the three required courses. Further breadth in environmental engineering or depth in specific areas can be attained through the choice of appropriate elective courses.

Requirements

The minor requires a minimum of five courses, as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 620</td>
<td>Fundamental Aspects of Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEE 731</td>
<td>Advanced Water Treatment Processes</td>
<td>4</td>
</tr>
<tr>
<td>or CEE 721</td>
<td>Environmental Sampling and Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A minimum of two elective ENE courses.</td>
<td></td>
</tr>
</tbody>
</table>

Choice of elective courses should be made in consultation with the minor area advisor, Nancy Kinner. Students normally start this program in the junior year and should declare their intention to enter the program as early as possible during the sophomore year. During the final semester, students must apply to the dean to have the minor appear on the transcript.

Computer Science (CS)

Undergraduate students may choose from one of two degree options: the B.S. in computer science, which is intended for students interested in the design and implementation of software systems, or the B.S. in information technology, which focuses on the application of existing computing technologies to meet the information needs of organizations and individual computer users. The B.S. in computer science also offers a bioinformatics option, which is designed for students who wish to apply computer science expertise in the life sciences.

http://www.cs.unh.edu

Programs

- Computer Science Major (B.S.) (p. 136)
- Computer Science Major: Bioinformatics Option (B.S.) (p. 138)
- Computer Science Minor (p. 139)
- Computer Programming Cognate (p. 139)
- Information Technology Major (B.S.) (p. 139)
- Information Technology Minor (p. 141)
- Information Technology Cognate (p. 141)
- Skills and Perspectives for the Digital World Cognate (p. 142)

Faculty

http://ceps.unh.edu/faculty/all

Computer Science Major (B.S.)

http://cs.unh.edu/bs-computer-science

Description

Computer science focuses on problem solving with a particular emphasis on the design of computer-efficient solutions. Within a few years of obtaining a bachelor's degree in either of the two computer science options, alumni will have:

1. Engaged in successful careers in diverse areas of software development and will be pursuing advanced education in computer science or related fields;
2. Applied the full range of core computer science concepts and techniques to fill software development needs of an organization;
3. Adapted to changing directions of computing technology and used state-of-the-art techniques to confront new problems effectively;
4. Navigated the complex interconnections between software and the goals and constraints of the organization served;
5. Participated responsibly in the pervasive and changing role of computing technology in global society as both software engineers and citizens;
6. Operated collaboratively in a team environment and assumed leadership roles.

The B.S. in computer science programs are accredited by the:
Computing Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
(410) 347-7700

Requirements

Computer science majors must complete the following coursework in computer science, mathematics, computer engineering, science, English, and philosophy (all courses are 4 credits unless indicated otherwise):

Computer Science Courses
Select one of the following: 8

- CS 415 & CS 416: Introduction to Computer Science I and Introduction to Computer Science II
- CS 414 & CS 417: From Problems to Algorithms to Programs and From Programs to Computer Science
- CS 410 & CS 417: Introduction to Scientific Programming and From Programs to Computer Science
- CS 400: Introduction to Computing
- IT 403: Introduction to Internet Technologies
- CS 501: Professional Ethics and Communication in Technology-related Fields
- CS 515: Data Structures
- CS 520: Assembly Language Programming and Machine Organization
- CS 619: Introduction to Object-Oriented Design and Development
- CS 620: Operating System Fundamentals
- CS 659: Introduction to the Theory of Computation
- CS 671: Programming Language Concepts and Features
- Select four: CS 700-level electives 1 12
- CS 791: Senior Project I (senior capstone experience) 2
- CS 792: Senior Project II (senior capstone experience) 2

Mathematics Courses

- MATH 425: Calculus I 4
- MATH 426: Calculus II 4
- MATH 531: Mathematical Proof 4
- MATH 539 or MATH 644: Introduction to Statistical Analysis or Statistics for Engineers and Scientists 4

Electrical and computer engineering courses

- ECE 543: Introduction to Digital Systems 4
- ECE 562: Computer Organization 4

Science courses

Science 1 and 2 (two-course sequence): Select one of the following sequences: 8

- CHEM 403 & CHEM 404: General Chemistry I and General Chemistry II
- ESCI 401 & ESCI 402: Dynamic Earth and Earth History
- ESCI 409 & ESCI 402: Geology and the Environment and Earth History
- PHYS 407 & PHYS 408: General Physics I and General Physics II

Science 3: Select any Discovery lab science course (DLAB) 3

Other Courses

- ENGL 502: Professional and Technical Writing 4

Discovery requirements not already covered by required courses

Total Credits 96

1 A professional elective, chosen from a list of approved courses. One of the four CS electives must be "implementation intensive" (CS 712 Compiler Design, CS 720 Operating System Programming, CS 730 Introduction to Artificial Intelligence, CS 735 Introduction to Parallel and Distributed Programming, CS 770 Computer Graphics); another one must be "theory" (CS 712 Compiler Design, CS 745 Formal Specifications and Verification of Software Systems, CS 758 Algorithms), CS 723 Performance Evaluation.

Computer science majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, and computer engineering courses in order to graduate. If at the end of any semester, including the first, a student’s cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a CS major.

The following courses must be passed with a grade of C- or better: CS 410, CS 414, CS 415, CS 416, CS 417, CS 515, CS 520.

If a student wishing to transfer into the computer science major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

Degree Plan

Recommended Plan of Study

Course Title Credits

First Year

Fall

- CS 400: Introduction to Computing 1
- IT 403: Introduction to Internet Technologies 4
- CS 415: Introduction to Computer Science I 4
- MATH 425: Calculus I 4

Other Requirements 4

Credits 17

Spring

- CS 416: Introduction to Computer Science II 4
- MATH 426: Calculus II 4
- ENGL 401: First-Year Writing 4
- ECE 543: Introduction to Digital Systems 4

Credits 16
Second Year

Fall

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<thead>
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<tr>
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<td>MATH 531</td>
<td>Mathematical Proof</td>
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Spring

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<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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Third Year

Fall

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<td>CS 671</td>
<td>Programming Language Concepts and Features</td>
<td>4</td>
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<tr>
<td>Other Requirements</td>
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Spring

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<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>4</td>
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<tr>
<td>CS 7xx CS elective</td>
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Fourth Year

Fall

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<td>Two CS 7xx CS electives</td>
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Spring

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<tr>
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</table>

Total Credits 125

Computer Science Major:
Bioinformatics Option (B.S.)

http://cs.unh.edu/bs-computer-science-bioinformatics

Description

The bioinformatics field is an increasingly important sub-discipline in computer science. The demand for computer science graduates who can apply their knowledge in the life sciences is significant and is expected to continue to grow. Students who choose this path are still computer science majors but have a concentration in the life sciences. The option has the same core as the B.S. program but requires appropriate coursework in chemistry, biology, genetics, and statistics.

The B.S. in computer science programs are accredited by the:

Computing Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
(410) 347-7700

Requirements

Bioinformatics students must complete the following coursework in computer science, mathematics, computer engineering, science, and English. (All courses are 4 credits unless indicated otherwise.).

Computer Science Courses

Select one of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
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</tr>
<tr>
<td>&amp; CS 416</td>
<td>Introduction to Computer Science II</td>
<td></td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
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</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
<td>4</td>
</tr>
<tr>
<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 620</td>
<td>Operating System Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
<td>4</td>
</tr>
<tr>
<td>CS 671</td>
<td>Programming Language Concepts and Features</td>
<td>4</td>
</tr>
<tr>
<td>CS 758</td>
<td>Algorithms (CS theory)</td>
<td>4</td>
</tr>
<tr>
<td>CS Elective 700-level</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>CS 775</td>
<td>Database Systems</td>
<td>4</td>
</tr>
<tr>
<td>CS 791</td>
<td>Senior Project I</td>
<td>2</td>
</tr>
<tr>
<td>CS 792</td>
<td>Senior Project II</td>
<td>2</td>
</tr>
</tbody>
</table>

Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td></td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Electrical and Computer Engineering Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Science Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
</tbody>
</table>
Computer Science Minor
http://cs.unh.edu/minor-computer-science

Description

The minor in computer science is designed for students in other majors who want to learn the fundamentals of designing and implementing computer software.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student’s major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

Requirements

Select one of the following:
- CS 415 Introduction to Computer Science I 4
- CS 414 From Problems to Algorithms to Programs 4
- CS 410 Introduction to Scientific Programming 4
- CS 416 Introduction to Computer Science II 4
- CS 417 From Programs to Computer Science 4
- CS 515 Data Structures 4

Other Courses

Select two of the following:
- CS 619 Introduction to Object-Oriented Design and Development 4
- CS 520 Assembly Language Programming and Machine Organization
- CS 620 Operating System Fundamentals
- CS 659 Introduction to the Theory of Computation
- CS 671 Programming Language Concepts and Features
- An approved CS 700-level course

1 700-level CS Elective course. Must be Writing Intensive (WI) with project in bioinformatics.

Computer Programming Cognate
http://cs.unh.edu/cognate-computer-programming

Description

The Cognate in Programming is designed so that students who wish to go beyond an introductory computer programming course to be able to meet the challenges that technology imposes.

This cognate is for UNH students who are interested in acquiring skills beyond just a basic programming language. This cognate would be an alternative to students who are not going to pursue a minor in Computer Science or Information Technology but still want to have the opportunity to partake a coherent, if short, curriculum that gives them a foundation to participate in programming activities as applicable to their technical areas.

The cognate consists of three courses in total, with one required course and two courses selected from four different sequence options. The Cognate will appear on each student’s transcript.

Requirements

Required Course:
IT 403 Introduction to Internet Technologies 4

Choose one of the following two-course sequences:

Sequence one:
- CS 415 Introduction to Computer Science I 4
- CS 416 Introduction to Computer Science II 4
- or IT 505 Database Programming

Sequence two:
- CS 414 From Problems to Algorithms to Programs 4
- CS 417 From Programs to Computer Science 4
- or IT 505 Database Programming

Sequence three:
- CS 410 Introduction to Scientific Programming 4
- CS 417 From Programs to Computer Science 4
- or IT 505 Database Programming

- CS 405 Introduction to Applications Programming with Visual Basic 4
- IT 505 Database Programming 4

Information Technology Major (B.S.)
http://cs.unh.edu/bs-information-technology

Description

Information technology is concerned primarily with the application of existing computing technologies to the information needs of organizations and individual computer users. The IT program aims to provide graduates with the skills and knowledge to take on appropriate
professional positions in information technology upon graduation and grow into leadership positions in the field. Potential careers include network administrator, database developer, system administrator, and webmaster.

The broad objectives for B.S. in information technology graduates are:

1. Apply the full range of core IT concepts and techniques to fill the IT needs of an organization and be prepared to assume managerial and other advanced responsibilities,
2. Confront new problems effectively and anticipate the changing directions of technology,
3. Communicate effectively with diverse stakeholders as well as function appropriately in a team environment,
4. Navigate within the complex relationships between IT and larger organizational goals, and
5. Understand the pervasive and changing role of computing technology in global society, and participate responsibly as both IT professional and citizen.

The B.S. in information technology program is accredited by the:

Computing Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
Phone: (410) 347-7700
www.abet.org/ (http://www.abet.org)

Requirements

Information Technology Courses
Select one of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 415 &amp; CS 416</td>
<td>Introduction to Computer Science I and Introduction to Computer Science II</td>
</tr>
<tr>
<td>CS 414 &amp; CS 417</td>
<td>From Problems to Algorithms to Programs and From Programs to Computer Science</td>
</tr>
<tr>
<td>CS 410 &amp; CS 417</td>
<td>Introduction to Scientific Programming and From Programs to Computer Science</td>
</tr>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
</tr>
<tr>
<td>IT 666</td>
<td>Computer Security</td>
</tr>
<tr>
<td>IT 699</td>
<td>Internship</td>
</tr>
<tr>
<td>Select 3 IT 600/700- level</td>
<td>12</td>
</tr>
<tr>
<td>IT 705</td>
<td>Project Management for Information Technology</td>
</tr>
<tr>
<td>IT 710</td>
<td>Senior Project (senior capstone experience)</td>
</tr>
<tr>
<td>IT 775</td>
<td>Database Technology</td>
</tr>
</tbody>
</table>

Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
</tr>
</tbody>
</table>

Other Courses

Science 1 and 2 (two-course sequence): Select one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411 &amp; BIOL 412</td>
<td>Introductory Biology: Molecular and Cellular and Introductory Biology: Evolution, Biodiversity and Ecology</td>
</tr>
<tr>
<td>CHEM 403 &amp; CHEM 404</td>
<td>General Chemistry I and General Chemistry II</td>
</tr>
<tr>
<td>ESCI 401 &amp; ESCI 402</td>
<td>Dynamic Earth and Earth History</td>
</tr>
<tr>
<td>ESCI 409 &amp; ESCI 402</td>
<td>Geology and the Environment and Earth History</td>
</tr>
<tr>
<td>PHYS 401 &amp; PHYS 402</td>
<td>Introduction to Physics I and Introduction to Physics II</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
</tr>
</tbody>
</table>

Second discipline (see below for details)

Total Credits 82

Information technology majors must maintain an overall grade-point average of 2.0 or better in all required information technology and computer science required courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as an IT major. The following courses must be passed with a grade of C- or better in order to meet IT major requirements:

- CS 414
- CS 415
- CS 416
- CS 417
- IT 403
- IT 502
- IT 505
- IT 520

If a student wishing to transfer into the information technology major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in information technology. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

In addition to the above requirements, each student must choose a second discipline in a particular domain outside of IT to which the student’s IT skills can be applied. Second disciplines (typically four courses) have been defined by the CS department in such areas as business administration, health management and policy, and justice studies. If a student is interested in an area that is not currently defined, the option of a student-designed second discipline is also available.

Degree Plan

The following is a sample schedule depicting the necessary requirements and the layout of the curriculum. Students must consult with their advisers in order to come up with the proper schedule for themselves.

Course Title Credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Introduction to Computing                  1</td>
</tr>
<tr>
<td>CS 400</td>
<td>From Problems to Algorithms to Programs    4</td>
</tr>
<tr>
<td>CS 414</td>
<td>From Programs to Computer Science</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies      4</td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I                                4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis       4</td>
</tr>
</tbody>
</table>

Spring Credits 17

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 417</td>
<td>From Programs to Computer Science          4</td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
</tr>
</tbody>
</table>

Total Credits 82
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (Discovery)</td>
<td>4</td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

**Second Year**

**Fall**
- MATH 539    | Introduction to Statistical Analysis                | 4       |
- IT 505      | Database Programming                                 | 4       |
- Discovery   |                                                     | 4       |
- Lab Science I (Discovery) |                                               | 4       |
- Second Discipline I |                                               | 4       |
|             | Credits                                             | 20      |

**Spring**
- Lab Science II |                                               | 4       |
- IT 520      | Computer Architecture                              | 4       |
- ENGL 502    | Professional and Technical Writing                  | 4       |
|             | Credits                                             | 12      |

**Third Year**

**Fall**
- CS 501      | Professional Ethics and Communication in Technology-related Fields | 4       |
- IT 666      | Computer Security                                    | 4       |
- IT 609      | Network/Systems Administration                       | 4       |
- Discovery   |                                                     | 4       |
|             | Credits                                             | 16      |

**Spring**
- Two 600/700-Level IT Electives |                                               | 8       |
- Second Discipline II |                                               | 4       |
- Discovery   |                                                     | 4       |
- IT 699      | Internship                                           | 1       |
|             | Credits                                             | 17      |

**Fourth Year**

**Fall**
- IT 705      | Project Management for Information Technology       | 4       |
- IT 775      | Database Technology                                  | 4       |
- Second Discipline III |                                               | 4       |
- Discovery   |                                                     | 4       |
|             | Credits                                             | 16      |

**Spring**
- IT 710      | Senior Project                                      | 4       |
- Second Discipline IV |                                               | 4       |
- 600/700-Level IT Elective |                                               | 4       |
- Free Elective |                                                     | 4       |
|             | Credits                                             | 16      |
|             | Total Credits                                       | 130     |

**Information Technology Minor**

http://cs.unh.edu/minor-information-technology

**Description**

The information technology (IT) minor is a way for students in non-technical majors to bridge the gap between a primarily non-technical education and a technical world. Graduates from a variety of fields are discovering that there is a great need to have computer competency in addition to the knowledge they gain in their major; the IT minor, which is tailored to grow students’ understanding of computer and information technology applications, helps prepare students for the future.

Students who minor in IT must complete a minimum of 20 credits of IT courses. All students must take IT 520 Computer Architecture as well as an approved introductory programming course. The other three courses may be chosen from the list below.

Courses not in the list below may be allowed at the discretion of the minor coordinator, but approval for such exceptions should be sought before the courses are taken.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should contact the IT minor coordinator to declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student’s major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor coordinator.

**Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming with Visual Basic</td>
<td>4</td>
</tr>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td></td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>IT 705</td>
<td>Project Management for Information Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 775</td>
<td>Database Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 710</td>
<td>Senior Project</td>
<td>4</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td></td>
</tr>
<tr>
<td>CS 417</td>
<td>From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
<td></td>
</tr>
<tr>
<td>IT 604</td>
<td>Server-side Web Development</td>
<td></td>
</tr>
<tr>
<td>IT 605</td>
<td>Client-side Web Development</td>
<td></td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
<td></td>
</tr>
<tr>
<td>IT 666</td>
<td>Computer Security</td>
<td></td>
</tr>
</tbody>
</table>

**Information Technology Cognate**

http://cs.unh.edu/cognate-information-technology

**Description**

The Toolbox Cognate in Information Technology is designed to provide students with knowledge and skills required by essentially any job today.
With introductory level options, including courses from outside the department, the cognate is of value to students who wish to get a firm foundation in areas related to computing and information technology. The cognate also gives students considering study of Information Technology or Computer Science an opportunity to sample a broad range of courses in the field.

The Cognate will appear on each student's transcript.

**Requirements**

The cognate consists of three courses with no more than two courses to be taken from the same category (some courses may have pre-requisites).

**Computer Applications**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 401</td>
<td>Computers and Their Applications</td>
<td>4</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
<td>4</td>
</tr>
</tbody>
</table>

**Web**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming with Visual Basic</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
<td>4</td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
</tbody>
</table>

**Computing/Programming**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
<td>4</td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
</tbody>
</table>

**Statistics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 439</td>
<td>Statistical Discovery for Everyone</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Skills and Perspectives for the Digital World Cognate**


**Description**

The Cognate in Skills and Perspectives for the Digital World is designed so that students both engage with and reflect on the technology associated with the digital world. The curriculum consists of three courses: one to strengthen understanding of the technologies that drive the World Wide Web, one course to explore computer programming, and one course to consider the impact of the technologies on society.

The Cognate will provide students with a foundation for the development of technical and critical skills aligned with one of the 21st century's defining areas: information technology. For example, a recent statement by GE's CEO asserts that if you join the company today, as opposed to 20 years ago, you're going to learn to code even though you may be in sales, finance or operations. This Cognate gives students and future employees a fundamental introduction into technologies that are necessary for high functioning in today's world, both in the workplace and beyond.

**Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming with Visual Basic</td>
<td>4</td>
</tr>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 508</td>
<td>Anthropology of Internet</td>
<td>4</td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td>4</td>
</tr>
<tr>
<td>CS 408</td>
<td>Living in a Networked World: The Good, the Bad, and the Ugly</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 415E</td>
<td>Literature and Cyberculture</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

**Earth Sciences (ESCI)**

The courses offered in the Department of Earth Sciences cover the broad spectrum of geosciences, with emphases on geology, climate, geochemistry, geophysics, hydrology, and oceanography. The curriculum encompasses a group of related disciplines concerned with an understanding of Earth and its environment. Studies of the processes that shape the continents and oceans, drive the hydrologic cycle and ocean circulation, and affect climate change and the evolution of life are based on a foundation of basic mathematics, physics, and chemistry.

The need for people trained in the Earth and environmental sciences has been increasing in response to growing societal demands for sound environmental and resource management. Issues of particular concern include global climate change impacts, management of water resources, development of energy and mineral resources, waste disposal, and the assessment of natural hazards. In addition, the demand for well-trained secondary school teachers of Earth sciences has been steadily increasing.

The Department of Earth Sciences offers four majors: B.S. Earth sciences, B.S. environmental sciences (interdisciplinary with the College of Life Sciences and Agriculture), B.A. Earth sciences, and B.A. Earth sciences teaching. These programs prepare students for advanced study in the geosciences; for entry-level professional employment in public or private institutions concerned with environmental and resource management, including consulting firms, government agencies, energy- and resource-extraction firms, utilities, and nonprofit organizations; and for secondary-school teaching of Earth sciences.

The Department of Earth Sciences also offers a minor in Earth sciences, as well as an interdisciplinary minor in oceanography.

Descriptions and requirements for the majors and minors are arranged alphabetically.

http://ceps.unh.edu/earth-sciences

**Programs**

- Earth Sciences Major (B.A.) (p. 143)
• Earth Sciences Major (B.S.) (p. 143)
• Earth Sciences Minor (p. 144)
• Earth Sciences Teaching Major (B.A.) (p. 145)
• Environmental Sciences Major: Hydrology Option (B.S.) (p. 145)
• Oceanography Minor (p. 146)

Faculty

http://ceps.unh.edu/faculty/all

Earth Sciences Major (B.A.)

http://ceps.unh.edu/earth-sciences/earth-sciences-ba

Description

The bachelor of arts in Earth sciences is offered through the Department of Earth Sciences. This program provides students an opportunity to obtain a broad education and a general background in the Earth sciences with a greater degree of freedom in choosing electives than in the bachelor of science programs. Through careful choice of electives, students can prepare for graduate school, business, or industry.

Requirements

Satisfy the Discovery Program Requirements
Satisfy the bachelor of arts degree requirements
Complete (with a C- or better in each course) a minimum of eight courses in the department, including the following:

ESCI 401 Dynamic Earth
or ESCI 409 Geology and the Environment

ESCI 402 Earth History

ESCI 512 Principles of Mineralogy

Five advanced-level courses, two of which must be 700-level or above

Math Requirements

MATH 425 Calculus I 4
MATH 426 Calculus II 4

Total Credits 8

1 Note that ESCI 401 Dynamic Earth, ESCI 402 Earth History, ESCI 405 Global Environmental Change, ESCI 409 Geology and the Environment, ESCI 420 Our Solar System, ESCI 501 Introduction to Oceanography cannot be taken to fulfill Discovery Program requirements for majors in the Department of Earth Sciences.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

Earth Sciences Major (B.S.)

http://ceps.unh.edu/earth-sciences/earth-sciences-bs

Description

The bachelor of science in Earth sciences is offered through the Department of Earth Sciences. The program represents a strong concentration in the Earth sciences and is especially well-suited for students who plan to continue their studies in graduate school. Beyond a central core of courses, there are several possible specializations (geology, geophysics, oceanography, climate, petroleum geology) from which students must choose in order to develop depth in a particular area of Earth sciences. Students are encouraged to attend a summer off-campus field experience, for which scholarship funds may be available.

Requirements

Satisfy the Discovery Program requirements and the bachelor of science degree requirements

MATH 425 Calculus I 4
MATH 426 Calculus II 4
CHEM 403 General Chemistry I 4
CHEM 404 General Chemistry II 4
PHYS 407 General Physics I 4
PHYS 408 General Physics II 4

Core Curriculum

ESCI 401 Dynamic Earth 4
or ESCI 409 Geology and the Environment
ESCI 402 Earth History 4
ESCI 501 Introduction to Oceanography 4
ESCI 512 Principles of Mineralogy 4
ESCI 530 Geological Field Methods 4
or ESCI 534 Techniques in Environmental Sciences
ESCI 654 Fate and Transport in the Environment 4
ESCI 701 Quantitative Methods in Earth Sciences 4
ESCI 731 Geodynamics 4

Specializations

Select one of the following approved specializations:

Climate

Geology

Geophysics

Oceanography

Petroleum Geology

Science/Math Electives

Complete three additional approved science/math electives (required for all approved specialization except Petroleum Geology) 4

Capstone

Complete the capstone requirement

Total Credits 56

1 Some of these courses may also satisfy Discovery Program requirements.
2 Or CHEM 405 Chemical Principles for Engineers if applicable
3 ESCI 530 is required for the petroleum geology specialization

1 Some of these courses may also satisfy Discovery Program requirements.
2 Or CHEM 405 Chemical Principles for Engineers if applicable
3 ESCI 530 is required for the petroleum geology specialization
The following should be considered: additional 700-level Earth sciences courses; additional chemistry, mathematics, and physics courses; courses in computer science, engineering, and the biological sciences; and an off-campus field camp.

**Specializations**

**Climate**
- ESCI 514 Introduction to Climate 3
- ESCI 561 Landscape Evolution 4
- Select at least two of the following: 6-7
  - ESCI 758 Introductory Physical Oceanography
  - ESCI 762 Glacial Geology
  - ESCI 765 Paleoclimatology
  - ESCI 795 Topics (Paleoceanography)
- Select three advanced-level approved electives 9-12
- Total Credits 22-26

**Geology**
- ESCI 561 Landscape Evolution 4
- ESCI 614 Introduction to Petrology 4
- ESCI 631 Structural Geology 4
- ESCI 652 Paleontology 4
- Two approved 700-level electives 6-8
- Total Credits 22-24

**Geophysics**
- MATH 527 Differential Equations with Linear Algebra 4
- MATH 528 Multidimensional Calculus 4
- ESCI 561 Landscape Evolution 4
  - or ESCI 614 Introduction to Petrology
- ESCI 631 Structural Geology 4
- Select at least two of the following: 8
  - ESCI 731 Geodynamics
  - ESCI 734 Geophysics
  - ESCI 735 Earthquakes and Faulting
  - ESCI 756 Geotectonics
  - ESCI 759 Geological Oceanography
- One approved 700-level elective 3-4
- Total Credits 27-28

**Oceanography**
- BIOL 411 Introductory Biology: Molecular and Cellular 4
- ESCI 514 Introduction to Climate 3
- Select at least three of the following: 10-11
  - ESCI 750 Biological Oceanography
  - ESCI 752 Chemical Oceanography
  - ESCI 758 Introductory Physical Oceanography
  - ESCI 759 Geological Oceanography
- Complete three advanced-level approved electives 9-12
- Total Credits 26-30

**Petroleum Geology**
- ESCI 614 Introduction to Petrology 4
- ESCI 631 Structural Geology 4
- ESCI 652 Paleontology 4
- ESCI 734 Geophysics 4
- ESCI 741 Geochemistry 4
- ESCI 754 Sedimentology 4
- ESCI 756 Geotectonics 3
- ESCI 759 Geological Oceanography 4
- ESCI 796 Topics (Petroleum Geology) 4
- CHE 705 Fossil Fuels and Renewable Energy Sources 4
- Total Credits 39

**Capstone Experience**
A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Examples of Department of Earth Sciences capstone experiences include Senior Thesis (ESCI 799 Senior Thesis), UROP/SURF projects, environmental or geologic field camps, or Earth sciences education and outreach activities. Additional experiences may qualify (e.g., ESCI 795 Topics/ESCI 796 Topics field courses, INCO 590 Student Research Experience, INCO 790 Advanced Research Experience, internships) if they are designed according to the above criteria. Students should work closely with their advisers to define the most appropriate capstone experience for the Earth sciences degree option and all capstone experiences must be approved by the Department of Earth Sciences undergraduate coordinator. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.

**Earth Sciences Minor**
http://ceps.unh.edu/earth-sciences/earth-sciences-minor

**Description**

The Department of Earth Sciences offers a minor in Earth sciences available to all University students. The Earth sciences minor provides an opportunity for students to complement their major field of study with foundational knowledge and essential skills in the geosciences. As with all minors offered at UNH, the Earth sciences minor adheres to the following University requirements:

The minor consists of at least 20 semester hours of credit. For the Earth sciences minor, the 20 credits typically come from five ESCI courses and may include research credits supervised by an Earth sciences faculty...
member. A grade of C- or better must be earned in each course, and an overall 2.00 grade point average must be maintained for all courses applied toward the minor. Courses taken on a pass/fail basis may not be used for the minor. No more than two courses (8 credits) can be used to satisfy simultaneously requirements for a student’s major and minor, or two minors. No more than two courses (8 credits) may be transferred from another accredited institution and applied toward the minor, provided UNH has accepted them as transfer credits.

Requirements

Courses in the Earth sciences minor must include both introductory and more advanced ESCI courses. Strongly recommended introductory courses include ESCI 401 Dynamic Earth or ESCI 409 Geology and the Environment (students may not receive credit for both ESCI 401 Dynamic Earth and ESCI 409 Geology and the Environment) and ESCI 402 Earth History. More advanced courses must include at least one at the 600 or 700 level. Specific courses in the program are selected in consultation with a minor adviser in the Department of Earth Sciences, with flexibility in approved courses to accommodate interests in different aspects of the geosciences. Interested students should see the Earth sciences undergraduate program coordinator, Joe Licciardi, (603) 862-3135; joe.licciardi@unh.edu, and complete an Intent to Minor form no later than their junior year. Forms can be picked up in the Earth sciences main office, 214 James Hall.

Earth Sciences Teaching Major (B.A.)

http://ceps.unh.edu/earth-sciences/earth-sciences-teaching-ba

Description

The bachelor of arts in Earth sciences teaching program is offered by the Department of Earth Sciences in coordination with the Department of Education. The program is specifically designed to prepare students to teach Earth sciences in secondary school. With careful planning, upon graduation from this program, qualified students are prepared to complete a M.A.T./M.Ed. degree in education with an additional year of graduate study, which includes a year-long internship (EDUC 900A Internship and Seminar in Teaching/EDUC 901A Internship and Seminar in Teaching). After completing this typically five-year program, students receive full teacher certification for New Hampshire, which is recognized in many other states.

General Science Certification

Students majoring in animal sciences, biochemistry, biology, Earth sciences, environmental conservation studies, environmental sciences, forestry, microbiology, plant biology, wildlife management, or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the Department of Education.

Requirements

Requirements
Satisfy the Discovery Program Requirements
Satisfy the bachelor of arts degree requirements

Environmental Sciences Major: Hydrology Option (B.S.)

http://ceps.unh.edu/earth-sciences/environmental-sciences-hydrology-bs

Description

The College of Engineering and Physical Sciences (CEPS), together with the College of Life Science and Agriculture (COLSA), jointly offers a bachelor of science degree in environmental sciences. Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to effectively communicate with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 15 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include: environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment...
environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has three options: ecosystems, soils and watersheds, and hydrology. Environmental science B.S. degrees with options in ecosystems and soil and watersheds are managed by the Department of Natural Resources and the Environment in COLSA. The Department of Earth Sciences in CEPS offers the hydrology option of the B.S. environmental sciences degree. Specific course requirements for the major vary by option.

**Requirements**

In addition to the Discovery Program and University writing requirements, all students will take Introduction to Environmental Science NR 403 Introduction to Environmental Science and Professional Perspectives in Natural Resources (NR 400 Professional Perspectives in Natural Resources), plus one other elective introductory environmental science course. Foundation courses include introductions to biology, physics, chemistry, geology, calculus, and statistics.

**INTRODUCTORY**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>NR 400</td>
<td>Professional Perspectives in Natural Resources</td>
<td>1</td>
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<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td>Plus one other elective introductory environmental science course</td>
<td></td>
<td>4</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>9</strong></td>
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**FOUNDATION**

**Biology**

<table>
<thead>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
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<td>or BIOL 412</td>
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**Chemistry**

Select one of the following: 4-8

- CHEM 403 | General Chemistry I |
- CHEM 404 | General Chemistry II |
- CHEM 405 | Chemical Principles for Engineers |

**Physics**

<table>
<thead>
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<th>Credits</th>
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</thead>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>8</td>
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<tr>
<td>&amp; PHYS 408</td>
<td>and General Physics II</td>
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**Calculus**

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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<td>&amp; MATH 426</td>
<td>and Calculus II</td>
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**Statistics**

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<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists or BIOL 528</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
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</tr>
</tbody>
</table>

**Geology**

Select one of the following: 4

- ESCI 401 | Dynamic Earth |
- ESCI 402 | Earth History |
- ESCI 409 | Geology and the Environment |

**Total Credits** 32-36

Some students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement and capstone requirement if taken senior year.

Students must complete additional courses for the hydrology option to total 88 credits in the major:

For a list of approved elective courses and for further information about the major, students may consult with the program coordinator: Michael Palace, Michael.Palace@unh.edu, (603) 862-4193.

**Oceanography Minor**

http://ceps.unh.edu/earth-sciences/oceanography-minor

**Description**

The minor in oceanography is available to all students in the University interested in obtaining a broad background in oceanography. The minor consists of a minimum of five courses with grades of C (2.00) or better and no pass/fail courses. No more than 8 major requirement credits may be used. All courses in the program are selected in consultation with the oceanography minor adviser, Dr. Jamie Pringle, (603) 862-5000, jpringle@unh.edu. Students must complete an Intent to Minor form no later than their junior year. Forms can be picked up in the Earth Sciences departmental office, 214 James Hall.
Requirements

<table>
<thead>
<tr>
<th>Required Courses</th>
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<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
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<tr>
<td>Select two of the following:</td>
<td>6-8</td>
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<tr>
<td>ESCI 750</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>ESCI 752</td>
<td>Chemical Oceanography</td>
</tr>
<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography</td>
</tr>
<tr>
<td>ESCI 759</td>
<td>Geological Oceanography</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select two of the following:</th>
<th>6-8</th>
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</thead>
<tbody>
<tr>
<td>MEFB 401</td>
<td>Marine Estuarine and Freshwater Biology: Freshmen Seminar</td>
</tr>
<tr>
<td>MEFB 403</td>
<td>Investigative Marine Biology Laboratory</td>
</tr>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
</tr>
<tr>
<td>MEFB 530</td>
<td>Evolution and Marine Diversity</td>
</tr>
<tr>
<td>MEFB 535</td>
<td>Marine Mammal Biology</td>
</tr>
<tr>
<td>MEFB 625</td>
<td>Introduction to Marine Botany</td>
</tr>
<tr>
<td>MEFB 674</td>
<td>Ecology and Marine Environment</td>
</tr>
<tr>
<td>MEFB 702</td>
<td>Sustainable Marine Fisheries</td>
</tr>
<tr>
<td>MEFB 722</td>
<td>Marine Phyiology</td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology</td>
</tr>
<tr>
<td>MEFB 754</td>
<td>Anatomy and Function of Marine Vertebrates</td>
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<tr>
<td>CEE 722</td>
<td>Introduction to Marine Pollution and Control</td>
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<tr>
<td>CEE 757</td>
<td>Coastal Engineering and Processes</td>
</tr>
<tr>
<td>ESCI 502</td>
<td>Beaches and Coasts</td>
</tr>
<tr>
<td>ESCI 514</td>
<td>Introduction to Climate</td>
</tr>
<tr>
<td>ESCI 701</td>
<td>Quantitative Methods in Earth Sciences</td>
</tr>
<tr>
<td>ESCI 747</td>
<td>Aqueous Geochemistry</td>
</tr>
<tr>
<td>ESCI 754</td>
<td>Sedimentology</td>
</tr>
<tr>
<td>ESCI 756</td>
<td>Geotectonics</td>
</tr>
<tr>
<td>ESCI 765</td>
<td>Paleoclimatology</td>
</tr>
<tr>
<td>ESCI/OE 771</td>
<td>Geodesy and Positioning for Ocean Mapping</td>
</tr>
<tr>
<td>OE 610</td>
<td>Ocean Instrumentation Lab</td>
</tr>
<tr>
<td>OE 759</td>
<td>Estuarine and Coastal Modeling</td>
</tr>
<tr>
<td>OE 690</td>
<td>Introduction to Ocean Engineering</td>
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<tr>
<td>OE 710</td>
<td>Ocean Measurements Lab</td>
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<tr>
<td>OE 753</td>
<td>Ocean Hydrodynamics</td>
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<tr>
<td>OE 754</td>
<td>Ocean Waves and Tides</td>
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<tr>
<td>OE 757</td>
<td>Coastal Engineering and Processes</td>
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<td>EREC #711</td>
<td>Marine Resource Economics</td>
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<td>TECH 797</td>
<td>Undergraduate Ocean Research Project</td>
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<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
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<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<td>ZOOL 710</td>
<td>Ichthyology</td>
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<td>ZOOL 721</td>
<td>Aquatic Invasive Species</td>
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<tr>
<td>ZOOL 772</td>
<td>Fisheries Biology</td>
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<tr>
<td>ZOOL 773</td>
<td>Physiology of Fish</td>
</tr>
<tr>
<td>ZOOL/ESCI 750</td>
<td>Biological Oceanography</td>
</tr>
</tbody>
</table>

Total Credits | 16-20

\(^1\) Or a suitable substitute approved by the minor advisor (at least one of these courses should be in the biological sciences).

Electrical and Computer Engineering (ECE)

The Department of Electrical and Computer Engineering offers a B.S. in electrical engineering and a B.S. in computer engineering. Both degree programs are accredited by the:

Engineering Accreditation Commission of ABET
415 N. Charles Street
Baltimore, MD 21201
Telephone (410) 347-7700

Electrical engineers design, develop, and produce the electrical and electronic systems upon which modern society has come to depend: basic infrastructure, such as the electric power grid and fiber optic communication lines; public conveniences, such as mag lev transporters and LED signs; consumer products, such as iPods and MP3 players; personal communication devices, such as smart phones; military systems, such as rail guns and laser weapons; instruments that can image the ocean floor or analyze the Earth's atmosphere from satellites; and medical diagnostic machines like CAT and MRI scanners. Almost every facet of modern life is touched by the work of electrical engineers.

At UNH, the cornerstone of the electrical engineering program is the involvement of students in the solution of real-world problems. Students electing this major gain knowledge of advanced electronic circuit and system design through the use of computer-aided design tools, hardware circuit prototyping, and hands-on laboratory testing.

Computers have become embedded in virtually every engineering system, including everyday items ranging from watches to automobiles. Computer engineering, traditionally a subset of electrical engineering, is a rapidly growing field that emphasizes the design, interfacing, hardware/software tradeoffs, and real-time applications of embedded computers. Students who elect this major will gain a knowledge of both hardware and software concepts, and will learn to design, build, and test systems containing digital computers.

ECE Department Mission

The mission of the department is to foster and advance knowledge in electrical and computer engineering.

**The mission involves:**

- teaching courses in electrical and computer engineering and related fields at the bachelor’s, master’s, and doctoral levels;
- advancing knowledge through research and scholarship;
- serving the state and nation by making the department’s intellectual resources available to industry and government agencies. The undergraduate EE and CE programs shall provide a firm foundation in electrical and computer engineering theory and practice, with a mix of laboratory and design experiences. The programs also shall foster teamwork and project management skills.

The graduate ECE program shall lead to the degrees of master of science in electrical and computer engineering and the doctor of philosophy in electrical and computer engineering. Research and scholarship are core components of the department’s mission and they directly impact undergraduate and graduate education. Success in obtaining funds to
procure equipment and support research efforts is therefore an essential objective for the department.

The department recognizes the need to conduct periodic reviews and adjustments to meet the current and projected needs of the state and nation according to its mission objectives. The current mission was approved by the ECE faculty in March 2001 and again on October 27, 2009, approved by the ECE Student Advisory Board in October 2001, and ratified by the ECE Industrial Advisory Board in April 2002. The mission was reaffirmed by the ECE Industrial Advisory Board in November 22, 2004 and on October 26, 2009.

Electrical Engineering and Computer Engineering Program Educational Objectives

The Department of Electrical and Computer Engineering has adopted a set of program educational objectives that consists of statements describing the expected accomplishments of graduates during the first several years following graduation from either program:

Electrical Engineering Program Educational Objectives

Depth: To be effective in applying electrical engineering principles in engineering practice or for advanced study in electrical engineering.

Breadth: To have a productive career in the many diverse fields of electrical engineering such as analog engineering, bioengineering, communications, and electromagnetics and waves, or in the pursuit of graduate education in disciplines such as electrical engineering, medicine, law, or business.

Professionalism: To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

Computer Engineering Program Educational Objectives

Depth: To be effective in applying computer engineering principles in engineering practice or for advanced study in computer engineering.

Breadth: To have a productive career in the many diverse fields of computer engineering such as digital engineering, bioengineering, communications, and embedded systems, or in the pursuit of graduate education in disciplines such as computer engineering, medicine, law, or business.

Professionalism: To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

The electrical and computer engineering educational program objectives were approved by the ECE faculty and the ECE Student Advisory Board in September 2012 and then ratified by the ECE Industrial Advisory Board in October 2012.

Electrical Engineering and Computer Engineering Program Educational Outcomes

The Department of Electrical and Computer Engineering has adopted a set of program educational outcomes that consists of statements describing what students are expected to know and be able to do by the time of graduation, the achievement of which indicates that the student is equipped to achieve the program objectives. The current electrical and computer engineering program educational outcomes and computer engineering program educational outcomes are:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs;
- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an ability to communicate effectively;
- an understanding of professional and ethical responsibility;
- the broad education necessary to understand the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and ability to engage in, lifelong learning;
- a knowledge of contemporary issues;
- an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

Electrical and computer program educational outcomes were approved by the ECE faculty in March 2001 and again on October 27, 2009, approved by the ECE Student Advisory Board in October 2001, and ratified by the ECE Industrial Advisory Board in March 2002. The program educational outcomes were reaffirmed by the ECE Industrial Advisory Board on November 22, 2004 and on October 26, 2009.

Students contemplating a decision between the electrical engineering and computer engineering degree programs should consider both the similarities and differences of the two programs. The two curricula require the same foundational courses in mathematics, physics, analog and digital electronic circuits, and a capstone senior design project. The computer engineering degree program requires additional fluency in software development and advanced computer system and hardware design. The electrical engineering degree program requires advanced study in analog and mixed-signal electronic circuit and system analysis and design. Discovery Program requirements are identical for both degree programs.

http://ceps.unh.edu/ece

• Computer Engineering Major (B.S.) (p. 148)
• Electrical Engineering Major (B.S.) (p. 150)

Faculty

Electrical and Computer Engineering Faculty (https://ceps.unh.edu/faculty/ece)

Computer Engineering Major (B.S.)

http://ceps.unh.edu/ece/computer-engineering-bs
Description

In addition to the university’s mandatory Discovery Program requirements, degree candidates must complete our core program (freshman through junior years). In the senior year, students select professional technical electives in the areas of their interest. They also carry out a student-designed project to acquire both breadth and depth of study and to integrate knowledge across course boundaries.

For a detailed semester by semester list of requirements for the four years of study, please refer to the Degree Plan tab.

Requirements

In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements:

1. Any computer engineering major whose cumulative grade-point average in ECE and computer science courses is less than 2.0 during any three semesters will not be allowed to continue as a computer engineering major.
2. Computer engineering majors must achieve a 2.0 grade-point average in ECE and CS courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department’s undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

Degree Plan

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>First Year</td>
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<tr>
<td>Fall</td>
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<tr>
<td>ECE 401</td>
<td>Perspectives in Electrical and Computer Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td>4</td>
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<td>ECON 402 or EREC 411</td>
<td>Principles of Economics (Micro) or Environmental and Resource Economics Perspectives</td>
<td>4</td>
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<td>Spring</td>
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<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<td>CS 416</td>
<td>Introduction to Computer Science II</td>
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</tr>
<tr>
<td>Fall</td>
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<tr>
<td>ECE 562</td>
<td>Computer Organization</td>
<td>4</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures</td>
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<td>ECE 541</td>
<td>Electric Circuits</td>
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<td>ECE 602</td>
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<td>Signals and Systems I</td>
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<td>Embedded Microcomputer Based Design</td>
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<td>ECE 548</td>
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<td>ECE 603</td>
<td>Electromagnetic Fields and Waves I</td>
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<tr>
<td>ECE 634</td>
<td>Signals and Systems II</td>
<td>3</td>
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<tr>
<td>ECE 647</td>
<td>Random Processes and Signals in Engineering</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
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</tr>
<tr>
<td>Fourth Year</td>
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<td>Fall</td>
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<tr>
<td>Two Professional Electives ¹</td>
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<tr>
<td>ECE 792</td>
<td>Senior Project II ²</td>
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<td>Credits</td>
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</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>133</td>
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</table>

¹ Four professional electives must be selected from the following categories of courses:
• At least two from: ECE 7XX not including ECE 795 Electrical and Computer Engineering Projects and ECE 796 Special Topics
• Any of these: ECE 651 Electronic Design II, ECE 795 Electrical and Computer Engineering Projects, ECE 796 Special Topics, CS 619 Introduction to Object-Oriented Design and Development, CS 620 Operating System Fundamentals, CS 659 Introduction to the Theory of Computation, CS 671 Programming Language Concepts and Features, CS 7XX.
• No more than one from: , DS 773 Database Management and Systems Analysis, DS 774 E-Business
• Honors students who complete ECE 791H Senior Honors Project I and ECE 792H Senior Honors Project II satisfy one professional elective requirement as well as the requirements for ECE 791 Senior Project I and ECE 792 Senior Project II.

² ECE 791 Senior Project I and ECE 792 Senior Project II fulfill Discovery Program Capstone Experience.

Students are required to take either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics.
Perspectives to fulfill the Social Science Category of the Discovery Program.

Fulfilling the CE Program curriculum automatically meets Discovery Category, "Environment, Technology and Society."

**Electrical Engineering Major (B.S.)**

http://ceps.unh.edu/ece/electrical-engineering-bs

**Description**

In addition to the university’s mandatory Discovery Program requirements, degree candidates must complete our core program (freshman through junior years). In the senior year, students select professional technical electives in the areas of their interest. They also carry out a student-designed project to acquire both breadth and depth of study and to integrate knowledge across course boundaries.

For a detailed semester by semester list of requirements for the four years of study, please refer to the Degree Plan tab.

**Requirements**

In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements.

1. Any electrical engineering major whose cumulative grade-point average in ECE courses is less than 2.0 during any three semesters will not be allowed to continue as an electrical engineering major.

2. Electrical engineering majors must achieve a 2.0 grade-point average in ECE courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department's undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

**Degree Plan**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>ECE 401</td>
<td>Perspectives in Electrical and Computer Engineering</td>
<td>4</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td>4</td>
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<tr>
<td>ECON 402 or EREC 411</td>
<td>Principles of Economics (Micro) or Environmental and Resource Economics Perspectives</td>
<td>4</td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>Discovery Program Category</td>
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<td>4</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>ECE 541</td>
<td>Electric Circuits</td>
<td>4</td>
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<tr>
<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
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<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>ECE 548</td>
<td>Electronic Design I</td>
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<td>ECE 562</td>
<td>Computer Organization</td>
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<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td><strong>Third Year</strong></td>
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<td><strong>Fall</strong></td>
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<tr>
<td>ECE 602</td>
<td>Engineering Analysis</td>
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<tr>
<td>ECE 617</td>
<td>Junior Laboratory I</td>
<td>4</td>
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<tr>
<td>ECE 633</td>
<td>Signals and Systems I</td>
<td>3</td>
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<tr>
<td>ECE 651</td>
<td>Electronic Design II</td>
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<td>Math/Science Elective</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>ECE 603</td>
<td>Electromagnetic Fields and Waves I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 618</td>
<td>Junior Laboratory II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 634</td>
<td>Signals and Systems II</td>
<td>3</td>
</tr>
<tr>
<td>ECE 647</td>
<td>Random Processes and Signals in Engineering</td>
<td>3</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
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<tr>
<td>Two Professional Electives</td>
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<tr>
<td>Two Discovery Program Category courses</td>
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<tr>
<td>ECE 791</td>
<td>Senior Project I</td>
<td>2</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>Two Professional Electives</td>
<td></td>
<td>8</td>
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<tr>
<td>Discovery Program Category</td>
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<td>4</td>
</tr>
<tr>
<td>ECE 792</td>
<td>Senior Project II</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total Credits | 128 |

1 Students who wish to preserve the option of transferring to the computer engineering major without incurring a delay in graduation should consult with their academic adviser before electing these courses. It is recommended that such students take CS 415 Introduction to Computer Science I in the fall semester and CS 416 Introduction to Computer Science II in the spring semester in place of the listed courses.
Environmental Sciences

The College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of geographic information systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 12 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include environmental consulting firms; educational facilities (e.g., science centers); environmental monitoring laboratories (e.g., water treatment plants, the Environmental Protection Agency); government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories; and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their advisor early if their goals include further study.

The program has three options: ecosystems, soils and watersheds, and hydrology. Choices for meeting foundation requirements for the major vary by option.

http://ceps.unh.edu/earth-sciences/environmental-sciences-hydrology-bs

**Programs**

- Environmental Sciences Major: Ecosystems Option (B.S.) (p. 226)
- Environmental Sciences Major: Hydrology Option (B.S.) (p. 145)
- Environmental Sciences Major: Soil and Watersheds Option (B.S.) (p. 227)

**Faculty**

COLSA faculty: http://colsa.unh.edu/faculty/385
CEPS faculty: http://ceps.unh.edu/faculty/earth-sciences

Materials Science (MS)

http://ceps.unh.edu/materials-science/undergraduate-programs

**Description**

Materials science is an interdisciplinary field that involves the research, development, and design of new materials. In the past century, materials scientists have enabled major technological advances in areas such as electronic materials for semiconductors, new metal alloys for aircraft and automotive applications, and new polymers for a host of medical and consumer applications. In order to prepare students for continuing growth and innovation in materials science, the materials science program offers this minor, which is open to all students at UNH.

The minor offers a broad introduction to materials science, which reflects the interdisciplinary nature of the field. Students must complete at least 18 credits and a minimum of five courses, as described below, with C- or better and a minimum 2.0 grade-point average. No more than 8 credits used to satisfy the student’s major requirements may be used toward the minor. Students interested in the minor should contact the director of the materials science program (Prof. James Krzanowski, james.krzanowski@unh.edu) as early as possible and preferably before the end of their sophomore year.

**Requirements**

To complete the minor in materials science, students must take the following courses.

**Required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
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</table>
Group A: Thermodynamics, Kinetics and Structure of Materials

Select one of the following: 4-5

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 683</td>
<td>Physical Chemistry I</td>
</tr>
<tr>
<td>&amp; CHEM 685</td>
<td>Physical Chemistry Laboratory</td>
</tr>
<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
</tr>
<tr>
<td>ME #760</td>
<td>Physical Metallurgy I</td>
</tr>
<tr>
<td>or ME 795</td>
<td>Special Topics</td>
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<tr>
<td>ME 762</td>
<td>Electronic Materials Science</td>
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<tr>
<td>ME 761</td>
<td>Diffraction and Imaging Methods in Materials Science</td>
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Group B: Materials Applications and Properties

Select one of the following: 4-5

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 547</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>&amp; CHEM 549</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>PHYS 718</td>
<td>Condensed Matter Physics</td>
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<tr>
<td>ME 731</td>
<td>Fracture and Fatigue Engineering Material</td>
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<tr>
<td>ME 744</td>
<td>Corrosion</td>
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<tr>
<td>ME 786</td>
<td>Introduction to Finite Element Analysis</td>
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<tr>
<td>ME 735</td>
<td>Mechanics of Composite Materials</td>
</tr>
<tr>
<td>ME 795</td>
<td>Special Topics</td>
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</table>

Select two to three additional courses from either Group A or Group B 4-6

Total Credits 16-20

1. It is strongly recommended that students take this course during their sophomore year.
2. Students cannot receive credit towards the minor for both PHYS 508 Thermodynamics and Statistical Mechanics and CHEM 683 Physical Chemistry I/CHM 685 Physical Chemistry Laboratory.
3. Students cannot receive credit towards the minor for PHYS 508 Thermodynamics and Statistical Mechanics if they have taken ME 503 Thermodynamics.
4. As needed to reach the required 18 credits

Mathematics and Statistics (MATH)

The Department of Mathematics and Statistics offers a variety of programs leading to five different degrees:

- B.A. degree: mathematics major;
- B.S. in mathematics degree;
- B.S. in applied mathematics degree;
- B.S. in mathematics education degree; and
- B.S. in statistics degree.

These programs provide flexibility through elective choices and are designed to maximize educational and employment opportunities. Each student must enroll in one specific program; however, changes between programs usually can be accommodated.

The first two years of all programs are similar. In the first year, students are expected to take MATH 425 Calculus I and MATH 426 Calculus II, as well as an introductory programming course (either MATH 445 Mathematics and Applications with MATLAB or CS 410 Introduction to Scientific Programming). A sophomore typically takes follow-up calculus courses in MATH 527 Differential Equations with Linear Algebra and MATH 528 Multidimensional Calculus, MATH 539 Introduction to Statistical Analysis, and MATH 531 Mathematical Proof. The senior capstone experience is fulfilled by a variety of designated courses in each of the degree programs; specific details are given in each program’s course listing below.

For more information about the department’s undergraduate programs, visit http://ceps.unh.edu/mathematics-statistics

Standards for Graduation

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Minoring in Mathematics

The Department of Mathematics and Statistics offers three minor programs: mathematics, applied mathematics, and statistics. These programs, which are open to all students enrolled at the University, require a minimum of five MATH courses as detailed below. Students whose major program requires more than two courses required by the minor program must substitute additional courses from the list of elective courses to meet the five-course minimum.

http://ceps.unh.edu/mathematics-statistics

Programs

- Applied Mathematics Major: Computation Option (B.S.) (p. 152)
- Applied Mathematics Major: Dynamics and Control Option (B.S.) (p. 153)
- Applied Mathematics Major: Economics Option (B.S.) (p. 154)
- Applied Mathematics Major: Fluid Dynamics Option (B.S.) (p. 154)
- Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.) (p. 155)
- Mathematics Education Major: Elementary/Middle School Education K-8 Option (B.S.) (p. 155)
- Mathematics Major (B.A.) (p. 156)
- Mathematics Major (B.S.) (p. 157)
- Statistics Major (B.S.) (p. 157)
- Applied Mathematics Minor (p. 158)
- Mathematics Minor (p. 158)
- Statistics Minor (p. 159)

Faculty


Applied Mathematics Major: Computation Option (B.S.)

http://ceps.unh.edu/mathematics-statistics/applied-mathematics-bs
**Description**

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

**Requirements**

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
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<td>MATH 797</td>
<td>Senior Seminar</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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<td>MATH 798</td>
<td>Senior Project</td>
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<td>MATH 799</td>
<td>Senior Thesis</td>
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Select one of the following:

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<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 798</td>
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</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 52

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. This course satisfies the ETS requirement for Discovery Program.
3. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4. This course satisfies the capstone experience requirement for the Discovery Program.
5. Satisfies the PS and DLAB requirement for the Discovery Program.

### Computation Option Requirements

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>PHYS 408</td>
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</tr>
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<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
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<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
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<td>CS 416</td>
<td>Introduction to Computer Science II</td>
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<td>CS 515</td>
<td>Data Structures</td>
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<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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<tr>
<td>CS 758</td>
<td>Algorithms</td>
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<tr>
<td>IAM 751</td>
<td>Introduction to High-Performance Computing</td>
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</table>

Total Credits: 36

### Dynamics and Control Option Requirements

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<td>General Physics II</td>
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<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
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<tr>
<td>MATH 747</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
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<tr>
<td>ME 525</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>ME 627</td>
<td>Dynamics</td>
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<td>ECE 633</td>
<td>Signals and Systems I</td>
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</tr>
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<td>ECE 634</td>
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</tr>
<tr>
<td>ECE 772</td>
<td>Control Systems</td>
<td>4</td>
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</tbody>
</table>

Total Credits: 52

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. This course satisfies the ETS requirement for Discovery Program.
3. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4. This course satisfies the capstone experience requirement for the Discovery Program.
5. Satisfies the PS and DLAB requirement for the Discovery Program.

**Applied Mathematics Major: Dynamics and Control Option (B.S.)**

http://ceps.unh.edu/mathematics-statistics/applied-mathematics-bs

**Description**

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

**Requirements**

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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</tr>
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<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 798</td>
<td>Senior Project</td>
<td>4</td>
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<td>MATH 799</td>
<td>Senior Thesis</td>
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Select one of the following:

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</thead>
<tbody>
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<td>MATH 798</td>
<td>Senior Project</td>
<td>4</td>
</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 52

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. This course satisfies the ETS requirement for Discovery Program.
3. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4. This course satisfies the capstone experience requirement for the Discovery Program.
5. Satisfies the PS and DLAB requirement for the Discovery Program.
ONE approved elective at the 600-700 level, selected in consultation with your academic adviser.

Total Credits 32

Applied Mathematics Major: Economics Option (B.S.)

http://ceps.unh.edu/mathematics-statistics/applied-mathematics-bs

Description

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
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<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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<td>Mathematical Proof</td>
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<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
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<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
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<td>MATH 753</td>
<td>Introduction to Numerical Methods</td>
<td>4</td>
</tr>
<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
<td>3</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td>Select one of the following:</td>
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<td></td>
</tr>
<tr>
<td>MATH 798</td>
<td>Senior Project</td>
<td>4</td>
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<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
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<tr>
<td>Total Credits</td>
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</tr>
</tbody>
</table>

1 This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2 This course satisfies the ETS requirement for Discovery Program.
3 These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4 This course satisfies the capstone experience requirement for the Discovery Program.
5 Satisfies the PS and DLAB requirement for the Discovery Program.

Economics Option Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
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<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td>4</td>
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<tr>
<td>Select ONE approved MATH elective at the 700-level, chosen in consultation with the major advisor.</td>
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<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
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<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
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</tbody>
</table>

Select ONE approved ECON or DS elective at the 700-level, chosen in consultation with your advisor.

Total Credits 36

1 This course satisfies the Social Science requirement for the Discovery Program.

Applied Mathematics Major: Fluid Dynamics Option (B.S.)

http://ceps.unh.edu/mathematics-statistics/applied-mathematics-bs

Description

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Requirements

Major Requirements

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<th>Code</th>
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<td>Mathematics and Applications with MATLAB</td>
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<tr>
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<td>MATH 799</td>
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<tr>
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</table>

1 This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2 This course satisfies the ETS requirement for Discovery Program.
3 These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4 This course satisfies the capstone experience requirement for the Discovery Program.
5 Satisfies the PS and DLAB requirement for the Discovery Program.

Fluid Dynamics Option Requirements

PHYS 408 General Physics II 4
Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.)

http://ceps.unh.edu/mathematics-statistics/applied-mathematics-bs

Description

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Requirements

Major Requirements

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<tr>
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<tr>
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<td>MATH 797</td>
<td>Senior Seminar</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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</table>

Select one of the following:

- MATH 798 Senior Project
- MATH 799 Senior Thesis

Total Credits 52

Solid Mechanics and Vibrations Option Requirements

<table>
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<tr>
<td>PHYS 408</td>
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<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
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<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
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<tr>
<td>ME 525</td>
<td>Statics</td>
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<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
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<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
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<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
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</tbody>
</table>

Select TWO of the following:

- ME 724 Vibration Theory and Applications
- ME 727 Advanced Mechanics of Solids
- ME 730 Mechanical Behavior of Materials
- ME 731 Fracture and Fatigue Engineering Material

Total Credits 33

Mathematics Education Major: Elementary/Middle School Education K-8 Option (B.S.)

http://ceps.unh.edu/mathematics-statistics/mathematics-education-bs

Description

This professional degree program prepares students for teaching mathematics at the elementary, middle/junior high, or secondary level. The program is coordinated with the education department’s teacher certification programs. For the elementary option, full certification requires the five-year program. Students may complete the degree requirements for middle/junior high or secondary option with full teacher certification in either four or five years. Students electing the four-year option must plan for one semester of student teaching (EDUC 694 Courses in Supervised Teaching) in their senior year and must consult with the departmental adviser in order to accommodate the scheduling of required MATH courses.

The five-year program requires a year-long teaching internship in the fifth year that can be coupled with other graduate work leading to a master’s degree. See Education, College of Liberal Arts.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

For teacher licensure a grade of B- or better is required in all Education courses.

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. This course satisfies the ETS requirement for Discovery Program.
3. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
4. This course satisfies the capstone experience requirement for the Discovery Program.
5. Satisfies the PS and DLAB requirement for the Discovery Program.
Requirements

Elementary/Middle School (K-8) Option

Required MATH Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410</td>
<td>Introduction to Scientific Programming</td>
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<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
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<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>MATH 621</td>
<td>Number Systems for Teachers</td>
<td>4</td>
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<tr>
<td>MATH 622</td>
<td>Geometry for Teachers</td>
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<tr>
<td>MATH 623</td>
<td>Probability and Statistics for Teachers</td>
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<td>MATH 625</td>
<td>Functions and Algebra for Teachers</td>
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<tr>
<td>MATH 700</td>
<td>Introduction to Mathematics Education</td>
<td>4</td>
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<tr>
<td>MATH 708</td>
<td>Teaching Mathematics in Grades K-8</td>
<td>4</td>
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<tr>
<td>MATH 760</td>
<td>Geometry</td>
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<tr>
<td>MATH 790</td>
<td>Historical Foundations of Mathematics</td>
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<td>MATH 798</td>
<td>Senior Project</td>
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<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
<td>2</td>
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</table>

Other Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 406</td>
<td>Introduction to Modern Astronomy (satisfies the PS and Lab requirement for the Discovery Program)</td>
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<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
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<tr>
<td>EDUC 700</td>
<td>Educational Structure and Change</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 701</td>
<td>Human Development and Learning: Educational Psychology</td>
<td>4</td>
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<tr>
<td>EDUC 705</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
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</tbody>
</table>

Total Credits 80

1 This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2 This course satisfies the capstone experience requirement for the Discovery Program.

Note: EDUC 703F Teaching Elementary School Science, EDUC 703M Teaching Elementary Social Studies, EDUC 706 Introduction to Reading in the Elementary School, and EDUC 751A Educating Exceptional Learners: Elementary are requirements for certification and may be taken as an undergraduate.

EDUC 751A Educating Exceptional Learners: Secondary are required for middle school certification (grades 5 - 8 only) and may be taken as an undergraduate.

Secondary School Option

Required MATH Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>MATH 528</td>
<td>Mathematical Proof</td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>MATH 624</td>
<td>Analysis of Secondary School Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 700</td>
<td>Introduction to Mathematics Education</td>
<td>4</td>
</tr>
<tr>
<td>MATH 709</td>
<td>Teaching of Mathematics, 7-12</td>
<td>4</td>
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<tr>
<td>MATH 761</td>
<td>Abstract Algebra</td>
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<td>MATH 790</td>
<td>Historical Foundations of Mathematics</td>
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Select one of the following: 4

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<tr>
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<td>Senior Seminar</td>
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<td>Senior Project</td>
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Other Required Courses

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
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<tr>
<td>EDUC 700</td>
<td>Educational Structure and Change</td>
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<tr>
<td>EDUC 701</td>
<td>Human Development and Learning: Educational Psychology</td>
<td>4</td>
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<tr>
<td>EDUC 705</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 72

1 This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2 This course satisfies the capstone experience requirement for the Discovery Program.

Note: EDUC 751B Educating Exceptional Learners: Secondary is a requirement for certification and may be taken as an undergraduate.

Mathematics Major (B.A.)

http://ceps.unh.edu/mathematics-statistics/mathematics-ba

Description

The bachelor of arts degree with the mathematics major may offer a broader liberal arts program than the bachelor of science degree programs. By a careful selection of electives, students can shape this major into a preparation for graduate school, business, or industry.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements

Required MATH Courses

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<tbody>
<tr>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
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</table>
Mathematics Major (B.S.)

http://ceps.unh.edu/mathematics-statistics/mathematics-bs

Description

This program offers the strongest concentration in mathematics, requiring courses that are intended to prepare the student for graduate work in mathematics. Through a judicious choice of electives, students may design stronger pre-graduate programs, a program in applied mathematics, or slant the program toward a career in business or industry.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements

Required MATH Courses

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<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications 2</td>
<td>2</td>
</tr>
</tbody>
</table>

Select THREE approved MATH courses chosen in consultation with the major advisor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 761</td>
<td>Abstract Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 767</td>
<td>One-Dimensional Real Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 797</td>
<td>Senior Seminar 3</td>
<td>4</td>
</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis 3</td>
<td>2 or 4</td>
</tr>
</tbody>
</table>

Select THREE approved MATH courses chosen in consultation with the major advisor, two of which are chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 765</td>
<td>Introduction to Commutative Algebra and Algebraic Geometry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 768</td>
<td>Real Analysis II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 769</td>
<td>Introduction to Differential Geometry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 770</td>
<td>Foundations of Number Theory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 772</td>
<td>Combinatorics</td>
<td>4</td>
</tr>
</tbody>
</table>

Other Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 407</td>
<td>General Physics I 4</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 80

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
3. This course satisfies the capstone experience requirement for the Discovery Program.
4. This course satisfies the Physical Science and Lab component requirements for the Discovery Program.

Statistics Major (B.S.)

http://ceps.unh.edu/mathematics-statistics/statistics-bs

Description

This program prepares students for employment and/or graduate study in a variety of fields and research specializations in which statistical analysis and its applications play a critical role. In addition to its degree programs, the department has an active interest in the actuarial profession. Those interested in actuarial science should seek the advice of departmental coordinator of the actuarial program, Professor Linyuan Li.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements

Required MATH Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications 2</td>
<td>2</td>
</tr>
</tbody>
</table>

Select THREE approved MATH courses chosen in consultation with the major advisor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 761</td>
<td>Abstract Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 762</td>
<td>Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 763</td>
<td>Abstract Algebra II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 767</td>
<td>One-Dimensional Real Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 784</td>
<td>Topology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 788</td>
<td>Complex Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 797</td>
<td>Senior Seminar 3</td>
<td>4</td>
</tr>
<tr>
<td>MATH 799</td>
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Other Required Courses

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<th>Title</th>
<th>Credits</th>
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<tbody>
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<td>PHYS 407</td>
<td>General Physics I 4</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 80

1. This course satisfies the Quantitative Reasoning requirement for the Discovery Program.
2. These requirements can be satisfied by MATH 525 Linearity I-MATH 526 Linearity II.
3. This course satisfies the capstone experience requirement for the Discovery Program.
4. This course satisfies the Physical Science and Lab component requirements for the Discovery Program.
Requirements

MATH 425 Calculus I 4
MATH 426 Calculus II 4
MATH 445 Mathematics and Applications with MATLAB or CS 410 Introduction to Scientific Programming 4
MATH 527 Differential Equations with Linear Algebra 2 4
MATH 528 Multidimensional Calculus 2 4
MATH 531 Mathematical Proof 4
MATH 539 Introduction to Statistical Analysis 4
MATH 645 Linear Algebra for Applications 1 4
MATH 739 Advanced Statistical Methods for Research
MATH 740 Design of Experiments I
MATH 741 Survival Analysis
MATH 743 Time Series Analysis
MATH 744 Design of Experiments II
Select TWO approved MATH electives at least one of which is at the 700-level, chosen in consultation with the major adviser 8

Total Credits 68

1 This requirement satisfies the Quantitative Reasoning requirement for the Discovery Program
2 These requirements can be satisfied by MATH 525 Linearity I - MATH 526 Linearity II.
3 This course satisfies the capstone experience requirement for the Discovery Program.

Applied Mathematics Minor

http://ceps.unh.edu/mathematics-statistics/minors-mathematical-sciences

Description

This minor program introduces students to a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student’s major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor. Additional courses from the list of course electives may be utilized to meet the five-course minimum.

Requirements

Required
MATH 528 Multidimensional Calculus 1 4
MATH 645 Linear Algebra for Applications 1 4
MATH 745 Foundations of Applied Mathematics I 4
MATH 753 Introduction to Numerical Methods I 4

Electives
Select one of the following: 4
MATH 647 Complex Analysis for Applications
MATH 746 Foundations of Applied Mathematics II
MATH 747 Introduction to Nonlinear Dynamics and Chaos
MATH 755 Probability with Applications

Total Credits 20

1 This requirement can be satisfied by MATH 525 Linearity I - MATH 526 Linearity II.

Mathematics Minor

http://ceps.unh.edu/mathematics-statistics/minors-mathematical-sciences

Description

The minor in mathematics is open to all students enrolled at the University of New Hampshire.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student’s major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor. Additional courses from the list of course electives may be utilized to meet the five-course minimum.

Requirements

Required
MATH 528 Multidimensional Calculus 1 4
MATH 531 Mathematical Proof 4
MATH 761 Abstract Algebra 4
One-Dimensional Real Analysis

Electives
Select two of the following: 8
- MATH 658 Topics in Geometry
- MATH 761 Abstract Algebra
- MATH 762 Linear Algebra
- MATH 765 Introduction to Commutative Algebra and Algebraic Geometry
- MATH 767 One-Dimensional Real Analysis
- MATH 768 Real Analysis II
- MATH 769 Introduction to Differential Geometry
- MATH 770 Foundations of Number Theory
- MATH 772 Combinatorics
- MATH 776 Logic
- MATH 783 Set Theory
- MATH 784 Topology
- MATH 788 Complex Analysis

Total Credits 20

1 This requirement can be satisfied by MATH 526 Linearity II

Statistics Minor

http://ceps.unh.edu/mathematics-statistics/minors-mathematical-sciences

Description

The minor in statistics is designed for students in other majors who want to learn the fundamentals of statistical analysis and its applications.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student’s major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor. Additional courses from the list of course electives may be utilized to meet the five-course minimum.

Requirements

Required
- MATH 539 Introduction to Statistical Analysis 4
  or MATH 644 Statistics for Engineers and Scientists
- MATH 645 Linear Algebra for Applications 4

Electives
Select three courses from the following: 12
- MATH 736 Advanced Statistical Methods for Research
- MATH 737 Statistical Methods for Quality Improvement and Design
- MATH 739 Applied Regression Analysis
- MATH 740 Design of Experiments I
- MATH 741 Survival Analysis
- MATH 743 Time Series Analysis
- MATH 744 Design of Experiments II
- MATH 755 Probability with Applications
- MATH 756 Principles of Statistical Inference

Total Credits 20

Mechanical Engineering (ME)

The Mechanical Engineering Program at UNH is accredited by the:
Engineering Accreditation Commission of ABET, http://www.abet.org

Mission

In support of the University and college missions, the Department of Mechanical Engineering is dedicated to educating the highest quality engineering professionals and leaders. Graduates will be prepared to creatively solve engineering problems through the use of analysis, computation, and experimentation. Students completing the program should be well-informed citizens who have the ability to grow intellectually and are able to solve new, challenging problems with self-confidence. It is the department’s intent to maintain a general and flexible curriculum that prepares students for both industrial practice and graduate education.

Educational Objectives

The objective of the UNH Mechanical Engineering Program is to produce graduates who are ethical professionals and good citizens. As they progress in the first several years following graduation, they are expected to:

1. Use their engineering education and communication skills for success in:
   a. Technical careers in industry, academia, government, or other organizations;
   b. Graduate school in engineering or physical sciences;
   c. Nontechnical careers or education in areas such as law, medicine, business, public policy, secondary education, service industries, etc.;
   d. Careers involving management or entrepreneurship.

2. Exercise lifelong learning to:
   a. Pursue professional development opportunities in their disciplines;
   b. Develop new knowledge and skills;
   c. Pursue new areas of expertise or careers.

3. Use their engineering background to:
   a. Solve technical problems for societal benefit;
   b. Develop new knowledge and products that will promote sustainable economic and environmental developments to improve the quality of life;
   c. Promote the practice of engineering.

Mechanical engineering is a challenging profession and has two major emphases. The first is the general area of mechanical design, which
involves all types of mechanical motion and the forces and energy that drive it. The other emphasis deals with energy generation and conversion and is grounded in the principles of the thermal and fluid sciences. Other subject areas, which support both emphases and are frequently part of designs and products, are the materials sciences, manufacturing, and control systems. All of these areas are included in the education and training of mechanical engineers. Ocean engineering is another focus area in our department which emphasizes solving engineering problems associated with the sustainable utilization of ocean resources and the scientific exploration and study of the ocean environment. Mechanical engineering requires significant study in mathematics, engineering computing, and basic sciences such as chemistry and physics, as well as basic engineering courses, before reaching the more specialized courses. Additional information can be found at the mechanical engineering website.

http://www.unh.edu/mechanical-engineering/

**Programs**

- Mechanical Engineering Major (B.S.) (p. 160)
- Mechanical Engineering Minor (p. 162)

**Faculty**

http://ceps.unh.edu/faculty/mechanical-engineering

**Mechanical Engineering Major (B.S.)**

http://ceps.unh.edu/mechanical-engineering/mechanical-engineering-bs

**Description**

The B.S.M.E. curriculum provides students with a solid engineering core and prepares students for professional engineering careers or for graduate study. The department has a four-course mechanics sequence, a four-course thermal/fluid sciences sequence, and a two-course systems and controls sequence. Modern experimental methods are taught in a two-course sequence starting in the junior year. The two-semester senior design project requires students to utilize the skills they have learned in their courses and function in an engineering team. The five technical electives required in the program give the students the opportunity to focus on advanced technical areas of their choice.

With their advisers' assistance, students should plan a program based on the following distribution of courses that totals not less than 128 credits. Note: mechanical engineering graduates typically exceed this requirement depending on what elective courses they select in the curriculum. The outline that follows is typical only in format. Within the constraints of satisfying all the requirements and having all the necessary prerequisites, schedules may vary because of scheduling needs or student preference. Some mechanical engineering elective courses may not be offered every year.

**Requirements**

Of the five technical elective courses, at least three of these courses must be taken in mechanical or ocean engineering, and these must be at least three credits and at the 600 or 700 level. At most, two may be selected from other 600- or 700-level courses in the College of Engineering and Physical Sciences (CEPS), which can include CS 410 Introduction to Scientific Programming (equivalent to a 600 level technical elective), ESCI 501 Introduction to Oceanography, ECE 543 Introduction to Digital Systems, or a course approved by the department. Only one technical elective is allowed at the 400 or 500 level. Courses that cover nearly identical material to core mechanical and ocean engineering courses, but in another CEPS department, will not be accepted as technical electives, e.g.,

- CHE 601 Fluid Mechanics and Unit Operations 3
- CHE 602 Heat Transfer and Unit Operations 3
- CHE 604 Chemical Engineering Thermodynamics 3
- CEE 635 Engineering Materials 4
- CEE 650 Fluid Mechanics 4
- ECE 633 Signals and Systems I 3

Students should consult with their academic advisor before selecting technical electives outside of mechanical/ocean engineering. With departmental approval, the two technical electives outside of mechanical/ocean engineering can be used for studying a focused area/ minor, with the restrictions that only one course can be at the 400 or 500 level and the focused area/minor must be in a bachelor's degree program.

**Students must satisfy the University's Discovery Program requirements.**

The following features are unique to students in the Mechanical Engineering Program:

As is the case across the University, all students are required to take an Inquiry course or an Inquiry Attributes course during their first two years. This can be satisfied with ME 441 Introduction to Engineering Design and Solid Modeling. Students who are exempt from ME 441 Introduction to Engineering Design and Solid Modeling due to prior engineering design and computer-aided design (CAD) experience must select an Inquiry 444 course or a course with an Inquiry Attribute and enroll in ME 477 Introduction to Solid Modeling. The Discovery Environment, Technology, and Society category requirement is met upon receiving a B.S. degree in mechanical engineering. The Discovery Social Science category must be satisfied with either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics Perspectives. The Discovery senior capstone experience is satisfied with either ME 755 Senior Design Project I and ME 756 Senior Design Project II or TECH 797 Undergraduate Ocean Research Project.

In order to graduate with a mechanical engineering B.S. degree, students must have at least a 2.0 grade-point average in all engineering and science courses, including required technical electives, normally taken as department requirements after the start of the junior year as defined in the degree plan below.

**Predictor courses:** To enter the sophomore year, students must achieve a greater than (but not equal to) 2.00 GPA in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C. To enter the junior year, students must achieve a minimum GPA of 2.00 in ME 525 Statics, ME 526 Mechanics of Materials, and ME 503 Thermodynamics with only one C- grade allowed and no grades below C-. Students are allowed two repeats of these courses to achieve the predictor rule requirements. This can be a single class repeated twice or two classes repeated once. Students are removed from the program if they obtain a semester GPA below 1.5 three times. Students may petition to be reinstated after one year out of the program.
Transfer Policy for UNH Students into the Department of Mechanical Engineering:

**CEPS Students:** To transfer into the freshman or sophomore year, students must earn a combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C in these two courses.

If students are enrolled in ME 525 Statics (or CEE 500 Statics for Civil Engineers), ME 526 Mechanics of Materials (or CEE 501 Strength of Materials), or ME 503 Thermodynamics, they must earn a combined GPA of 2.00 with no grade below a C- in two of these courses to transfer into Mechanical Engineering. Note: A combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C is also required.

**Non-CEPS Students:** To transfer into the Department of Mechanical Engineering from another college at UNH, students have to satisfy the CEPS college transfer policy as well as the Department of Mechanical Engineering transfer policies listed above according to their status.

### Degree Plan

#### Course Title Credits

**First Year**

**Fall**

- ME 441 or ME 477: Introduction to Engineering Design and Solid Modeling 1
- CHEM 405: Chemical Principles for Engineers 2
- OR CHEM 403 & CHEM 404: General Chemistry I and General Chemistry II 2
- MATH 425: Calculus I 3
- Discovery Program Elective 4

**Credits**: 16

**Spring**

- ENGL 401: First-Year Writing 4
- MATH 426: Calculus II 4
- PHYS 407: General Physics I 2
- Discovery Program Elective 4

**Credits**: 16

**Second Year**

**Fall**

- ME 525: Statics 3
- IAM 550: Introduction to Engineering Computing 4
- MATH 528 or MATH 525: Multidimensional Calculus 5 or Linearity I 4
- PHYS 408: General Physics II 4
- Discovery Program Elective 4

**Credits**: 19

**Spring**

- ME 503: Thermodynamics 3
- ME 526: Mechanics of Materials 3
- ME 561: Introduction to Materials Science 4
- MATH 527 or MATH 526: Differential Equations with Linear Algebra 4

**Credits**: 14

#### Third Year

**Fall**

- ME 608: Fluid Dynamics 3
- ME 627: Dynamics 3
- ME 705: Thermal System Analysis and Design 4
- ECE 537: Introduction to Electrical Engineering 4
- Discovery Program Elective 4

**Credits**: 18

**Spring**

- ME 603: Heat Transfer 3
- ME 643: Machine Design 3
- ME 646: Experimental Measurement and Data Analysis 4
- ME 670: Systems Modeling, Simulation, and Control 4

**Credits**: 16-18

#### Fourth Year

**Fall**

- ME 755 or TECH 797: Senior Design Project I 6
- ME 747: Experimental Measurement and Modeling of Complex Systems 4
- Technical Elective 3-4
- Technical Elective 3-4
- Discovery Program Elective 4

**Credits**: 15-18

**Spring**

- ME 756 or TECH 797: Senior Design Project II 6
- Technical Elective 3-4
- Technical Elective 3-4
- Discovery Program Elective 4

**Credits**: 16-18

**Total Credits**: 128-133

---

1. ME 441 Introduction to Engineering Design and Solid Modeling satisfies the Discovery Inquiry requirement. Note: ME 477 does not satisfy the Discovery Inquiry requirement. An alternative Discovery Program Inquiry course or Inquiry Attributes course is required. Permission is required to take ME 477 in place of ME 441.

2. CHEM 405 Chemical Principles for Engineers or CHEM 403 General Chemistry I and CHEM 404 General Chemistry II, or PHYS 407 General Physics I satisfies the Discovery Physical Science (with lab) category.

3. MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.

4. ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.

5. MATH 525 Linearity I and MATH 526 Linearity II also counts as a 600 level technical elective course typically completed in the senior year of the program. Permission is required to take Linearity I and II.
These courses (ME 755-756 and TECH 797) satisfy the Discovery Senior Capstone Experience category.

Mechanical Engineering Minor

http://ceps.unh.edu/mechanical-engineering/mechanical-engineering-minor

Description

The minor, administered by the Department of Mechanical Engineering, is open to all students of the University and offers a broad introduction to mechanical engineering.

Requirements

Students must complete a minimum of six courses as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 441</td>
<td>Introduction to Engineering Design and Solid Modeling</td>
<td>4</td>
</tr>
<tr>
<td>ME 503</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 525</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 19

Electrical and Computer Engineering majors should take the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 477</td>
<td>Introduction to Solid Modeling</td>
<td>1</td>
</tr>
<tr>
<td>ECE 633</td>
<td>Signals and Systems I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 634</td>
<td>Signals and Systems II</td>
<td>3</td>
</tr>
<tr>
<td>ME 503</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 525</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

1 ECE Major Required Courses.
2 The total number of credits required is 20.

Physics majors should take the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 615</td>
<td>Classical Mechanics and Mathematical Physics I</td>
<td>4</td>
</tr>
<tr>
<td>ME 477</td>
<td>Introduction to Solid Modeling</td>
<td>1</td>
</tr>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
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</table>

Select one of the following: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 643</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 670</td>
<td>Systems Modeling, Simulation, and Control</td>
<td>4</td>
</tr>
<tr>
<td>ME 705</td>
<td>Thermal System Analysis and Design</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Physics Major Required Courses.
2 The total number of credits to complete the Physics Minor will be either 18 or 19 depending on what course is selected.

Interested students should contact the Mechanical Engineering Chair at (603) 862-1353 and file an intent to minor form. During the last semester, students must complete a completion of minor form for it to appear on their transcript.

Ocean Engineering (OE)

Mission

The mechanical engineering department strives to prepare students for productive careers in industry or government as well as to provide a foundation for graduate studies. The undergraduate program in ocean engineering emphasizes ocean engineering fundamentals while offering interdisciplinary opportunities for focused study in civil, electrical, environmental, or mechanical engineering, as well as marine sciences.

Program Educational Objectives

The ocean engineering program seeks to provide an environment that enables students to pursue their goals in an innovative, rigorous, and challenging program with a diversity of offerings. The program has the following major educational objectives, with the expectation that alumni will have successful careers in the many diverse areas of the ocean engineering profession. Within a few years of obtaining a bachelor's degree in ocean engineering, we expect our graduates to have the following attributes:

Depth. To be effective in applying ocean engineering principles in engineering practice or for advanced study in ocean engineering.

Breadth. To have a productive career in the many diverse fields of ocean engineering such as coastal engineering, ocean acoustics, offshore structures, and marine renewable energy, or in the pursuit of graduate education in disciplines that include marine science, engineering, medicine, law, or business.

Professionalism. To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

http://marine.unh.edu/oe

Programs

- Ocean Engineering Major (B.S.) (p. 162)
- Ocean Engineering Minor (p. 164)

Faculty

http://ceps.unh.edu/faculty/all

Ocean Engineering Major (B.S.)

http://ceps.unh.edu/mechanical-engineering/ocean-engineering-bs
Ocean engineering is a field of study that seeks to solve engineering problems associated with the ocean, including those problems associated with the sustainable utilization of ocean resources and the scientific exploration and study of the ocean environment. Ocean engineering is an interdisciplinary field with roots in mechanical, electrical, civil, and environmental engineering, with strong ties to physical, chemical, biological, and geological oceanography. Students of ocean engineering are best served when they are formally trained inside a framework that fuses the expertise of these often-disparate fields.

The BSOE curriculum provides students with a solid engineering core and prepares students for professional engineering careers or for graduate study. The BSOE starts with foundational classes in math, physics, chemistry, and engineering computing, along with introductions to ocean engineering through seminars and oceanography coursework. Students develop their engineering acumen through coursework and laboratory studies that are focused on analysis, experimentation, and design. Students proceed to increasingly advanced coursework in ocean instrumentation, waves and tides, the design of ocean structures, coastal engineering, ocean measurements, and ocean acoustics. Opportunities exist for at least four technical electives, which help students gain further competence in an area of their choice. Students finish their curriculum with a two-semester senior capstone design project. Elective courses in the arts, humanities, and the social sciences are included to provide a well-rounded education.

Students work with an adviser to plan a program that is based on the courses shown in the ocean engineering course outline below that totals not less than 128 credits. The outline is considered a guideline and may be modified to suit student needs and desires within the constraints of meeting minimum credit hours, course pre-requisites, and non-major elective course requirements. Some ocean engineering elective courses may not be offered every year.

The ocean engineering program curriculum requires four technical electives that are CEPS 600-level or higher courses that have been approved by the OE undergraduate curriculum committee. Sequences have been identified that will provide students more in-depth opportunities in one of the ocean engineering sub-areas.

Students must satisfy the University’s Discovery Program requirements. The following features are unique to students in the Ocean Engineering program:

As is the case across the University, all students are required to take an Inquiry course or an Inquiry Attribute course during their first two years. This is satisfied with ESCI 501 Introduction to Oceanography. The Discovery Environment, Technology, and Society category requirement is met upon receiving a B.S. degree in ocean engineering. The Discovery Social Science category must be satisfied with either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics Perspectives. The Discovery senior capstone experience is satisfied with TECH 797 Undergraduate Ocean Research Project.

In order to graduate with an ocean engineering B.S. degree, students must have at least a 2.0 grade-point average in all engineering and science courses, including required technical electives, normally taken as department requirements after the start of the junior year as defined in the degree plan below.

**Predictor courses:** To enter the sophomore year, students must achieve a greater than (but not equal to) 2.00 GPA in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C. To enter the junior year, students must achieve a minimum GPA of 2.00 in ME 525 Statics, ME 526 Mechanics of Materials, and ME 503 Thermodynamics with only one C- grade allowed and no grades below C-. Students are allowed two repeats of these courses to achieve the predictor rule requirements. This can be a single class repeated twice or two classes repeated once. Students are removed from the program if they obtain a semester GPA <1.5 three times. Students may petition to be reinstated after one year out of the program.

**Transfer Policy for UNH Students into the Department of Mechanical Engineering:**

**CEPS Students:** To transfer into the freshman or sophomore year, students must earn a combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C in these two courses.

If students are enrolled in ME 525 Statics (or CEE 500 Statics for Civil Engineers), ME 526 Mechanics of Materials (or CEE 501 Strength of Materials), or ME 503 Thermodynamics, they must earn a combined GPA of 2.00 with no grade below a C- in two of these courses to transfer in and advance to the junior year. Note: a combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C is also required.

**Non-CEPS Students:** To transfer into the Department of Mechanical Engineering from another college at UNH, students have to satisfy the CEPS college transfer policy as well as the Department of Mechanical Engineering transfer policies listed above according to status.

### Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 405 or CHEM 403 and CHEM 404</td>
<td>Chemical Principles for Engineers ¹ or General Chemistry I and General Chemistry II</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I ²</td>
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<tr>
<td>ME 477</td>
<td>Introduction to Solid Modeling</td>
<td>1</td>
</tr>
<tr>
<td>OE 400</td>
<td>Ocean Engineering Seminar</td>
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<tr>
<td>Discovery Program Elective</td>
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<tr>
<td><strong>Credits</strong></td>
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<td><strong>Spring</strong></td>
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<tr>
<td>Discovery Program Elective</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing ³</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>OE 401</td>
<td>Ocean Engineering Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I ¹</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>
Second Year

Fall
- ESCI 501 Introduction to Oceanography (satisfies the Discovery Inquiry requirement) 4
- IAM 550 Introduction to Engineering Computing 4
- MATH 528 Multidimensional Calculus 4
  or MATH 525 Linearity I
- ME 525 Statics 3
- PHYS 408 General Physics II 4

Credits 19

Spring
- MATH 527 Differential Equations with Linear Algebra 5 4
  or MATH 526 Linearity II
- ME 503 Thermodynamics 3
- ME 526 Mechanics of Materials 3
- OE 690 Introduction to Ocean Engineering 4

Credits 14

Third Year

Fall
- ECE 537 Introduction to Electrical Engineering 4
- ME 608 Fluid Dynamics 3
- ME 627 Dynamics 3
- OE 754 Ocean Waves and Tides 4

Credits 14

Spring
- Discovery Program Elective 4
- OE 610 Ocean Instrumentation Lab 4
- OE 758 Design of Ocean Structures 3
- OE 765 Underwater Acoustics 3
- Discovery Program Elective 4

Credits 18

Fourth Year

Fall
- OE 710 Ocean Measurements Lab 4
- OE 757 Coastal Engineering and Processes 3
- TECH 797 Undergraduate Ocean Research Project 2
- Discovery Program Elective 4
- Technical Elective 3-4

Credits 16-17

Spring
- TECH 797 Undergraduate Ocean Research Project 2
- Discovery Program Elective 4
- Technical Elective 4
- Technical Elective 3-4
- Technical Elective 3-4

Credits 16-18

Total Credits 128-131

Ocean Engineering Minor

http://ceps.unh.edu/mechanical-engineering/ocean-engineering-minor

Description

The ocean engineering minor allows undergraduate engineering students to acquire a nucleus of knowledge about engineering pertaining to the ocean and the coastal zone.

Requirements

To meet the University minor requirement, students must satisfactorily complete a minimum of five courses from the following list:

Select five of the following:

- ESCI 501 Introduction to Oceanography
- OE 690 Introduction to Ocean Engineering
- ESCI 752 Chemical Oceanography
- ESCI 758 Introductory Physical Oceanography
- ESCI 759 Geological Oceanography
- OE 710 Ocean Measurements Lab
- OE 744 Corrosion
- OE 754 Ocean Waves and Tides
- OE 756 Principles of Naval Architecture and Model Testing
- OE 775 Coastal Engineering and Processes
- OE 765 Underwater Acoustics
- OE 771 Geodesy and Positioning for Ocean Mapping
- OE 795 Special Topics
- CEE 722 Introduction to Marine Pollution and Control
- TECH 797 Undergraduate Ocean Research Project

Students typically take ESCI 501 Introduction to Oceanography, TECH 797 Undergraduate Ocean Research Project, and OE 690 Introduction to Ocean Engineering plus two additional engineering courses from the above list to complete the minor.

Students wishing to take the ocean engineering minor should indicate their interest to the ocean engineering minor adviser, Diane Foster, (603) 862-3089 or diane.foster@unh.edu (Kenneth.Baldwin@unh.edu) no later than the beginning of the junior year and file an intent to minor form. During the final semester, students must complete a completion of minor form for it to appear on their transcript.

Physics (PHYS)

Physics is concerned with the properties of matter and the laws that describe its behavior. As a fundamental science, its discoveries and laws
are basic to understanding in nearly all areas of science and technology. Advances in such diverse fields as medical instrumentation, solid state electronics, and space research have relied heavily on the application of basic physical laws and principles.

Students interested in the study of physics at the University of New Hampshire will find a strong interaction between research and academic programs. Undergraduates frequently participate in research studies ranging from nuclear scattering experiments at major particle accelerators to astrophysical studies of the solar system using space probes. These experiences have proven beneficial to engineering and physics students alike. The department is located in DeMeritt Hall (completed in 2008) and Morse Hall. Both buildings are equipped with state-of-the-art research facilities and laboratories. DeMeritt Hall also houses the physics library, classrooms, and a number of open and comfortable meeting areas, which provide an inviting atmosphere for study, interaction, and collaboration.

The suggested programs that follow are indicative of the flexibility available to students, whether they are preparing for graduate work in physics or astronomy, industrial opportunities, governmental research, secondary-level teaching, or a general education that might utilize the fundamental knowledge of physics.

Several undergraduate degree programs are offered through the department of physics. The B.S. degree is designed for students who wish to work as professional physicists or engineers; the interdisciplinary options in chemical physics, materials science, and astronomy allow students to combine physics with other disciplines. The B.A. degree is designed for students who want a strong background in physics but also want a broad liberal arts education. A minor in physics allows a student to combine an interest in physics with another major.

Physics-related degrees are also offered in other departments. For those students with strong interests in both math and physics, the Department of Mathematics offers a B.S. interdisciplinary option in physics.

Interested students are encouraged to contact the department for further information. More detailed information is also on the physics department website.

https://physics.unh.edu/

Programs

- Engineering Physics Major (B.S.) (p. 165)
- Physics Major (B.A.) (p. 166)
- Physics Major (B.S.) (p. 167)
- Physics Major: Astronomy Option (B.S.) (p. 168)
- Physics Major: Chemical Physics Option (B.S.) (p. 169)
- Physics Major: Materials Science Option (B.S.) (p. 170)
- Physics Minor (p. 170)

Faculty

http://physics.unh.edu/people/faculty

Engineering Physics Major (B.S.)

https://physics.unh.edu/content/bs-engineering-physics

Description

The bachelor of science degree in engineering physics (BSEP) provides training for individuals who either seek employment in an engineering discipline that requires a deeper knowledge of physical principles or who intend to pursue a graduate degree in engineering. A BSEP degree differs from a traditional engineering degree in that the curriculum includes more of a focus on fundamental physics. At the same time, the UNH program is flexible in the sense that each student designs his or her program (with appropriate advising) within certain constraints, which include a core component and an electives component. The goal is to balance physics courses with appropriate selections from various engineering disciplines to prepare the student for his or her longer term goals, keeping a balance between depth and breadth that is appropriate for these goals.

Requirements

Discovery Program requirements

Writing requirements

Bachelor of Science requirements

Minimum Engineering Physics requirements

Select a minimum of six 3- or 4-credit physics courses (with at least one of these courses being at the 700 level)

Select a minimum of six 3- or 4-credit engineering courses

Select two electives, chosen from physics, engineering or math programs

CHEM 403    General Chemistry I 4
or CHEM 405    Chemical Principles for Engineers

Required math courses:

MATH 425    Calculus I 4
MATH 426    Calculus II 4
MATH 527   Differential Equations with Linear Algebra
& MATH 528   and Multidimensional Calculus

Computer programming course 6

Capstone experience 7

Total Credits 20

1. This requirement includes four courses. A list of approved writing-intensive courses appears on the web.
2. A minimum of 128 credits at the 400-799 level and at a GPA of at least 2.00
3. The course selection must include at least eight courses at the combined 600 and 700 levels.
4. Note: to take CHEM 405 Chemical Principles for Engineers, a student must have taken chemistry in high school.
5. MATH 525 Linearity I/MATH 526 Linearity II may replace MATH 527 Differential Equations with Linear Algebra/MATH 528 Multidimensional Calculus.
6. Such as CS 410 Introduction to Scientific Programming or IAM 550 Introduction to Engineering Computing or equivalent
7. A capstone experience is required of all BSEP students during their senior year. ABET accreditation requires that the capstone experience be a design experience.

If a project involves research, it must also lead to a design effort. A student must have a minimum grade of C in each 400- or 500-level course.
in items 4a through 4d and an overall grade-point average of 2.33 in these courses in order to continue in the BSEP program.

Physics Major (B.A.)

https://physics.unh.edu/content/ba-physics

Description

This program provides an opportunity for a broad and liberal education, which in some cases may be sufficient for graduate work. This program can also be excellent preparation for middle and high school physics teachers, pre-med and pre-law students, and those wishing to pursue a technical career in industry. Because there are fewer required courses than for a B.S., you have time to pursue other academic interests. A judicious choice of electives may also prepare students for interdisciplinary programs that require proficiency in a specialized area of physics.

Requirements

University Discovery Program requirements ¹
Bachelor of Arts Degree requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 400</td>
<td>Freshman Seminar</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td>&amp; PHYS 408</td>
<td>and General Physics II</td>
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<tr>
<td>PHYS 505</td>
<td>General Physics III</td>
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<tr>
<td>PHYS 506</td>
<td>General Physics III Laboratory</td>
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<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
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</tr>
<tr>
<td>PHYS 605</td>
<td>Experimental Physics I</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 615</td>
<td>Classical Mechanics and Mathematical Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 616</td>
<td>Classical Mechanics and Mathematical Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 701</td>
<td>Quantum Mechanics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 703</td>
<td>Electricity and Magnetism I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 705</td>
<td>Experimental Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone experience ²

¹ Note that no physics course can satisfy these requirement for a physics major. The rationale behind this is that a course in physics does not broaden the education of a physics major.

² A capstone experience is required of all physics majors during their senior year. The Physics Department encourages students to write a senior thesis (PHYS 799 Thesis) for their capstone experience. Other options include independent study research projects (PHYS 795 Independent Study or INCO 590 Student Research Experience) or a special project as part of senior lab (PHYS 705 Experimental Physics II). All capstone experiences must be approved by the undergraduate committee during the student's penultimate semester.

Note that MATH 425 Calculus I, MATH 426 Calculus II, and MATH 525 Linearity I, MATH 525 Linearity II or MATH 527 Differential Equations with Linear Algebra, MATH 528 Multidimensional Calculus are prerequisites for some of the courses.

Degree Plan

Suggested Curriculum for B.A. in Physics

In the following table, "electives" include Discovery courses, writing-intensive courses, language courses required for the B.A., and free-choice electives.

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>PHYS 407</td>
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<td>MATH 425</td>
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<td>Elective</td>
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<tr>
<td></td>
<td>Credits</td>
<td></td>
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<tr>
<td></td>
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<td>17</td>
</tr>
</tbody>
</table>

Spring

| PHYS 408    | General Physics II                         | 4       |
| MATH 426    | Calculus II                                | 4       |
| ENGL 401    | First-Year Writing                         | 4       |
| Elective    |                                            |         |
|             | Credits                                    |         |
|             |                                           | 16      |

Second Year

| PHYS 505    | General Physics III                        | 4       |
| & PHYS 506  | and General Physics III Laboratory         |         |
| MATH 525    | Linearity I                                | 4       |
| or MATH 527 | or Differential Equations with Linear Algebra |       |
| Elective    |                                            |         |
|             | Credits                                    |         |
|             |                                           | 16-18   |

Spring

| PHYS 615    | Classical Mechanics and Mathematical Physics I | 4       |
| MATH 526    | Linearity II                                | 4       |
| or MATH 528 | or Multidimensional Calculus                |         |
| Elective    |                                            |         |
|             | Credits                                    |         |
|             |                                           | 16-18   |

Third Year

| PHYS 616    | Classical Mechanics and Mathematical Physics II | 4       |
| PHYS 701    | Quantum Mechanics I                          | 4       |
| Electives   |                                            |         |
|             | Credits                                    |         |
|             |                                           | 16      |

Spring

| PHYS 703    | Electricity and Magnetism I                 | 4       |
| PHYS 605    | Experimental Physics I                      | 5       |
| Electives   |                                            |         |
|             | Credits                                    |         |
|             |                                           | 17      |

Fourth Year

| PHYS 705    | Experimental Physics II                     | 4       |
Physic Major (B.S.)

https://physics.unh.edu/content/bs-physics

Description

The bachelor of science degree in physics prepares students for professional work as physicists, and is the first step toward graduate work in physics. It is also excellent preparation for graduate programs in medicine, law, or engineering, as well as for technical jobs in industry. The required courses are those typically necessary for admission to graduate study in physics or astronomy. The interdisciplinary options require fewer physics courses combined with a concentration in another area (chemistry or materials science). The astronomy option emphasizes courses that help prepare a student for advanced studies in astronomy.

Requirements

University Discovery requirements 1
Bachelor of Science requirements

Minimum physics requirements:

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<tr>
<td>PHYS 408</td>
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<td>PHYS 615</td>
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<td>&amp; PHYS 616</td>
<td>and Classical Mechanics and Mathematical Physics II</td>
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<td>PHYS 701</td>
<td>Quantum Mechanics I</td>
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<td>PHYS 702</td>
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<td>Experimental Physics II</td>
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Select two electives from the following:

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<tr>
<td>PHYS 708</td>
<td>Optics</td>
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<td>PHYS 710</td>
<td>Modern Astrophysics</td>
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<td>PHYS 712</td>
<td>Space Plasma Physics</td>
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<td>PHYS 718</td>
<td>Condensed Matter Physics</td>
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<td>PHYS 720</td>
<td>Nuclear Physics</td>
<td>4</td>
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<tr>
<td>PHYS 764</td>
<td>General Relativity and Cosmology</td>
<td>4</td>
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<tr>
<td>MATH 747</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
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<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
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<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MATH 747</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
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</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
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Chemistry:

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<tbody>
<tr>
<td>CHEM 403</td>
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<tr>
<td>or CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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Mathematics:

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<tbody>
<tr>
<td>MATH 425 &amp; MATH 426</td>
<td>Calculus I II</td>
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Select one of the following options: 2

Option A:

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Option B:

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<tbody>
<tr>
<td>MATH 528</td>
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<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
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</table>

Computer Programming:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>or IAM 550</td>
<td>Introduction to Engineering Computing</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone experience 3

1. Note that no physics course can satisfy these requirements for a physics major. The rationale behind this is that a course in physics does not broaden the education of a physics major.
2. The Department generally recommends MATH 645 Linear Algebra for Applications over MATH 545 Introduction to Linear Algebra for physics majors.
3. A capstone experience is required of all physics majors during their senior year. The Physics Department encourages students to write a senior thesis (PHYS 799 Thesis) for their capstone experience. Other options include independent study research projects (PHYS 795 Independent Study or INCO 590 Student Research Experience) or a special project as part of senior lab (PHYS 705 Experimental Physics II). All capstone experiences must be approved by the undergraduate committee during the student’s penultimate semester.

By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Physics Electives

In the following table, "electives" include Discovery courses, writing-intensive courses, physics electives, and free-choice electives. Note that physics electives can only be taken in the junior or senior year because of prerequisites, and are in general offered every other year.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 708</td>
<td>Optics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 710</td>
<td>Modern Astrophysics</td>
<td>4</td>
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<tr>
<td>PHYS 712</td>
<td>Space Plasma Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 718</td>
<td>Condensed Matter Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 720</td>
<td>Nuclear Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 764</td>
<td>General Relativity and Cosmology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 747</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
<td>4</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 754</td>
<td></td>
<td>4</td>
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</tbody>
</table>
# Degree Plan

## Suggested Curriculum for B.S. in Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tr>
<td><strong>First Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>PHYS 400</td>
<td>Freshman Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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</tr>
<tr>
<td>CHEM 403 or CHEM 405</td>
<td>General Chemistry I or Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
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</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>Elective</td>
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<tr>
<td>CS 410 or IAM 550</td>
<td>Introduction to Scientific Programming or Introduction to Engineering Computing</td>
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<td><strong>Total Credits</strong></td>
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<td>16</td>
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<tr>
<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>PHYS 505 &amp; PHYS 506</td>
<td>General Physics III and General Physics III Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
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<tr>
<td>MATH 528 or MATH 525</td>
<td>Multidimensional Calculus or Linearity I</td>
<td>4-6</td>
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<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>PHYS 615</td>
<td>Classical Mechanics and Mathematical Physics I</td>
<td>4</td>
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<td>PHYS 605</td>
<td>Experimental Physics I</td>
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<td>(1) For students who took MATH 528:</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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</tr>
<tr>
<td>and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) For students who took MATH 525:</td>
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<td></td>
</tr>
<tr>
<td>MATH 526</td>
<td>Linearity II</td>
<td></td>
</tr>
<tr>
<td>and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
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<td><strong>Total Credits</strong></td>
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<td><strong>Third Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>PHYS 616</td>
<td>Classical Mechanics and Mathematical Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 701</td>
<td>Quantum Mechanics I</td>
<td>4</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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<td>Electives</td>
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<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>Fourth Year</strong></td>
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<td><strong>Fall</strong></td>
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<tr>
<td>PHYS 702</td>
<td>Quantum Mechanics II</td>
<td>4</td>
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<tr>
<td>PHYS 703</td>
<td>Electricity and Magnetism I</td>
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</tr>
<tr>
<td>Electives</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
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<td>16</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td>16</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td>130</td>
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</table>

### Physics Major: Astronomy Option (B.S.)

[https://physics.unh.edu/content/bs-option-astronomy](https://physics.unh.edu/content/bs-option-astronomy)

#### Description

The astronomy option prepares students for professional work as a physicist or astrophysicist, and is the first step towards graduate work in astronomy or physics. It takes full advantage of the wide range of research that UNH has to offer in astrophysics and space science.

#### Requirements

- University Discovery requirements
- Bachelor of Science requirements
- Physics requirements:
  - PHYS 400 | Freshman Seminar | 1
  - PHYS 406 | Introduction to Modern Astronomy | 4
  - PHYS 407 & PHYS 408 | General Physics I and General Physics II | 8
  - PHYS 505 | General Physics III | 3
  - PHYS 506 | General Physics III Laboratory | 1
  - PHYS 508 | Thermodynamics and Statistical Mechanics | 4
  - PHYS 605 | Experimental Physics I | 5
  - PHYS 615 & PHYS 616 | Classical Mechanics and Mathematical Physics I and Classical Mechanics and Mathematical Physics II | 8
  - PHYS 701 | Quantum Mechanics I | 4
  - PHYS 702 | Quantum Mechanics II | 4
  - PHYS 703 | Electricity and Magnetism I | 4
  - PHYS 704 | Electricity and Magnetism II | 4
  - PHYS 705 | Experimental Physics II | 4
  - PHYS 710 | Modern Astrophysics | 4
  - PHYS 795 | Independent Study | 4
Physics Major: Chemical Physics Option (B.S.)

https://physics.unh.edu/content/bs-option-chemical-physics

### Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 799</td>
<td>Thesis</td>
<td>4</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td></td>
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<tr>
<td>MATH 425 &amp; MATH 426</td>
<td>Calculus I and Calculus II</td>
<td>8</td>
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<tr>
<td>Select one of the following options: 2</td>
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<td>12</td>
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<tr>
<td>Option A:</td>
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<td></td>
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<tr>
<td>MATH 525 &amp; MATH 526</td>
<td>Linearity I and Linearity II</td>
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<tr>
<td>Option B:</td>
<td></td>
<td></td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 645 Linear Algebra for Applications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Programming:</td>
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<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>or IAM 550</td>
<td>Introduction to Engineering Computing</td>
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<tr>
<td>Electives in Option:</td>
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<tr>
<td>Select one of the following: 4</td>
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<tr>
<td>PHYS 708</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 712</td>
<td>Space Plasma Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 720</td>
<td>Nuclear Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 764</td>
<td>General Relativity and Cosmology</td>
<td></td>
</tr>
</tbody>
</table>

1. Note that no physics course can satisfy these requirement for a physics major. The rationale behind this is that a course in physics does not broaden the education of a physics major.

2. The Department generally recommends MATH 645 Linear Algebra for Applications over MATH 545 Introduction to Linear Algebra for Physics majors, but the best option, when possible, is MATH 525 Linearity I-MATH 526 Linearity II.

By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.
Physics Major: Materials Science Option (B.S.)

https://physics.unh.edu/content/bs-option-material-science

Description

This option combines courses from the Physics and other departments to provide training in physics and materials science, an area that has proven industrial demand. In addition to the core courses in classical and modern physics, the students will take six courses in which they will study materials synthesis and properties and get hands-on training in materials characterization techniques, such as diffraction, electron microscopy, scanning probe microscopy, and photoelectron spectroscopy. Two semesters of thesis work in a research lab complement the training in the classroom. Students completing this program will have a wide variety of career opportunities to pursue, for example, in microelectronics, advanced materials synthesis and design, and thin film engineering. Alternatively, they are qualified for postgraduate programs in condensed matter physics or materials science.

Requirements

University Discovery requirements ¹
Bachelor of Science requirements

Physics requirements:

PHYS 400 Freshman Seminar 1
PHYS 407 General Physics I 8
& PHYS 408 and General Physics II
PHYS 505 General Physics III 4
& PHYS 506 and General Physics III Laboratory
PHYS 508 Thermodynamics and Statistical Mechanics 4
PHYS 605 Experimental Physics I 5
PHYS 615 Classical Mechanics and Mathematical Physics I 8
& PHYS 616 and Classical Mechanics and Mathematical Physics II
PHYS 701 Quantum Mechanics I 4
PHYS 703 Electricity and Magnetism I 4
PHYS 705 Experimental Physics II 4
PHYS 795 Independent Study 4
PHYS 799 Thesis 4

Mechanical Engineering:

ME 561 Introduction to Materials Science 4
ME 730 Mechanical Behavior of Materials 4
ME #760 Physical Metallurgy I 4

Mathematics:

MATH 425 Calculus I 8
& MATH 426 and Calculus II

Select one of the following options: ²

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Option A:</td>
<td>MATH 525 &amp; MATH 526</td>
<td>Linearity I &amp; Linearity II</td>
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<tr>
<td>Option B:</td>
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<td>Multidimensional Calculus</td>
</tr>
<tr>
<td></td>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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</tbody>
</table>

¹ Note that no physics course can satisfy these requirements for a physics major. The rationale behind this is that a course in physics does not broaden the education of a physics major.
² The Department generally recommends MATH 645 Linear Algebra for Applications over MATH 545 Introduction to Linear Algebra for physics majors, but the best option, when possible, is MATH 525 Linearity I-MATH 526 Linearity II.

By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Physics Minor

https://physics.unh.edu/content/minor-physics

Description

The minor in physics consists of five courses in physics.

Requirements

PHYS 407 General Physics I 4
PHYS 408 General Physics II 4
PHYS 505 General Physics III 3
Elective ¹ 4
Elective ¹ 4

Total Credits 19

¹ Select a four-credit physics course, chosen in consultation with the student’s physics minor advisor.
College of Health and Human Services

Michael S. Ferrara, Dean
C. Anne Broussard, Associate Dean

The College of Health and Human Services (CHHS) prepares students for professional health-related careers, through hands-on, experiential learning. Taught by profession and field experts, CHHS provides undergraduate instruction that leads to the bachelor of science degree in communication sciences and disorders, health management and policy, human development and family studies, kinesiology (with majors in athletic training, exercise science, health and physical education, outdoor education and sport studies), nursing, occupational therapy, recreation management and policy (with options in program and event management and therapeutic recreation), social work. Each program enables students to acquire the knowledge and skills needed to practice in their chosen professions and to obtain a broad cultural background in the humanities and social sciences.

Undeclared Major

A limited number of well-qualified first-year students who have expressed an interest in a health-related career but who are undecided about a specific major may enter the College of Health and Human Services as undeclared students. All CHHS undeclared students are advised by a professional academic counselor, who helps students determine appropriate major courses to explore. Upon declaration of a specific major, each student is assigned a faculty advisor within the major department.

Degrees Offered

Bachelor of Science (B.S.)

Degree Requirements

Candidates for the Bachelor of Science (B.S.) degree must satisfy all University requirements for graduation, earn at least 128 credits, successfully complete the courses required in one of the majors described in this section, and achieve the required minimum grade-point average in the chosen curriculum. Generally, courses are to be completed in the sequence in which they are arranged. Degree candidates must satisfy all of the University and Discovery Program requirements in addition to satisfying the requirements of an individual major program, which includes a senior capstone course/experience.

http://www.chhs.unh.edu

Programs of Study

• Applied Human Anatomy and Physiology (p. 171)
• Athletic Training (p. 172)
• Coaching (p. 173)
• Communication Sciences and Disorders (COMM) (p. 174)
• Exercise Science (p. 175)
• Health Management and Policy (HMP) (p. 177)
• Health and Physical Education (p. 179)
• Human Development and Family Studies (HDFS) (p. 181)
• Interdisciplinary Health (p. 185)
• Kinesiology (KIN) (p. 185)
• Nursing (NURS) (p. 186)
• Occupational Therapy (OT) (p. 188)
• Outdoor Adventure Leadership (p. 190)
• Outdoor Education (p. 191)
• Recreation Management and Policy (RMP) (p. 192)
• Social Work (SW) (p. 196)
• Sport Studies (p. 198)

Applied Human Anatomy and Physiology

• Applied Human Anatomy and Physiology Minor (p. 171)

Applied Human Anatomy and Physiology Minor

http://chhs.unh.edu/kin/applied-human-anatomy-physiology-minor

Description

The minor is designed to provide students with an opportunity to develop knowledge and skills necessary for pursuing degrees in medicine and allied health.

Admission to the applied Human Anatomy & Physiology minor is based on successful completion of BMS 507 & BMS 508 or ANC 511 and ANC 512 (or equivalent accepted by minor adviser) with a grade of C or better and a minimum GPA of 2.75.

Requirements

Minor Requirements

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<tr>
<th>Course</th>
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<td>KIN 620</td>
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<td>KIN 652</td>
<td>Clinical Kinesiology</td>
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<td>KIN 653A</td>
<td>Musculoskeletal Assessment</td>
<td>2</td>
</tr>
<tr>
<td>KIN 706</td>
<td>Neurology</td>
<td>6</td>
</tr>
<tr>
<td>&amp; KIN 707</td>
<td>and Neurology Lab</td>
<td></td>
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<tr>
<td>Select one of the following:</td>
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<td>4</td>
</tr>
<tr>
<td>KIN 505</td>
<td>Activity, Injuries and Disease</td>
<td></td>
</tr>
<tr>
<td>KIN 527</td>
<td>Scientific Foundations of Health and Fitness</td>
<td></td>
</tr>
</tbody>
</table>

Departments

• Communication Sciences and Disorders (p. 174)
• Health Management and Policy (p. 177)
• Human Development and Family Studies (p. 181)
• Kinesiology (p. 185)
• Nursing (p. 186)
• Occupational Therapy (p. 188)
• Recreation Management and Policy (p. 192)
• Social Work (p. 196)
Athletic Training

Programs

• Athletic Training Major (B.S.) (p. 172)

Athletic Training Major (B.S.)

http://chhs.unh.edu/kin_at

Description

Athletic trainers are health care professionals who collaborate with physicians. The services provided by athletic trainers are comprised of prevention, emergency care, clinical diagnosis, therapeutic intervention, and rehabilitation of injuries and medical conditions. The athletic training major is accredited by the Commission on Accreditation of Athletic Training Education (CAATE) and prepares professionals qualified to attend to the athlete, the fitness-conscious runner, the skilled professional athlete, or anyone engaged in physical activity.

Students must earn a grade of C (2.0) or better in all KIN-required courses and BMS 507 Human Anatomy and Physiology I, BMS 508 Human Anatomy and Physiology II.

Students gain clinical experience within the UNH Department of Athletics, at local high schools, and at off-campus clinical sites. Successful completion of the entire program, including supervised clinical experience, qualifies students to take the Board of Certification (BOC) certification exam. Students who wish to pursue both BOC certification and public school teacher certification should also explore the Department of Kinesiology health and physical education major. This double course of study will require between five and six years.

Students are admitted to the UNH athletic training major with conditional status. Specific competitive criteria must be met during the student’s first year before he or she may apply for full-time status in the major, which is awarded only to students demonstrating exemplary performance in classes and directed observation. Detailed criteria may be found at https://chhs.unh.edu/kin_at/earning-full-time-status. Additionally, athletic training major technical standards establish the qualities considered necessary for students to achieve the knowledge, skills, and competencies associated with the program. Candidates for full-time status will be required to verify they understand and meet these technical standards or that they can meet them, with reasonable accommodation. Interested students should consult with program coordinator, Dan Sedory, regarding entry criteria and the technical standards.

Students in athletic training complete KIN 718 Career Preparation in Athletic Training, as the capstone course for the major. This course is designed to provide students with a means to integrate and augment concepts, skills, and knowledge gained in all previously completed major course requirements. Prerequisites include KIN 665 Laboratory Practicum in Athletic Training, sections A-D.

Requirements

Major Requirements

BMS 507 Human Anatomy and Physiology I 4
BMS 508 Human Anatomy and Physiology II 4
KIN 506 Concepts of Athletic Training for the Professional 4
KIN 507 Concepts of Athletic Training Lab 1
KIN 585 Emergency Medical Responder 4
KIN 620 Physiology of Exercise 4
KIN 652 Clinical Kinesiology 4
KIN 658 Evaluation and Care of Athletic Training Injury I 4
KIN 658L Evaluation and Care of Athletic Training Injury I Lab 1
KIN 659 Evaluation and Care of Athletic Training Injury II 4
KIN 659L Evaluation and Care of Athletic Training Injury II Lab 1
KIN 660 Therapeutic Exercise in Athletic Training 4
KIN 661 Therapeutic Exercise in Athletic Training Laboratory 1
KIN 662 Therapeutic Modalities in Athletic Training 4
KIN 663 Therapeutic Modalities in Athletic Training Laboratory 1
KIN 665 Laboratory Practicum in Athletic Training 10
KIN 667 Pharmacology for Athletic Training 2
KIN 668 Ergogenic Aids in Sports 2
KIN 670 General Medical Conditions in Athletics 4
KIN 710 Organization and Administration of Athletic Training Programs 4
KIN 715 Seminar in Athletic Training 4
KIN 718 Career Preparation in Athletic Training 4
KIN 780 Psychological Factors in Sport 4
NUTR 400 Nutrition in Health and Well Being 4
PSYC 401 Introduction to Psychology 4

Statistics Course 4

Total Credits 91

1 Must complete five sections of KIN 665 Laboratory Practicum in Athletic Training, sections: A, B, C, D, E, 2 credits each. Sections must be completed in a specified sequence, see Degree Plan.

Degree Plan

Recommended Major Sequencing of Courses

This list only includes major classes. Students should be registered for, and taking an average of 16 credits per semester to be ‘on track’ to graduate in 4 years. In most semesters, this means a student will be taking Discovery or elective course, to meet this 16 credit ‘load’.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>KIN 406</td>
<td>Intro to Athletic Training</td>
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<td>KIN 585</td>
<td>Emergency Medical Responder</td>
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<tr>
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<td>--------------------------------------------------</td>
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<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td></td>
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**Spring**

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<tr>
<td>KIN 506</td>
<td>Concepts of Athletic Training for the Professional</td>
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**Second Year**

**Fall**

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<td>Evaluation and Care of Athletic Training I</td>
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<td>KIN 658L</td>
<td>Evaluation and Care of Athletic Training I Lab</td>
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<tr>
<td>KIN 662</td>
<td>Therapeutic Modalities in Athletic Training</td>
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<td>KIN 663</td>
<td>Therapeutic Modalities in Athletic Training Lab</td>
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<td>Laboratory Practicum in Athletic Training(665A)</td>
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<td>KIN 659</td>
<td>Evaluation and Care of Athletic Training II</td>
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<td>KIN 660</td>
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<td>KIN 661</td>
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<td>Laboratory Practicum in Athletic Training(665B)</td>
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**Third Year**

**Fall**

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<td>Laboratory Practicum in Athletic Training(665C)</td>
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<td>KIN 667</td>
<td>Pharmacology for Athletic Training</td>
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<td>KIN 668</td>
<td>Ergogenic Aids in Sports</td>
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<td>KIN 710</td>
<td>Organization and Administration of Athletic Training Programs</td>
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**Spring**

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<td>KIN 670</td>
<td>General Medical Conditions in Athletics</td>
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<td>KIN 715</td>
<td>Seminar in Athletic Training</td>
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**Fourth Year**

**Fall**

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<td>KIN 718</td>
<td>Career Preparation in Athletic Training</td>
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<td>KIN 780</td>
<td>Psychological Factors in Sport</td>
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**Spring**

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**Total Credits** 116

1. KIN 665 Laboratory Practicum in Athletic Training
   The five sections (A-E) of this course serve many purposes, but the two main goals are to provide the students with athletic training clinical experiences to (1) learn and build foundational behaviors of professional practice and (2) synthesize and integrate their knowledge, skill and clinical decision-making into actual patient care. As such, the five sections represent a continuum of learning, skill and experience acquisition that occur over the five semesters of this course.

An integral part of this sequential learning is based on the fact that the student is normally taking certain athletic training classes prior to or concurrently with certain sections of KIN 665, so that the student has a specific, defined knowledge-base available to apply while in each section. When a student takes a laboratory practicum ‘out-of-sequence’ they may be expected to apply skills or asked for knowledge they have not yet learned in a class or lab. It is critical for the safety of the patients the student is interacting with that students MUST take the laboratory practicums in sequential order (A-E) based on the prerequisites noted in the course description.

2. KIN 718 Career Preparation in Athletic Training, is the capstone course. As required by the University’s Discovery Program, this course is designated as the “Capstone Experience” for the Major. To meet the standards and conditions of the Discovery Program as the Capstone Experience, it is the last required Athletic Training Major course. Following the criteria of the UNH Academic Affairs Committee, the course provides a student with the means to integrate and augment concepts, skills, and knowledge gained in all previous courses.

3. A student taking an average of 16 credits per semester will still need to return to UNH for the Spring Semester of their Senior Year to complete the final 16 credits needed to earn the 128 credits required for graduation.

As there are no athletic training classes or clinical experiences required during this semester, the student can concentrate their efforts and energies on studying for the Board of Certification Exam during this semester in preparation for becoming a Certified Athletic Trainer and entering the profession – many students take the Exam in January/February or April during this Spring Semester.

**Coaching**

- Coaching Minor (p. 173)

**Coaching Minor**

http://chhs.unh.edu/kin/coaching-minor
Description

The Department of Kinesiology offers a coaching minor. The coaching minor is an interdisciplinary curriculum designed to provide students interested in coaching at the youth, high school, or college levels with basic knowledge and skills necessary for competence in coaching. The minor consists of courses offered by several options within the Department of Kinesiology and recreation management and policy. The coursework lays a theoretical and practical framework for students interested in coaching.

Admission to the minor is based on successful completion of KIN 565 Principles of Coaching (grade of C or better), and a minimum GPA of 2.0.

Requirements

Coaching Minor Requirements
KIN 565 Principles of Coaching 4
KIN 505 Activity, Injuries and Disease 4
KIN 650D Internship in Coaching (one 4-credit internship or two 2-credit internships) 4
Select a minimum of two of the following courses: 4
KIN 521 Theory of Coaching Basketball
KIN 522 Theory of Coaching Football
KIN 523 Theory of Coaching Hockey
KIN 525 Theory of Coaching Soccer
KIN 528 Theory of Coaching Track and Field
Select at least one of the following: 4
KIN 527 Scientific Foundations of Health and Fitness
KIN 560 Sport Psychology
RMP 560 Recreational Sport Management
KIN 562 Sports Media Relations
KIN 675 Motor Development and Learning
KIN 740 Athletic Administration
KIN 765 Advanced Topics in Coaching
KIN 780 Psychological Factors in Sport

Total Credits 20

Students will not be permitted to enroll in KIN 650D Internship in Coaching, until they have completed KIN 565 Principles of Coaching; KIN 505 Activity, Injuries and Disease and at least one theory of coaching class.

To graduate with a coaching minor, individuals must earn a grade of C- or better in all courses associated with the minor (not including KIN 565 Principles of Coaching, which will require a C or better).

Individuals will not be permitted to count coaching minor classes toward their major regardless of the major/degree program.

Communication Sciences and Disorders (COMM)

Communication Sciences and Disorders (CSD) is devoted to helping people overcome disabilities of speech, language, and hearing. The study of Communication Sciences and Disorders may begin in the freshman or sophomore year. Students learn about speech, language, and hearing disorders in the classroom and are involved in clinical observation in the on-campus Speech-Language-Hearing Center and can participate in research projects. Students are encouraged to take elective courses in linguistics, human development, learning theory, early childhood, health administration, special education, and various aspects of rehabilitation.

As this is a pre-professional degree, students generally pursue graduate studies in speech-language pathology or audiology at colleges or universities offering graduate programs leading to a master’s or doctoral degree and to subsequent certification by the American Speech-Language-Hearing Association (ASHA). Certified clinicians find employment opportunities in hospitals, schools, community speech and hearing clinics, and private practice. Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of the Communication Sciences and Disorders major.

http://www.chhs.unh.edu/csd/index

Programs

- Communication Sciences and Disorders Major (B.S.) (p. 174)
- Deaf and Hard of Hearing Studies Minor (p. 175)

Faculty

http://chhs.unh.edu/our-faculty-and-staff-model-excellence

Communication Sciences and Disorders Major (B.S.)

http://chhs.unh.edu/csd/communication-sciences-and-disorders-bs

Description

The Department of Communication Sciences and Disorders offers a bachelor of science degree in communication sciences and disorders.

Communication Sciences and Disorders is the profession devoted to helping people overcome disabilities of speech, language and hearing. The study of communication sciences and disorders may begin in the freshman or sophomore year. Students learn about speech, language, and hearing disorders through a combination of classroom instruction and observations in the on-campus Speech-Language-Hearing Center and elsewhere. Candidates for a bachelor's degree in Communication Sciences and Disorders must satisfy all departmental as well as University Discovery and Writing Intensive requirements.

Requirements

Required Courses
COMM 420 Survey of Communication Disorders 4
COMM 521 Anatomy and Physiology of the Speech and Hearing Mechanisms 4
COMM 524 Clinical Phonetics 4
COMM 604 Basic Audiology 4
COMM 622 Acquisition of Language 4
COMM 630 4
COMM 635  Senior Capstone: Professional Issues in Communication Sciences and Disorders  4
COMM 705  Introduction to Auditory Perception and Aural Rehabilitation  4
COMM 723  Observation Skills in Speech-Language Pathology  2
COMM 731  Articulation and Language Disorders in Children  4
COMM 777  Speech and Hearing Science  4
Total Credits  42

Other elective courses are available. All students must also complete 25 hours of clinical observation.

In addition, students must complete one of the following courses to meet ASHA certification requirements: CHEM 409 Chemistry and Society or PHYS 409 Investigating Physics.

Transfer applications are accepted in October and May. Please contact (603) 862-0144 for more information.

Deaf and Hard of Hearing Studies Minor
http://chhs.unh.edu/csd/deaf-and-hard-hearing-studies-minor

Description

The minor in deaf and hard of hearing studies is intended to provide students with courses leading to specialized knowledge related to the fields of deafness and hearing loss. It is of interest to students who intend to engage in teaching, counseling, rehabilitation, social work, and other professions in which contact with individuals who are deaf or hard of hearing may be expected. There may be some interest as well on the part of students majoring in TESOL and linguistics due to the bilingual aspect of the field. Finally, it may be an option for those students who wish to move on to graduate study in the fields of deaf education, rehabilitation counseling, speech-language pathology, and audiology. Minor coordinator: Mary Jane Sullivan.

Requirements

The minor in Deaf and Hard of Hearing Studies requires a minimum of 20 credits (5 courses). The number of required and elective courses will vary depending upon a student’s major. Students in the minor must earn a grade of C- or better for any course to count towards the required 20 credits. A maximum of 8 credits may be accepted in transfer from another institution if approved by the Minor Coordinator, Mary Jane Sullivan. Students are advised to take the Required Courses in the order listed below.

Note: Communication sciences and disorders majors may not use a course required of their major to fulfill both major and minor requirements. Course substitutions are not allowed. It is important to plan ahead as not all of the minor courses are offered both fall and spring semesters.

Communication Sciences & Disorders Majors:
Required two courses:
COMM 401  American Sign Language I  4
COMM 536  4

CSD students will also take three elective courses from the following:
COMM 402  American Sign Language II  4
COMM 575  Have You Heard? The Fundamentals of Hearing and Hearing Loss  4
COMM 734  American Sign Language III  4
COMM 735  American Sign Language IV  4
COMM 738  Linguistics of American Sign Language  4
COMM 779  Deaf and Hard of Hearing Internship  4
COMM 798  Special Topics  1-4
ENGL/LING 405  Introduction to Linguistics  4

Non-Communication Sciences & Disorders Majors:
Required three courses:
COMM 401  American Sign Language I  4
COMM 536  4
COMM 575  Have You Heard? The Fundamentals of Hearing and Hearing Loss  4

CSD students will also take two elective courses from the following:
COMM 402  American Sign Language II  4
COMM 622  Acquisition of Language  4
COMM 704  4
COMM 705  Introduction to Auditory Perception and Aural Rehabilitation  4
COMM 734  American Sign Language III  4
COMM 735  American Sign Language IV  4
COMM 738  Linguistics of American Sign Language  4
COMM 779  Deaf and Hard of Hearing Internship  4
COMM 798  Special Topics  1-4
ENGL/LING 405  Introduction to Linguistics  4

Exercise Science

Programs

• Exercise Science Major (B.S.) (p. 175)

Exercise Science Major (B.S.)
http://chhs.unh.edu/kin_es

Description

This curriculum prepares students for careers in health and fitness promotion and education programs in hospitals, sports medicine centers, wellness clinics, universities, and rehabilitation facilities. Students are also prepared for advanced degree programs in the health professions, basic biology fields, medicine, or other health-related fields. Students must earn a grade of C (2.0) or better in every required course. Successful completion of early and prerequisite courses is required before advancing to sequenced and higher-level coursework. All required courses must be completed before enrolling in KIN 650A Internship in Exercise Science. Interested students should consult with the program coordinator, Timothy J. Quinn, Timothy.Quinn@unh.edu.
### Major Requirements

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<td>Human Anatomy and Physiology I</td>
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<tr>
<td>&amp; BMS 508</td>
<td>and Human Anatomy and Physiology II</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
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<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
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<tr>
<td>KIN 585</td>
<td>Emergency Medical Responder</td>
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<tr>
<td>KIN 620</td>
<td>Physiology of Exercise</td>
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<td>KIN 621</td>
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<td>KIN 650A</td>
<td>Internship in Exercise Science</td>
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<td>KIN 652</td>
<td>Clinical Kinesiology</td>
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<td>Musculoskeletal Assessment</td>
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<td>KIN 704</td>
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<td>KIN 705</td>
<td>Topics in Applied Physiology</td>
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<td>KIN 722</td>
<td>Applied Biomechanics</td>
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<td>KIN 724</td>
<td>Exercise Metabolism: Acute and Chronic Adaptations</td>
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<td>KIN 736</td>
<td>Fitness and Graded Exercise Testing</td>
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<tr>
<td>KIN 737</td>
<td>Exercise Prescription and Leadership in Healthy and Special Populations</td>
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<td>KIN 794</td>
<td>Cardiopulmonary Pathologies</td>
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<td>KIN 795</td>
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<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<td>PSYC 401</td>
<td>Introduction to Psychology</td>
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Select one of the following:

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**Total Credits**: 88

### Degree Plan

#### Suggested Course Sequence

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<td>ENGL 401</td>
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<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<td>Introduction to Psychology</td>
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<td>KIN 585</td>
<td>Emergency Medical Responder</td>
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<tr>
<td>KIN 620</td>
<td>Physiology of Exercise</td>
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<td>Discovery Course: Statistics (QR)</td>
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<td>KIN 621</td>
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<td>KIN 653A</td>
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<tr>
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<tr>
<td>KIN 704</td>
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<tr>
<td>KIN 722</td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>KIN 736</td>
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<tr>
<td><strong>Credits</strong></td>
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</table>

These courses (KIN 736, 737) give students practical experience in evaluating health and fitness and prescribing exercise to a wide range of clients. Specifically, students assess a number of disease risk factors, including blood pressure, blood chemistry, and body composition measures, and perform maximal graded exercise tests complete with electrocardiogram monitoring, as well as measure strength and flexibility. Students ultimately develop individualized exercise prescriptions for their clients and work with them one-on-one to improve their health and fitness. The internship experience is an off-campus, 10-week, 40-hours per week, full-time experience and can only be taken after all University and departmental courses are completed. Typically, this is taken during the summer after the student’s senior spring academic term.
### Health Management and Policy Major (B.S.)

**Description**

Competencies are achieved through three components of the curriculum: University writing intensive and Discovery program requirements, HMP collateral courses, and HMP courses, which include a field practicum and a capstone course. Students work closely with their advisor and faculty to develop a plan of study to achieve completion of each of these components. Upper-division HMP courses are sequenced in a two-year progression as described in departmental handouts to all majors. Students are expected to follow this sequence; any exceptions are made by petition. Internal transfers may require an extra year in the major due to the prescribed course sequence. All HMP students are required to complete a core of introductory courses before their junior year in the major.

### Requirements

**Health Management and Policy Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>HMP 403</td>
<td>Introduction to Public Health</td>
<td>4</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
</tr>
<tr>
<td>HMP 511</td>
<td>Introduction to Health Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>HMP 621</td>
<td>Pre-practicum Seminar</td>
<td>1</td>
</tr>
<tr>
<td>HMP 622A</td>
<td>Field Practicum in Organizational Analysis</td>
<td>1</td>
</tr>
<tr>
<td>HMP 622B</td>
<td>Field Practicum in Management Skills Development</td>
<td>1</td>
</tr>
<tr>
<td>HMP 622C</td>
<td>Field Practicum in Project Analysis</td>
<td>1</td>
</tr>
<tr>
<td>HMP 624</td>
<td>Post Practicum Seminar</td>
<td>2</td>
</tr>
<tr>
<td>HMP 631</td>
<td>Health Issues Seminar</td>
<td>2</td>
</tr>
<tr>
<td>HMP 642</td>
<td>Health Economics</td>
<td>4</td>
</tr>
<tr>
<td>HMP 711</td>
<td>Health Systems Research I</td>
<td>4</td>
</tr>
<tr>
<td>HMP 712</td>
<td>Health Analytics</td>
<td>4</td>
</tr>
<tr>
<td>HMP 721</td>
<td>Managing Health Care Organizations</td>
<td>4</td>
</tr>
<tr>
<td>HMP 723</td>
<td>Health Planning</td>
<td>4</td>
</tr>
<tr>
<td>HMP 735</td>
<td>Social Marketing</td>
<td>4</td>
</tr>
<tr>
<td>HMP 740</td>
<td>Health Care Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>HMP 742</td>
<td>Strategic Management for Health Care Organizations (HMP Track Course)</td>
<td>4</td>
</tr>
<tr>
<td>HMP 744</td>
<td>Health Ethics and Law</td>
<td>4</td>
</tr>
<tr>
<td>HMP 746</td>
<td>Health Policy</td>
<td>4</td>
</tr>
<tr>
<td>HMP 569</td>
<td>Human Behavior and the Public Health</td>
<td>4</td>
</tr>
<tr>
<td>HMP 715</td>
<td>Environmental Health</td>
<td>4</td>
</tr>
</tbody>
</table>

**Public Health Track Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMP 722</td>
<td>Health Care Management II</td>
</tr>
</tbody>
</table>

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**Programs**

- Health Management and Policy Major (B.S.) (p. 177)
- Health Management Minor (p. 179)
- Public Health Minor (p. 179)

**Faculty**

http://chhs.unh.edu/our-faculty-and-staff-model-excellence
Field Practicum
A required 400 hour 10-week practicum (or administrative internship) constitutes an essential part of the HMP academic program for all HMP majors. The practicum occurs during the summer between junior and senior year, typically beginning in late May and ending in late August, requiring a full-time commitment of the student.

Students must retain a cumulative GPA of 3.00 or higher to be granted permission to enroll in the required summer internship. This internship experience is divided into three concurrent components and requires registering for three one-credit summer courses, (e.g., HMP 622A Field Practicum in Organizational Analysis, HMP 622B Field Practicum in Management Skills Development, HMP 622C Field Practicum in Project Analysis). Summer financial aid has several requirements. To identify if you are eligible for summer aid please review the Financial Aid website at http://www.unh.edu/summersession/financial.html.

This experience allows students to explore an area of special interest in depth that integrates class work with a supervised field experience. Given sufficient timing of student requests, efforts will be made to arrange practica at distant sites based on special needs. Field Practicum in Project Analysis. Field practicum sites are selected by faculty with student involvement are often concentrated in central and Northern New England, but the experience could also be abroad.

Academic Requirements
HMP majors must obtain a minimum of a B- in all HMP core courses and prerequisite courses. Majors must have an overall grade-point average of 3.00 to remain in the major. Students not continuing to make progress in the major, as evidenced by a mixture of generally low grades, incomplete courses, and/or administrative failures resulting in a cumulative GPA lower than 3.0 may, upon determination by the Health Management and Policy faculty, be excluded from the major and participation in the practicum. An exclusion from the major may also be necessary to resolve questions concerning major departmental requirements or University academic standards.

The academic action of exclusion could be a temporary action if a petition is completed by the student detailing the extenuating circumstances and providing supportive documentation. After the petition has been reviewed a determination of denial or approval will be made by the Health Management and Policy faculty. Should a petition be granted approval to remain in the major due to extenuating circumstances, the student must demonstrate academic progress the following semester or they will be excluded from the major without the option to return.

Applications for Major
Students interested in additional information or in applying for admission to the health management and policy major should contact the department’s sophomore class adviser. Efforts should be made to complete this process during the freshman year or early in the sophomore year to ensure sufficient time to complete all of the required collateral courses as well as those in the major in a timely manner. Admitted UNH students can apply to the major at any time, and admission decisions are made at the end of the semester in which the student applies. Admitted students must have a minimum cumulative GPA of 3.00.

Honors in Major
The department offers an honors-in-major program. Students must meet the department’s requirement of having an overall 3.5 grade-point average at UNH and a 3.5 grade-point average for required HMP courses taken by the end of the spring semester sophomore year to be invited to Honors-in-Major. Honors-in-major students take a total of three honors courses during the junior year and senior year, as well as completing an honors thesis project. Students work with a faculty member in the department with the development of the honors thesis. Students should contact the academic department coordinator for further information.

Degree Plan

<table>
<thead>
<tr>
<th>Health Management and Policy Introduction Major Core Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall or Spring Freshmen Year:</strong></td>
</tr>
<tr>
<td>HMP 401 United States Health Care Systems 1</td>
</tr>
<tr>
<td>HMP 403 Introduction to Public Health</td>
</tr>
<tr>
<td>MATH 420 Finite Mathematics</td>
</tr>
<tr>
<td><strong>Fall or Spring Sophomore Year:</strong></td>
</tr>
<tr>
<td>HMP 501 Epidemiology and Community Medicine</td>
</tr>
<tr>
<td>Statistics: Any UNH statistics course satisfies the requirement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Management and Policy Major Core Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Junior Year:</strong></td>
</tr>
<tr>
<td>HMP 621 Pre-practicum Seminar</td>
</tr>
<tr>
<td>HMP 721 Managing Health Care Organizations</td>
</tr>
<tr>
<td>HMP 740 Health Care Financial Management</td>
</tr>
<tr>
<td>HMP 744 Health Ethics and Law</td>
</tr>
<tr>
<td>HMP 746 Health Policy</td>
</tr>
<tr>
<td><strong>Spring Junior Year:</strong></td>
</tr>
<tr>
<td>HMP 511 Introduction to Health Information Systems</td>
</tr>
<tr>
<td>HMP 621 Pre-practicum Seminar</td>
</tr>
<tr>
<td>HMP 642 Health Economics</td>
</tr>
<tr>
<td>HMP 711 Health Systems Research I</td>
</tr>
<tr>
<td><strong>Summer Junior Year:</strong></td>
</tr>
<tr>
<td>HMP 622A Field Practicum in Organizational Analysis</td>
</tr>
<tr>
<td>HMP 622B Field Practicum in Management Skills Development</td>
</tr>
<tr>
<td>HMP 622C Field Practicum in Project Analysis</td>
</tr>
<tr>
<td><strong>Fall Senior Year:</strong></td>
</tr>
<tr>
<td>HMP 624 Post Practicum Seminar</td>
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<tr>
<td>HMP 712 Health Analytics</td>
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<tr>
<td>HMP 723 Health Planning</td>
</tr>
<tr>
<td>HMP 735 Social Marketing</td>
</tr>
<tr>
<td><strong>Spring Senior Year:</strong></td>
</tr>
<tr>
<td>HMP 631 Health Issues Seminar</td>
</tr>
<tr>
<td>HMP 742 Strategic Management for Health Care Organizations (HMP Track Course)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Services Management and Policy Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMP 722 Health Care Management II</td>
</tr>
<tr>
<td>HMP 741 Health Care Financial Management II</td>
</tr>
</tbody>
</table>
Health Management Minor

http://chhs.unh.edu/hmp/health-management-minor-0

Description

The department offers an integrated minor in health management designed for students in majors outside of Health Management and Policy. All courses must be completed with a C- or higher to be counted toward the minor. Students seeking to minor in health management should meet with the academic department coordinator to discuss the requirements.

Requirements

The health management minor includes the following courses:

Required Courses

- HMP 401 United States Health Care Systems 4
- HMP 501 Epidemiology and Community Medicine 4
  Must be taken before completing 600 and 700 level courses.

Select Three of the Following:

- HMP 642 Health Economics 4
- HMP 711 Health Systems Research I 4
- HMP 712 Health Analytics 4
- HMP 721 Managing Health Care Organizations 4
- HMP 722 Health Care Management II 4
- HMP 735 Social Marketing 4
- HMP 740 Health Care Financial Management 4
- HMP 741 Health Care Financial Management II 4
  Must complete all prerequisite courses.

Public Health Minor

http://chhs.unh.edu/hmp/public-health-minor-0

Description

The department offers a minor in public health. Public health deals with the health of populations and focuses on health promotion and disease prevention as well as access to the medical system. The minor introduces students to many of the foundation areas of public health and provides basic exposure to key concepts and skills in the five core disciplines of public health, as articulated by the Council on Education for Public Health. The minor is open to any baccalaureate student outside of the Health Management and Policy major at UNH.

Requirements

The public health minor includes the following courses:

Required Courses

- HMP 401 United States Health Care Systems 4
- HMP 403 Introduction to Public Health 4
- HMP 501 Epidemiology and Community Medicine 4
- HMP 569 Human Behavior and the Public Health 4

Select one of the following:

- HMP 505 Public Health: History and Practice 4
- HMP 712 Health Analytics 4
- HMP 715 Environmental Health 4
- HMP 735 Social Marketing 4
- HMP 746 Health Policy 4
- HDFS 586 Families at Risk 4
- KIN 702 Health Content and Youth Risk Behavior 4
- OT 513 Stressed Out: The Science and Nature of Human Stress 4
- RMP 490 Recreation and Leisure in Society 4
- SW 714 Drugs and Alcohol: Use, Misuse and Addiction 4
  Must complete all prerequisite courses.

Health and Physical Education

Programs

- Health and Physical Education Major (B.S.) (p. 179)

Health and Physical Education Major (B.S.)

http://chhs.unh.edu/kin_pe

Description

The health and physical education (HPE) major provides a foundation for teaching through a four-year program (BS), or the UNH Department of Education fifth-year program leading to a masters of arts in teaching (MAT). Graduates become certified to teach kindergarten through grade 12 (K-12) health and physical education in the state of New Hampshire. This licensure is transferable to all other states in the U.S. Extensive supervised practicum experiences that provide teaching skills, including adaptive physical education programming, offers an excellent foundation for preparing high-quality teachers. The combination of health with physical education and adaptive physical education makes graduates highly marketable.

Internal UNH undergraduate transfer candidates must have a minimum GPA of 2.67 before admission to the major. The coursework for students choosing the four-year or five-year path to teaching certification is exactly the same until the final semester of the undergraduate program. The culminating capstone for students in the four-year teaching program is student teaching (EDUC 694/KIN 694 Supervised Teaching
in Health and Physical Education). Students also have the option of completing a concentration in adapted physical education through additional coursework designed to enhance teaching strategies and the programmatic needs of students with disabilities. Students choosing to do the fifth-year program complete a year-long internship, in lieu of student teaching.

Admission to the fifth year program requires a minimum GPA of 3.0. Students admitted early to the masters program (required GPA of 3.2 or greater) are eligible for dual credit at the undergraduate/graduate levels for up to 12 credit hours. This enables undergraduates to begin the masters program in their junior or senior year. For questions about the program, contact the program coordinator, Steve Wright, at (603) 862-4408, or scwright@unh.edu (Michelle.Grenier@unh.edu).

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 700</td>
<td>Educational Structure and Change</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 705</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>KIN 500</td>
<td>Introduction to Health and Physical Education</td>
<td>4</td>
</tr>
<tr>
<td>KIN 501</td>
<td>First Aid: Responding to Emergencies</td>
<td>1</td>
</tr>
<tr>
<td>KIN 570</td>
<td>Elementary Physical Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>KIN 506</td>
<td>Movement and Gymnastics Exploration</td>
<td>4</td>
</tr>
<tr>
<td>KIN 600</td>
<td>Movement and Gymnastics Exploration</td>
<td>4</td>
</tr>
<tr>
<td>KIN 601</td>
<td>Lifetime Sports</td>
<td>3</td>
</tr>
<tr>
<td>KIN 602</td>
<td>Team Sports</td>
<td>3</td>
</tr>
<tr>
<td>KIN 610</td>
<td>Elementary Physical Education Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td>KIN 620</td>
<td>Physiology of Exercise</td>
<td>4</td>
</tr>
<tr>
<td>KIN 648</td>
<td>Current Issues in Teaching Health</td>
<td>4</td>
</tr>
<tr>
<td>KIN 653B</td>
<td>Biomechanical Analysis of Movement</td>
<td>2</td>
</tr>
<tr>
<td>KIN 655</td>
<td>Middle School and Secondary Physical Education Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td>KIN 666</td>
<td>Middle School and Secondary Physical Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>KIN 675</td>
<td>Motor Development and Learning</td>
<td>4</td>
</tr>
<tr>
<td>KIN 676</td>
<td>Adventure Activities</td>
<td>3</td>
</tr>
<tr>
<td>KIN/EDUC 694</td>
<td>Supervised Teaching in Health and Physical Education</td>
<td>4-6</td>
</tr>
<tr>
<td>KIN 702</td>
<td>Health Content and Youth Risk Behavior</td>
<td>4</td>
</tr>
<tr>
<td>KIN 712</td>
<td>Health Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>KIN 781</td>
<td>Inclusion in Physical Education</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>or SOC 502</td>
<td>Statistics</td>
<td>4</td>
</tr>
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</table>

#### Degree Plan

**Recommended Major Sequencing of Courses**

This list only includes major classes. Students should be registered for, and taking an average of 16 credits per semester to be ‘on track’ to graduate in 4 years. In most semesters, this means a student will be taking Discovery or elective course, to meet this 16 credit ‘load’.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>KIN 500</td>
<td>Introduction to Health and Physical Education</td>
<td>4</td>
</tr>
<tr>
<td>KIN 600</td>
<td>Movement and Gymnastics Exploration</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>KIN 603</td>
<td>Team Sports</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

| **Second Year**                                         |         |
| **Fall**                                               |         |
| KIN 501     | First Aid: Responding to Emergencies             | 1       |
| KIN 610     | Elementary Physical Education Pedagogy           | 4       |
| KIN 620     | Physiology of Exercise                           | 4       |
| KIN 648     | Current Issues in Teaching Health                | 4       |
| KIN 675     | Motor Development and Learning                   | 4       |
| **Credits**                                            | 17      |
| **Spring**                                             |         |
| KIN 570     | Elementary Physical Education Practicum          | 4       |
| KIN 601     | Lifetime Sports                                  | 3       |
| **Credits**                                            | 7       |

| **Third Year**                                         |         |
| **Fall**                                               |         |
| KIN 653B    | Biomechanical Analysis of Movement               | 2       |
| KIN 655     | Middle School and Secondary Physical Education Pedagogy | 4     |
| KIN 702     | Health Content and Youth Risk Behavior           | 4       |
| **Credits**                                            | 10      |
| **Spring**                                             |         |
| HDFS 746    | Human Sexuality                                  | 4       |
| KIN 676     | Adventure Activities                             | 3       |
| KIN 712     | Health Education Practicum                       | 4       |
| KIN 781     | Inclusion in Physical Education                  | 4       |
| **Credits**                                            | 15      |

| **Fourth Year**                                        |         |
| **Fall**                                               |         |
| KIN 666     | Middle School and Secondary Physical Education Practicum | 4     |
| KIN 705     | Topics in Applied Physiology                     | 4       |
| **Credits**                                            | 8       |
| **Spring**                                             |         |
| KIN 694 or EDUC 694 | Supervised Teaching in Health and Physical Education or Courses in Supervised Teaching | 4-6 |

Total Credits 92-94
Human Development and Family Studies (HDFS)

The department’s mission is to support the well-being of individuals and families through research, teaching, and service. Programs emphasize both theoretical and practical knowledge about development across the lifespan, family dynamics, the social and economic conditions that support or impede families, teacher and parent education, and prevention and intervention programs that aid individuals and families. The department is committed to acknowledging and supporting diversity, to providing an educational environment that stresses excellence and innovation, and to developing exemplary programs to serve students, helping professionals, and the larger community.

The department offers three areas of study for undergraduate majors: child development, family support, and lifespan development. Candidates for degree requirements in any of the department options must satisfy all University Discovery Program requirements in addition to satisfying specific program requirements.

The department offers two types of optional year-long internships, which students can apply for during their junior year. The child development concentration offers students a preschool-third grade teacher preparation (P-3) internship. The family support and lifespan concentration offers the family internship, which is required for Certified Family Life Educators (CFLE).

http://www.chhs.unh.edu/hdfs/

Programs

- Human Development and Family Studies Major (B.S.) (p. 181)
- Adolescent and Youth Development Minor (p. 184)
- Child Life Minor (p. 184)
- Human Development and Family Studies Minor (p. 185)

Faculty

http://chhs.unh.edu/our-faculty-and-staff-model-excellence

Human Development and Family Studies Major (B.S.)

http://chhs.unh.edu/hdfs/bs-human-development-and-family-studies

Description

The bachelor of science degree in human development and family studies has three concentrations:

- Family Support/Provisional Certified Family Life Educator (http://chhs.unh.edu/fs/family-supportprovisional-cfle-bs)
- Lifespan Development (http://chhs.unh.edu/fs/lifespan-development-bs)

Each specialization has entry-level criteria and specific course requirements. All require close consultation with a faculty advisor.

Requirements

Major Requirements

Core courses required of each human development and family studies concentrations are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>Select a minimum of 36 Human Development and Family Studies credits, with 8 or more credits at the 700 level required</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Select a senior capstone experience</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Select 20 credits of supporting coursework in consultation with adviser</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Select an undergraduate statistics course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>

1. Each human development and family studies concentration has a capstone experience incorporated into the program.
2. Supporting courses must be 500 level or above, and supporting coursework must include at least 12 credits in courses outside the department.

Candidates for a degree must satisfy all of the University Discovery requirements in addition to satisfying the requirements of their human development and family studies concentration.

Family Support/Provisional CFLE Concentration

This concentration is intended for students interested in working with children, adolescents, adults, and families. Students in the family support concentration develop knowledge and skills to prepare them to provide individual and family support, direct services, and family life education and programs.

Family Internship

In the family internship (HDFS 782 Family Internship), students will apply knowledge gained from their academic studies in a supervised environment. The internship involves a commitment of sixteen hours per week for two semesters, plus a 2-credit seminar (HDFS 792 Family Internship Seminar), which meets every other week for a full academic year. Some internship sites may require additional applications or a criminal background check before placement is finalized. Arrangements for criminal background checks are the responsibility of the student and the requesting organization, not the Department of Human Development and Family Studies. Students apply for the internship during the spring semester of their junior year. Internship applicants must have completed 20 credits of departmental coursework prior to their senior year. Internship courses (HDFS 782 Family Internship/HDFS 792 Family Internship Seminar) count toward the 20 credits required in supporting courses.
Certified Family Life Educator

Students in the family support concentration who are accepted to the family internship are encouraged to apply for provisional status as a Certified Family Life Educator (CFLE). Family life educators work in a variety of settings including social services, health services, child care, family support, youth programs, parent education, junior and senior high schools, and universities and colleges. The CFLE certification provides an individual with expertise in a broad range of issues that constitute family life education and increases their professional credibility by validating their education and experience. The National Council on Family Relations (NCFR) has approved the Department of Human Development and Family Studies’ family support program as meeting the standards and criteria required for CFLE certification. Students may apply to NCFR for provisional CFLE designation upon completion of required coursework. (See marked courses in the table below.) Upon meeting additional requirements listed on the NCFR website, students can apply for full certification after graduation.

Requirements for the Family Support Concentration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 641</td>
<td>Parenting Across the Life Span</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 757</td>
<td>Race, Class, Gender, and Families (capstone)</td>
<td>1</td>
</tr>
<tr>
<td>HDFS 760</td>
<td>Family Programs and Policies</td>
<td>1</td>
</tr>
<tr>
<td>HDFS 794</td>
<td>Families and the Law</td>
<td>1</td>
</tr>
<tr>
<td>or HDFS 776</td>
<td>Children, Adolescents and the Law</td>
<td></td>
</tr>
<tr>
<td>Select one of the following statistics courses:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>HHS #540</td>
<td>Statistics for Health and Human Service</td>
<td></td>
</tr>
<tr>
<td>Professionals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from each of the following groups:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Group I:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td></td>
</tr>
<tr>
<td>HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td></td>
</tr>
<tr>
<td>HDFS 625</td>
<td>Adult Development and Aging</td>
<td></td>
</tr>
<tr>
<td>Group II:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 553</td>
<td>Personal and Family Finance for Family Life Professionals</td>
<td></td>
</tr>
<tr>
<td>HDFS 586</td>
<td>Families at Risk</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 40

1 Required for provisional CFLE certification.

Supporting Courses

Supporting courses are intended to provide an individualized component of the HDFS curriculum. Because HDFS is interdisciplinary, this allows students to explore related areas that contribute to their academic and professional goals. Therefore, supporting courses may be any course that meets all the following criteria:

1. 500-level or above
2. Relates to the study of individuals or families
3. Contributes to the student’s goals and/or academic interests
4. Approved by an HDFS adviser

Courses that meet these criteria are often found in disciplines such as psychology, sociology, social work, women's studies, education, and communication sciences and disorders. Eight HDFS credits may also be used as supporting courses as long they are not required for the student's concentration.

Lifespan Development Concentration

This concentration is intended for students with a broad interest in working with families. The lifespan development concentration provides knowledge about specific life stages of individuals within the context of family systems with a focus on system dynamics, diverse family systems, gender, and cultural differences. This plan of study is designed particularly for those expecting to attend graduate school and those who desire a general background in lifespan development and family dynamics.

Requirements for the Lifespan Development Concentration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td></td>
</tr>
<tr>
<td>HDFS 625</td>
<td>Adult Development and Aging</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 641</td>
<td>Parenting Across the Life Span</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 757</td>
<td>Race, Class, Gender, and Families (Capstone)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 794</td>
<td>Families and the Law</td>
<td>4</td>
</tr>
<tr>
<td>or HDFS 776</td>
<td>Children, Adolescents and the Law</td>
<td></td>
</tr>
<tr>
<td>Select one of the following statistics courses:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>HHS #540</td>
<td>Statistics for Health and Human Service Professionals</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 40

1 Required for provisional CFLE certification.

Supporting Courses—Lifespan Development

Supporting courses are intended to provide an individualized component of the HDFS curriculum. Because HDFS is interdisciplinary, this allows students to explore related areas that contribute to their academic and professional goals. Therefore, supporting courses may be any course that meets all the following criteria:

1. 500-level or above
2. Relates to the study of individuals or families
3. Contributes to the student’s goals and/or academic interests
4. Approved by an HDFS adviser

Courses that meet these criteria are often found in disciplines such as psychology, sociology, social work, women's studies, education, and communication sciences and disorders. Eight HDFS credits may also be used as supporting courses as long they are not required for the student's concentration.
Child Development Concentration

This concentration is intended for students who have a broad interest in working with children ranging in age from birth to age eight. The child development concentration has four major foci: child development, teaching methodology and curriculum development, developmentally appropriate learning environments for young children, and home-school-community relations.

Requirements for the Child Development Concentration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 635</td>
<td>Teaching and Learning in Early Childhood Settings</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 709</td>
<td>Child Development Internship</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 734</td>
<td>Curriculum for Young Children</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 743</td>
<td>Families, Schools, and Community</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 771</td>
<td>Observation and Assessment of Young Children</td>
<td>4</td>
</tr>
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</table>

Select one additional HDFS Course 500 or above

Select one of the following statistics courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
</tr>
<tr>
<td>HHS #540</td>
<td>Statistics for Health and Human Service Professionals</td>
</tr>
</tbody>
</table>

Total Credits 40

Supporting Courses—Child Development

Supporting courses are intended to provide an individualized component of the HDFS curriculum. Because HDFS is interdisciplinary, this allows students to explore related areas that contribute to their academic and professional goals. Therefore, supporting courses may be any course that meets all the following criteria:

1. 500-level or above
2. Relates to the study of individuals or families
3. Contributes to the student’s goals and/or academic interests
4. Approved by an HDFS adviser

Courses that meet these criteria are often found in disciplines such as psychology, sociology, social work, women’s studies, education, and communication sciences and disorders. Eight HDFS credits may also be used as supporting courses as long they are not required for the student’s concentration.

Child Development: Prekindergarten—Third Grade Teacher Preparation Program

The Early Childhood Education P-3 Teacher Preparation (P-3) program prepares students for a career in teaching young children. Course work for this program is designed to maximize in-classroom mentorship and to provide a broad range of exposure across the prekindergarten to 3rd-grade levels. This competitive program within the child development specialization in the Human Development and Family Studies Department is approved by the New Hampshire State Board of Education.

Requirements and instructions for the application process for this program are detailed below. Students who wish to be considered for the P-3 Program must indicate their interest at the time of application to the major so that an appropriate plan of study can be arranged.

Application Requirements

Juniors in the child development concentration who have maintained a minimum overall GPA of 3.0, and a departmental GPA of 3.2 are eligible to apply. Please note that this is a competitive program with limited enrollment. Those accepted into the program must maintain this level of achievement throughout the program. Students must be prepared to have their own transportation for off-campus placements as needed.

Applications are available through the department website http://chhs.unh.edu/hdfs/undergraduate-forms and are due by February 15 of each year. Completed applications will be reviewed by the child development faculty. Admission decisions will be made by mid-March. Provisional admission may be given to those who have not yet taken and passed the Praxis Core Academic Skills for Educators test (or who have not received approval from the New Hampshire Department of Education for a Praxis Core Waiver Request) at the time of application in mid-February. Final admission will be given pending the submission of a passing Praxis core test score (or approved waiver) by the last day of final exams at the end of the junior year.

A Note about Obtaining State Teacher Certification

For detailed information about the State of New Hampshire Department of Education Certification requirements, please visit http://education.nh.gov/certification/documents/edtestinginfo.pdf.

Although students may graduate from UNH with a bachelor’s degree in Human Development and Family Studies, without the required set of passing test scores, and having completed the P-3 coursework along with all student teaching requirements, they will not be eligible to apply for the New Hampshire State P-3 Teaching Certificate. This is a state of New Hampshire requirement; not a condition for graduation from UNH. In order to fulfill a teaching contract with a public school district, a prospective teacher must be certified by the state in which he/she is to be employed.

In addition to the Praxis core, all P-3 teacher program candidates are expected to take the Praxis II for Education of Young Children (5024) and the New Hampshire Foundations of Reading test prior to graduation.

Prekindergarten to 3rd grade (P-3) Internship Course Descriptions

P-3 Internship Course HDFS 785 Seminar for Student Teachers is a fall semester seminar-based course intended to prepare students, as teacher candidates, for the student teaching experience in the spring semester. This course emphasizes students’ continued development as learners, researchers, and collaborators. Discussions and projects focus on the ways in which these three roles are developed within the classroom and school community. Students meet as a cohort in weekly/bi-weekly seminars on campus.

Students should expect to spend a minimum of five hours per week in their assigned classroom (60+ hours). Other expectations for this course include, but not limited to, preparing a resume observing at other sites, attending professional conferences, starting a professional portfolio to document their achievement of professional teaching standards, completing additional assignments and readings.

HDFS 786 Seminar for Student Teachers and HDFS 788 Student Teaching Young Children provide the student teaching experience in the spring semester of the senior year. Students should expect to spend a minimum
of twenty-five hours per week (a minimum of 325+ hours total) in their assigned classrooms, gradually assuming increasing teaching responsibilities, culminating in the assumption of two to three lead-teaching weeks. Additional hours outside of actual classroom/program operation hours are expected for meeting and planning with cooperating teachers, preparing for teaching, and attending parent conferences and other school functions, as well as attending professional conferences. Seminars provide continued opportunity for reflection on students’ development as teacher candidates, reflecting on classroom practices, identifying teaching strengths and weaknesses, and planning their first professional appointment as teachers of young learners. Students should be prepared to meet weekly after school hours, and to complete and present their professional portfolio to faculty and related professionals in the field.

Requirements for Child Development Concentration P-3 Program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 635</td>
<td>Teaching and Learning in Early Childhood Settings (56 classroom hours)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 709</td>
<td>Child Development Internship (140 classroom hours)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 734</td>
<td>Curriculum for Young Children</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 743</td>
<td>Families, Schools, and Community</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 771</td>
<td>Observation and Assessment of Young Children</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 785</td>
<td>Seminar for Student Teachers (- Fall Semester)</td>
<td>2</td>
</tr>
<tr>
<td>HDFS 786</td>
<td>Seminar for Student Teachers (- Spring Semester)</td>
<td>2</td>
</tr>
<tr>
<td>HDFS 788</td>
<td>Student Teaching Young Children (- Spring Semester)</td>
<td>8</td>
</tr>
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</table>

Select one of the following statistics courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>HHS #540</td>
<td>Statistics for Health and Human Service Professionals</td>
<td>4</td>
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</tbody>
</table>

Additional Requirements for the P-3 Program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 741</td>
<td>Exploring Mathematics with Young Children</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 601</td>
<td>Exploring Mathematics for Teachers I</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 706</td>
<td>Introduction to Reading in the Elementary School</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 760</td>
<td>Introduction to Young Children with Special Needs</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 703M</td>
<td>Teaching Elementary Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 703F</td>
<td>Teaching Elementary School Science</td>
<td>2</td>
</tr>
<tr>
<td>MATH 601</td>
<td>Exploring Mathematics for Teachers I</td>
<td>4</td>
</tr>
<tr>
<td>or EDUC 741</td>
<td>Exploring Mathematics with Young Children</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 72

Adolescent and Youth Development Minor (HDFS)

http://chhs.unh.edu/hdfs/adolescent-and-youth-development-minor-requirements

Description

The interdisciplinary minor in adolescent and youth development is offered by the Department of Human Development and Family Studies and the Department of Recreation Management and Policy. The minor is designed to provide students with an opportunity to develop knowledge and skills regarding adolescence and youth development.

Required courses offer a foundation in theory, research, and practice for all minors. Students select three additional courses from a wide array of more specialized offerings from collaborating departments. To assist students in developing a cohesive plan of study for their minor, a simple application process is required. Only students who have completed the required coursework will be identified as having achieved a minor in adolescent and youth development.

Required Courses for HDFS Majors - Adolescence and Youth Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td>4</td>
</tr>
<tr>
<td>RMP 668</td>
<td>Youth Culture and Programs (Choose three courses from the following list)</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose three courses from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC #507</td>
<td>Mentoring Adolescents</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 717</td>
<td>Growing up Male in America</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 797</td>
<td>Special Topics in Education</td>
<td>1-4</td>
</tr>
<tr>
<td>HDFS 797</td>
<td>Advanced Special Topics (Approved Sections Only)</td>
<td>1-6</td>
</tr>
<tr>
<td>JUST 701</td>
<td>Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>KIN 565</td>
<td>Principles of Coaching</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
<tr>
<td>RMP 560</td>
<td>Recreational Sport Management</td>
<td>4</td>
</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
<td>2</td>
</tr>
<tr>
<td>RMP 730</td>
<td>Camp Administration and Leadership</td>
<td>4</td>
</tr>
<tr>
<td>SOC 525</td>
<td>Juvenile Crime and Delinquency</td>
<td>4</td>
</tr>
<tr>
<td>SOC 773</td>
<td>Childhood and Social Policy</td>
<td>4</td>
</tr>
<tr>
<td>SW 705</td>
<td>Child and Adolescent Risks and Resiliency: Program, Policy and Practice</td>
<td>4</td>
</tr>
</tbody>
</table>

Only one practicum may be applied toward the minor.

Some courses may require prerequisites or permission.

Child Life Minor (HDFS)

http://chhs.unh.edu/hdfs/child-life-curriculum-minor-requirements

Description

The interdisciplinary child life minor is offered by the Department of Human Development and Family Studies and the therapeutic recreation option of the Department of Recreation Management and Policy. Upon completion of course requirements for the minor, students are able to sit for the Child Life Specialist exam.
Requirements

**Required Courses for HDFS Majors - Child Life Minor**

RMP 502  Foundations of Therapeutic Recreation  4  
HDFS 525  Human Development  4  
HDFS 565  Introduction to Child Life  1  
HDFS 710  Community Internship  1-12  
Select two of the following electives:  8  
- RMP 501  Recreation Services for Individuals with Disabilities  
- RMP 503  Therapeutic Recreation Rehabilitation Principles & Interventions  
- RMP 504  Therapeutic Recreation Mental Health Principles and Interventions  

Total Credits  21-32

1  Offered every other spring.

**Human Development and Family Studies Minor**

http://chhs.unh.edu/hdfs/minor-human-development-and-family-studies

**Description**

The department offers a minor in human development and family studies to interested students in related majors.

**Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>Select three additional courses chosen in consultation with a departmental adviser</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Total Credits  20

Individual course grades must be C or above, and the overall grade-point average for the 20 human development and family studies credits must be at least 2.0.

**Interdisciplinary Health**

- Interdisciplinary Health Minor (p. 185)

**Interdisciplinary Health Minor**

http://chhs.unh.edu/kin_pe/interdisciplinary-health-minor

**Description**

The central focus of the Interdisciplinary Health minor is to prepare future educators for employment in schools, community health centers, and/or corporate settings.

**Kinesiology (KIN)**

The mission of the Department of Kinesiology is to generate, transmit, and apply knowledge about the role of physical activity (including exercise, movement, outdoor adventure experiences, and sport) in the advancement of health in society. The department has several teaching, research, and service functions that support this mission, including the preparation of professionals in the five majors described below. While programs vary in emphasis, each curriculum offers students fundamental knowledge in the following areas: the biological, psychological, and sociocultural foundations and consequences of physical activity; the pedagogical and rehabilitative aspects of physical activity; and the management and marketing of delivery systems in the field. Each program makes extensive use of field experiences and internships that blend theory with practice.

The department offers five areas of study for majors: athletic training, exercise science, health and physical education, outdoor education, and sport studies. Candidates for degree requirements in any of the department majors must satisfy all University Discovery Program requirements in addition to satisfying specific program requirements.

http://www.chhs.unh.edu/kin/index

**Programs**

- Applied Human Anatomy & Physiology (p. 171)
- Athletic Training (p. 172)
- Coaching (p. 173)
- Exercise Science (p. 175)
- Health and Physical Education (p. 179)
- Interdisciplinary Health (p. 185)
- Kinesiology (p. 186)
- Outdoor Adventure Leadership (p. 190)
- Outdoor Education (p. 191)
- Sport Studies (p. 198)

**Faculty**

http://chhs.unh.edu/our-faculty-and-staff-model-excellence
Kinesiology Minor

Description

The Department of Kinesiology offers an interdisciplinary curriculum for nonmajors, which is designed to provide students with the basic knowledge of human movement and sport sciences. The minor consists of courses offered by several options within the department.

Requirements

Kinesiology Minor Requirements
1. Complete a minimum of 20 credits approved by the department minor advisor. All must be KIN courses.
2. Must have a C- (or better) in all graded courses. Pass/Fail option may NOT be used. Courses designated Credit/Fail MAY be used.
3. No more than 8 credits may satisfy BOTH major and minor requirements.
4. No more than 6 of the 20 credits may be in activity or coaching courses.

Please note: The designation of the completed minor will be "Kinesiology" which means that you cannot minor in any of the majors (i.e. athletic training, exercise science, health and physical education, outdoor education, or sport studies). However, you may create an emphasis by carefully selecting appropriate courses so that anyone looking at your final UNH transcript will be able to see the emphasis.

Nursing (NURS)

The undergraduate nursing program is nationally accredited by:
The Commission on Collegiate Nursing Education

The Department of Nursing reflects the mission and goals of the University and focuses on the uniqueness of each individual. The department's mission is to enhance the health of individuals, families, groups, and communities. The philosophy expresses the beliefs of the faculty regarding person, environment, health, nursing, and education. The curricular goal is to guide nursing students in developing knowledge and skills essential to the present and future practice of nursing. Graduates are prepared to provide care to individuals and groups, help people identify and meet their health care needs, be effective colleagues on the health care team and shape the future of health care.

http://www.chhs.unh.edu/nursing

Programs

- Nursing Major (B.S.) (p. 186)

Faculty

http://chhs.unh.edu/faculty/nursing

Nursing Major (B.S.)

http://chhs.unh.edu/nursing/nursing-bs

Description

The curricula are divided into biological, social sciences, and humanities as a foundation for courses in the major, and nursing courses, which emphasize relationship-based care, reflective thinking, clinical decision making, and the application of evidence-based guidelines to develop quality and safe clinical skills. Clinical experiences are offered in area health facilities, community health agencies, and a state-of-the-art simulation laboratory. The senior year culminates in a capstone practicum, NURS 721C Integrating Professional Nursing Practice Clinical, in which students apply curricular concepts in a precepted clinical experience. Candidates for the nursing degree must satisfy all of the University Discovery Program requirements in addition to satisfying major requirements.

The nursing program faculty believe learning is a creative process wherein students are active participants in their education, growth, and development as professional nurses. Faculty members are facilitators and mentors to students within a supportive, scholarly environment.

Honors-in-major courses are offered to interested nursing students who have achieved a minimum grade-point average of 3.75 in NURS courses and cumulative GPA of 3.4 at the end of the sophomore year in nursing. In addition to NURS 641 Translating Research for Practice, (must be taken at the honors level) students must successfully complete 8 additional credits of honors coursework drawn from the following courses:

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II</td>
</tr>
<tr>
<td>NURS 627</td>
<td>Clinical Judgment in Nursing</td>
</tr>
<tr>
<td>NURS 705</td>
<td>Contemporary Leadership within Health Care Systems</td>
</tr>
</tbody>
</table>

Honors-in-major students must successfully complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 794</td>
<td>Special Topics (spring semester junior year)</td>
</tr>
<tr>
<td>NURS 797</td>
<td>Honors Thesis (fall semester senior year)</td>
</tr>
<tr>
<td>NURS 797</td>
<td>Honors Thesis (spring semester senior year)</td>
</tr>
</tbody>
</table>

Total Credits 6

These self-directed learning experiences, related to the student's interests, are designed to help students acquire advanced knowledge and skills to undertake inquiry or scholarly projects. Students must submit a project description to a faculty adviser at the beginning of the senior year. Students present the results of this study at the Nursing Inquiry Day.

A grade of C or better in high school chemistry is required as well as biology or physics. The following prerequisite courses must be completed successfully prior to enrollment in NURS 500 Introduction to Professional Nursing:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
</tr>
<tr>
<td>&amp; BMS 508</td>
<td>and Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
</tr>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
</tr>
</tbody>
</table>

Total Credits 20

1 Must be taken prior to or concurrent with NURS 500 Introduction to Professional Nursing
A course in statistics must be completed prior to, or taken concurrent with, NURS 641 Translating Research for Practice.

Prerequisite courses require grades of C or better and only one prerequisite course may be repeated one time in order to progress. Most of the prerequisite courses also meet Discovery requirements. Major courses require a minimum grade of C. Nursing courses may not be repeated. A cumulative grade-point average of 2.5 must be maintained throughout the program.

Students are responsible for their own transportation to clinical agencies, uniforms, professional equipment, health insurance coverage, yearly criminal background checks, drug and alcohol screening, fingerprinting, yearly health assessment, and select immunizations and titers. Students must maintain certification in cardiopulmonary resuscitation at the Healthcare Provider level. All clinical documents must be received by July 1st before the sophomore year, except flu vaccine, which is due by October 15th, and remain up to date until graduation. Clinical documents cannot expire during the academic year; documents that must be submitted yearly must be dated between May 1 and June 30. Students will be assessed a late fee if clinical documents are not received by the due date. Students will be dropped from nursing courses if documentation is not received by the first day of class. Additional costs associated with the program include, but are not limited to, simulation laboratory fees, fees associated with program requirements, and attendance at professional meetings.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 500</td>
<td>Introduction to Professional Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 504</td>
<td>Disease and Drugs I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 505</td>
<td>Diseases and Drugs II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 506</td>
<td>Human Development, Interaction and Learning Across the Lifespan</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516</td>
<td>Health Assessment and Nursing Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516C</td>
<td>Health Assessment and Nursing Fundamentals Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 517C</td>
<td>Clinical Integration</td>
<td>2</td>
</tr>
<tr>
<td>NURS 601</td>
<td>Function and Wellbeing of Older Adults</td>
<td>2</td>
</tr>
<tr>
<td>NURS 611</td>
<td>Care of the Adult with Acute Illness I (plus lab)</td>
<td>4</td>
</tr>
<tr>
<td>NURS 611C</td>
<td>Care of the Adult with Acute Illness I Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 612C</td>
<td>Care of the Adult with Acute Illness II Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616</td>
<td>Living with Mental Illness</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616C</td>
<td>Living with Mental Illness Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 621</td>
<td>Maternal and Newborn Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 621C</td>
<td>Maternal Newborn Nurs Clin</td>
<td>2</td>
</tr>
<tr>
<td>NURS 627</td>
<td>Clinical Judgment in Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 641</td>
<td>Translating Research for Practice</td>
<td>4</td>
</tr>
<tr>
<td>NURS 702</td>
<td>Child Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 702C</td>
<td>Child Health in the Community Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 704</td>
<td>Public Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 704P</td>
<td>Public Health Nursing Project</td>
<td>2</td>
</tr>
<tr>
<td>NURS 705</td>
<td>Contemporary Leadership within Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>NURS 711</td>
<td>Clinical Judgment in Complex Illness</td>
<td>2</td>
</tr>
<tr>
<td>NURS 721</td>
<td>Integrating Professional Nursing Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 721C</td>
<td>Integrating Professional Nursing Practice Clinical</td>
<td>6</td>
</tr>
</tbody>
</table>

**Degree Plan**

**Degree Plan**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>First Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery/Inquiry</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery/Inquiry</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>NURS 500</td>
<td>Introduction to Professional Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 504</td>
<td>Disease and Drugs I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516</td>
<td>Health Assessment and Nursing Fundamentals (plus lab)</td>
<td>2</td>
</tr>
<tr>
<td>NURS 516C</td>
<td>Health Assessment and Nursing Fundamentals Clinical</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Statistics 1</td>
<td>4</td>
</tr>
<tr>
<td>NURS 505</td>
<td>Diseases and Drugs II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 506</td>
<td>Human Development, Interaction and Learning Across the Lifespan</td>
<td>4</td>
</tr>
<tr>
<td>NURS 517C</td>
<td>Clinical Integration (plus lab)</td>
<td>2</td>
</tr>
<tr>
<td>NURS 601</td>
<td>Function and Wellbeing of Older Adults</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>Third Year</strong></td>
<td></td>
</tr>
<tr>
<td>NURS 611</td>
<td>Care of the Adult with Acute Illness I (plus lab)</td>
<td>4</td>
</tr>
<tr>
<td>NURS 611C</td>
<td>Care of the Adult with Acute Illness I Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616</td>
<td>Living with Mental Illness 2</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616C</td>
<td>Living with Mental Illness Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 641</td>
<td>Translating Research for Practice</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II (plus lab)</td>
<td>4</td>
</tr>
</tbody>
</table>
NURS 612C  Care of the Adult with Acute Illness II  Clinical  2
NURS 621  Maternal and Newborn Nursing (plus lab)  2
NURS 621C  Maternal Newborn Nurs Clin  2
NURS 627  Clinical Judgment in Nursing (writing intensive)  4

Discovery/Elective  4

Credits  18

Fourth Year

Fall
NURS 702  Child Health Nursing  2
NURS 702C  Child Health in the Community Clinical  2
NURS 704  Public Health Nursing  4
NURS 704P  Public Health Nursing Project  2
NURS 711  Clinical Judgment in Complex Illness (plus lab)  2

Discovery/Elective  4

Credits  16

Spring
NURS 705  Contemporary Leadership within Health Care Systems  4
NURS 721  Integrating Professional Nursing Practice  2
NURS 721C  Integrating Professional Nursing Practice Clinical  6

Credits  12

Total Credits  128

1 HHS #540 Statistics for Health and Human Service Professionals, PSYC 402 Statistics in Psychology, SOC 502 Statistics, MATH 439 Statistical Discovery for Everyone
2 May be taken fall or spring semester.

Occupational Therapy (OT)

Occupational therapy enables individuals of all ages to engage in everyday activities across the life span in the areas of work, self-care, home management, and leisure. The main goal of occupational therapy is to support people as they gain or regain skills and abilities to participate effectively within their natural context. This process often involves adapting tasks or an environment to optimize a person’s ability to fulfill his/her social roles and engage in those activities that are meaningful and support health and wellbeing. A program of studies in occupational therapy includes a foundation in the liberal arts; biological, behavioral, and health sciences; and discipline-specific studies in occupational science and occupational therapy.

The occupational therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE).

Graduates from an accredited program are eligible to sit for the certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy, Inc. (NBCOT). After successful completion of this exam, the individual will be a registered occupational therapist (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT certification examination.

http://www.chhs.unh.edu/ot/index

Programs
- Occupational Therapy Major (B.S.) (p. 188)
- Disabilities Minor (p. 189)

Faculty
http://chhs.unh.edu/our-faculty-and-staff-model-excellence

Occupational Therapy Major (B.S.)
http://chhs.unh.edu/ot/undergraduate-program

Description

Combined Bachelor of Science/Master of Science Program

The University of New Hampshire Department of Occupational Therapy offers a combined bachelor’s degree/master’s degree program. Students must complete the professional master’s degree in occupational therapy to be eligible to take the National Board Certification of Occupational Therapists examination, which is required to practice as an occupational therapist. Students may enter as first-year students or transfer within UNH into the BS/MS program during the sophomore year, space permitting in the program. Students interested in transferring into this program should contact the Department of Occupational Therapy for information about transfer requirements and application deadlines. This information is also available on the department website www.chhs.unh.edu/ot (http://www.chhs.unh.edu/ot).

Requirements

Students begin the BS/MS curriculum with preprofessional courses, which include courses in biological and social sciences as well as occupational therapy. In addition to meeting the University Discovery Program requirements, students take the following core courses during their first three years:

ENGL 401  First-Year Writing  4
PSYC 401  Introduction to Psychology  4
BMS 507  Human Anatomy and Physiology I (Fall - co-requisite lab BMS 507L)  4
BMS 508  Human Anatomy and Physiology II (Spring - co-requisite lab BMS 508L)  4
OT 500  Behavior and Development of Children  4
OT 501  Developmental Tasks of Adulthood  4
OT 510  Exploring Occupational Therapy and Occupation  4
OT 610  Occupation, Identity, Disability  4
KIN 652  Clinical Kinesiology  4
KIN 653A  Musculoskeletal Assessment  2
KIN 706  Neurology  6
& KIN 707  and Neurology Lab

Select a statistics course such as one of the following:  4
PSYC 402  Statistics in Psychology  4
### Additional Requirements

(Details on satisfying these requirements are provided by the student’s academic adviser and are outlined in the OT Department Policy and Procedure Manual. All students receive a copy of the manual in their first year, and it is also available on the OT student organization site online.)

- An experiential learning/occupation-based learning course for 3-4 credits (This is a course that requires cognitive learning that is translated into a motor skill. Many courses can meet this requirement);
- A health/social policy course (This is a course that address social and health policy, such as HMP 401 United States Health Care Systems or SW 525 Social Welfare Policy: History of Social and Economic Justice);
- Volunteer or work experience in a health and human service organization is recommended, although not required.

### Professional Curriculum

Students in the BS/MS curriculum with a GPA of 3.0 or higher transition into the professional program during their undergraduate education. They complete the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 710</td>
<td>OT Practice and Professional Roles</td>
<td>4</td>
</tr>
<tr>
<td>OT 741</td>
<td>Human Occupation</td>
<td>4</td>
</tr>
<tr>
<td>OT 745</td>
<td>Administration and Management for Occupational Therapy Practice</td>
<td>4</td>
</tr>
<tr>
<td>OT 751</td>
<td>Mind Body Systems/Neurologically Based Function and Dysfunction</td>
<td>4</td>
</tr>
<tr>
<td>OT 752 &amp; 752L</td>
<td>Human Movement and Environmental Effects on Everyday Occupations and Human Movement Lab</td>
<td>5</td>
</tr>
<tr>
<td>OT 760 &amp; 760L</td>
<td>Psychosocial Evaluation and Intervention and Psychosocial Evaluation and Intervention Lab</td>
<td>5</td>
</tr>
<tr>
<td>OT 785</td>
<td>Research Methods and Application to Practice</td>
<td>4</td>
</tr>
<tr>
<td>OT 792</td>
<td>Level I Fieldwork (January-term)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following: 5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 730 &amp; 730L</td>
<td>Assistive Technology for Enhancing Occupational Performance and Assistive Technology for Enhancing Occupational Performance Lab</td>
<td>5</td>
</tr>
<tr>
<td>OT 771 &amp; 771L</td>
<td>Enabling Participation in Community Groups and Enabling Participation in Community Groups Lab</td>
<td>5</td>
</tr>
</tbody>
</table>

**Discovery Program Capstone:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 741</td>
<td>Human Occupation</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits:** 56

### Disabilities Minor

http://chhs.unh.edu/ot/interdisciplinary-disabilities-studies-minor

#### Description

The purpose of the interdisciplinary disability minor is to prepare undergraduate students to apply their unique disciplinary skills to work with and support individuals with disabilities and their families to become fully engaged members of their communities, and to improve their quality of life. The minor also helps to prepare students to work in an interdisciplinary service delivery environment. A secondary purpose is to create a core group of interdisciplinary faculty to work collaboratively with students on issues related to disability. The 20-credit hours curriculum consists of five to eight courses including a writing-intensive course from the student’s major. The minor offers students a unique opportunity to explore disability from several vantage points, including an overview of the disability experience, societal barriers individuals face, service delivery systems, disciplinary perspectives, current research, and relevant legislation.

#### Requirements

**Required Course**

One of the following courses is required from the student’s major or any other disability related intensive course outside of the major with permission:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 750</td>
<td>Introduction to Exceptionality</td>
</tr>
<tr>
<td>OT 444</td>
<td>Living and Doing with Technology</td>
</tr>
<tr>
<td>OT 610</td>
<td>Occupation, Identity, Disability</td>
</tr>
<tr>
<td>RMP 444</td>
<td>Building a Culture of Peace</td>
</tr>
</tbody>
</table>

**Total Credits:** 40

1. This course also fulfills the writing intensive in major course.
Electives
Select four to seven elective courses of the following: 16

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 536</td>
<td>Have You Heard? The Fundamentals of Hearing and Hearing Loss</td>
</tr>
<tr>
<td>EDUC 556</td>
<td>Mentoring Adolescents with Disabilities in the Transition to Work</td>
</tr>
<tr>
<td>EDUC 750</td>
<td>Introduction to Exceptionality</td>
</tr>
<tr>
<td>EDUC 754</td>
<td>Contemporary Issues in Developmental Disabilities</td>
</tr>
<tr>
<td>EDUC 760</td>
<td>Introduction to Young Children with Special Needs</td>
</tr>
<tr>
<td>INTR 438</td>
<td>A Socio-cultural Perspective on the Deaf Community</td>
</tr>
<tr>
<td>KIN 781</td>
<td>Inclusion in Physical Education</td>
</tr>
<tr>
<td>NUTR 740</td>
<td>Nutrition for Children with Special Needs</td>
</tr>
<tr>
<td>OT 444</td>
<td>Living and Doing with Technology</td>
</tr>
<tr>
<td>OT 610</td>
<td>Occupation, Identity, Disability</td>
</tr>
<tr>
<td>OT 685</td>
<td>Psychosocial Disorders and Everyday Life</td>
</tr>
<tr>
<td>OT 722</td>
<td>Introduction to Assistive Technology</td>
</tr>
<tr>
<td>OT 724</td>
<td>Assistive Technology and Physical Disabilities</td>
</tr>
<tr>
<td>OT 726</td>
<td>Assistive Technology and Sensory, Communicative, and Cognitive Disabilities</td>
</tr>
<tr>
<td>RMP 444</td>
<td>Building a Culture of Peace</td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
</tr>
<tr>
<td>SW 712</td>
<td>Understanding Developmental Disabilities</td>
</tr>
</tbody>
</table>

The purpose of the independent study is to explore a topic that provides a detailed focus on an important issue related to individuals with disabilities. A student may also choose to engage in a small-scale research project to investigate an issue that affects individuals with disabilities. Each project will be negotiated with the student's departmental faculty adviser and the coordinator of the minor program.

Please note: Additional elective courses may be added in the future as deemed appropriate and approved by disabilities studies coordinator.

Also note: Students must achieve C- or better and a 2.00 grade-point average in courses that the minor department approves. Courses taken on a pass/fail basis may not be used for a minor. No more than 8 credits used to satisfy major requirements may be used for a minor. There is no limit on the number of overlapping credits allowed between minors. Students should declare the intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean to have the minor shown on the academic record.

Outstanding Adventure Leadership

• Outdoor Adventure Leadership Minor (p. 190)

Outdoor Adventure Leadership Minor

http://chhs.unh.edu/kin_oe/outdoor-education-minor2nd-major-options

Description

Outdoor Adventure Leadership Minor:
The purpose of the minor in outdoor adventure leadership is to complement major courses of study that prepare students for professional fields that work in outdoor environments across human service, natural resources, educational, or commercial recreation sectors. It will provide an orientation to the technical, risk management, and leadership skills required for personal preparedness and program organization involving backcountry and facilities-based adventure activities. In addition, the minor seeks to improve the standards for fieldwork in professional fields that use the outdoors by offering high-quality training that employs current risk management principles that govern engagement in outdoor activities.

Program Objectives:

• Provide the highest quality professional preparation in outdoor technical skills
• Surpass national standards so students can pursue certifications if desired
• Cultivate life-long learners who are motivated to seek continuous improvement
• Improve quality and help to reduce risks across professional fields that depend on a common skillset
• Expand participation in outdoor activities both on campus and in public and private sectors
• Enhance the experiences of future participants by emphasizing best practices that validate a range of life experiences, identities, and goals

Requirements

Minor Requirements

Select one course from the following: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 511</td>
<td>Issues of Wilderness and Nature in American Society</td>
</tr>
<tr>
<td>KIN/RMP 515</td>
<td>History of Outdoor Pursuits in North America</td>
</tr>
<tr>
<td>KIN 550</td>
<td>Outdoor Education Philosophy and Methods</td>
</tr>
</tbody>
</table>

Required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 540</td>
<td>Top Rope Rock Climbing</td>
</tr>
<tr>
<td>KIN 541</td>
<td>Management of Challenge Courses</td>
</tr>
<tr>
<td>KIN 444C</td>
<td>Amped Up: Social and Psychological Perspectives on Adventure</td>
</tr>
<tr>
<td>or KIN 551</td>
<td>Adventure Programming: Backcountry Based Experiences</td>
</tr>
<tr>
<td>KIN 552</td>
<td>Adventure Programming: Water Based Experiences</td>
</tr>
</tbody>
</table>

Select one course from the following: 2-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 539</td>
<td>Artificial Climbing Wall Management</td>
</tr>
<tr>
<td>KIN 542</td>
<td>Sea Kayaking</td>
</tr>
<tr>
<td>KIN 543</td>
<td>Winter Adventure Programming</td>
</tr>
<tr>
<td>KIN 545</td>
<td>High Angle Rescue</td>
</tr>
<tr>
<td>KIN 546</td>
<td>White Water Canoeing</td>
</tr>
<tr>
<td>KIN 547</td>
<td>Lead Rock Climbing</td>
</tr>
<tr>
<td>KIN 548</td>
<td>Winter Expedition Programming</td>
</tr>
<tr>
<td>KIN 549</td>
<td>Wilderness Navigation</td>
</tr>
</tbody>
</table>
Outdoor Education

Programs

- Outdoor Education Major (B.S.) (p. 191)

Outdoor Education Major (B.S.)

http://chhs.unh.edu/kin_oe

Description

The outdoor education major is an accredited, award-winning, internationally recognized program preparing students for careers in outdoor education, adventure programming, wilderness therapy, and other educational/organizational settings. In addition to providing rich course content, this interdisciplinary program gives ample opportunity for practical application and field experience in the New Hampshire seacoast and White Mountains areas. Students must earn a grade of C (2.0) or better in every major course. In addition, they must complete 100 days of documented leadership experience prior to beginning a required internship. Interested students should contact the program coordinator, Nate Fitch, nate.fitch@unh.edu.

Students in outdoor education complete KIN 650B Internship in Outdoor Education as the capstone course for the option. This course integrates the knowledge and skills learned in all previous option courses and experiences into practical applications students will use as they prepare to enter the profession. Students complete their internships at regional and national organizations upon completion of all other courses and prerequisites.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 540</td>
<td>Top Rope Rock Climbing</td>
<td>4</td>
</tr>
<tr>
<td>KIN 541</td>
<td>Management of Challenge Courses</td>
<td>4</td>
</tr>
<tr>
<td>KIN 543</td>
<td>Winter Adventure Programming</td>
<td>2-4</td>
</tr>
<tr>
<td>or KIN 548</td>
<td>Winter Expedition Programming</td>
<td></td>
</tr>
<tr>
<td>KIN 550</td>
<td>Outdoor Education Philosophy and Methods</td>
<td>4</td>
</tr>
<tr>
<td>KIN 551</td>
<td>Adventure Programming: Backcountry Based Experiences</td>
<td>4</td>
</tr>
<tr>
<td>KIN 552</td>
<td>Adventure Programming: Water Based Experiences</td>
<td>3</td>
</tr>
<tr>
<td>KIN 681</td>
<td>Theory of Adventure Education</td>
<td>4</td>
</tr>
<tr>
<td>KIN 682</td>
<td>Outdoor Leadership</td>
<td>4</td>
</tr>
<tr>
<td>KIN 686</td>
<td>Wilderness Emergency Medical Care</td>
<td>4</td>
</tr>
<tr>
<td>KIN 687</td>
<td>Leadership Practicum</td>
<td>4</td>
</tr>
</tbody>
</table>

KIN 786 Organization and Administration of Outdoor Education Programs 4
KIN 650B Internship in Outdoor Education 2 2-8
Select one of the following: 4
ENGL 501 Introduction to Creative Nonfiction
ENGL 502 Professional and Technical Writing
ENGL 503 Persuasive Writing

Elective Courses

Select at least one of the following: 2-4
KIN 539 Artificial Climbing Wall Management
KIN 542 Sea Kayaking
KIN 545 High Angle Rescue
KIN 546 White Water Canoeing
KIN 547 Lead Rock Climbing
KIN 549 Wilderness Navigation
KIN 693 Teaching Assistantship
KIN 782 Therapeutic Applications of Adventure Programming
KIN 798 Special Topics

Cognate Requirement

Select 16 credits - related core of courses 1

Total Credits 65-75

1 Core of courses emphasizing the particular area or population in outdoor education of interest to student, e.g., business, education, psychology, social work (selected with the assistance of an adviser).

2 Proof of 100 days of leadership experience is required prior to taking this course.

Degree Plan

Suggested Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
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</tr>
<tr>
<td>Fall</td>
<td></td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>KIN 540</td>
<td>Top Rope Rock Climbing (Fall only)</td>
<td>4</td>
</tr>
<tr>
<td>KIN 551</td>
<td>Adventure Programming: Backcountry Based Experiences</td>
<td>4</td>
</tr>
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</table>

or PAWS Pre-Orientation Experience

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 552</td>
<td>Adventure Programming: Water Based Experiences</td>
<td>3</td>
</tr>
</tbody>
</table>

KIN Outdoor Education Elective 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
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</table>

Second Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>Fall</td>
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<td></td>
</tr>
<tr>
<td>KIN 541</td>
<td>Management of Challenge Courses</td>
<td>4</td>
</tr>
</tbody>
</table>

Credits 19
KIN 550  Outdoor Education Philosophy and Methods  4  
KIN 686  Wilderness Emergency Medical Care (Fall only)  4  
Outdoor Education Elective  1  4  

<table>
<thead>
<tr>
<th>January Term</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>KIN 686  Wilderness Emergency Medical Care</td>
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<tr>
<td>Credits</td>
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<table>
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<tr>
<th>Spring</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 541  Management of Challenge Courses</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose One:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIN 543  Winter Adventure Programming (2 CR, Spring)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIN 548  Winter Expedition Programming (4 CR, Spring)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose One:</td>
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<td></td>
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</tr>
<tr>
<td>ENGL 501  Introduction to Creative Nonfiction</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 502  Professional and Technical Writing</td>
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<tr>
<td>ENGL 503  Persuasive Writing</td>
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<tr>
<td>Discovery Course</td>
<td></td>
<td></td>
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<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
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</tr>
<tr>
<td>Credits</td>
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</tbody>
</table>

**Third Year**

**Fall**

KIN 682  Outdoor Leadership  4  
Choose One:  4  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>ENGL 501  Introduction to Creative Nonfiction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 502  Professional and Technical Writing</td>
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<td></td>
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<tr>
<td>ENGL 503  Persuasive Writing</td>
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<tr>
<td>Discovery Course</td>
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</tr>
<tr>
<td>Discovery Course</td>
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<td>Minor or Elective</td>
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<tr>
<td>Credits</td>
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</table>

**Spring**

KIN 681  Theory of Adventure Education  4  
KIN 682  Outdoor Leadership  4  
Minor or Elective  4  
Minor or Elective  4  
| Credits  | 16  | | |

**Fourth Year**

**Fall**

KIN 687  Leadership Practicum  4  
Minor or Elective  4  
Minor or Elective  4  
Minor or Elective  4  
| Credits  | 16  | | |

**Spring**

KIN 786  Organization and Administration of Outdoor Education Programs (Spring only)  4  
Minor or Elective  4  
Minor or Elective  4  

<table>
<thead>
<tr>
<th>Minor or Elective</th>
<th>4</th>
</tr>
</thead>
</table>

Minor or Elective  4  

Credits  16  

Total Credits  133-135

---

1. KIN Outdoor Education Electives:
   - KIN 542 Sea Kayaking: Sea Kayaking (2 CR)
   - KIN 546 White Water Canoeing: Whitewater Canoeing (2 CR)
   - KIN 547 Lead Rock Climbing: Lead Rock Climbing (2 CR)
   - KIN 545 High Angle Rescue: High Angle Rescue (2 CR)
   - KIN 782 Therapeutic Applications of Adventure Programming: Therapeutic Applications of Adventure (4 CR)
   - KIN 693 Teaching Assistantship: Teaching Assistantship (2 CR)
   - KIN 798 Special Topics: Special Topics (varied Credit)

2. May take ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing, or a Discovery Course.

3. **Internship**

   The final requirement for a degree in Outdoor Education is the completion of KIN 650B Internship in Outdoor Education, which is an internship that is a minimum of 400 hours in duration. Students will typically complete this requirement after their final semester. We encourage students to seek paid professional positions to fulfill this final requirement. Often, students' internships lead directly to full-time jobs with their host organizations.

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**Recreation Management and Policy (RMP)**

As the fabric of life in contemporary society grows in complexity, people are increasingly turning to leisure and recreation services to find meaning, renewal, and enrichment. Recreation services can improve public health and wellness, promote sustainable environments, develop a sense of community, and enhance the quality of life of all citizens. Recreation professionals work in diverse settings, including human services, health care, natural recreation resource areas such as parks, and commercial recreation businesses. Population and economic projections suggest that recreation service industries will continue to expand and thereby continue to provide numerous professional career opportunities.

The Department of Recreation Management and Policy maintains two national accreditations. Our core is nationally accredited by the Council on Accreditation of Parks, Recreation, Tourism, and Related Professions (COAPRT). Further, our therapeutic recreation option is accredited by the Committee on Accreditation of Recreational Therapy Education (CARTE). CARTE is an approved accreditation program under the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The department's curriculum supports a broad-based education and an opportunity to acquire specialized professional knowledge and skills. Graduates are employed in a broad range of settings, such as community recreation agencies, resorts, conference centers, youth services agencies, hospitals, rehabilitation centers, and long-term care facilities.

**Curriculum Structure**

Students entering the major may choose either an option in program and event management, which includes the professional core and required courses related to program and event management, or the therapeutic recreation option, which includes the professional core and required
courses in therapeutic recreation. Candidates for a degree in recreation management and policy must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major option.

**Study Abroad Opportunities**

The University of New Hampshire approved study abroad program list is available on the Center for International Education website (https://www.unh.edu/global/education-abroad). This site includes a wide variety of destinations, coursework, and activities to meet the diverse needs of UNH students. Students who wish to attend a program not included in the approved list must complete a UNH One-time Study Abroad Approval Petition (https://www.unh.edu/global/sites/default/files/cie/media/individual_study_abroad_info_sheet.pdf). Interested students in the major should consult with their recreation management and policy academic adviser about sites, timing, and coursework that may be most compatible with degree requirements.

**Professional Internship**

A supervised internship (RMP 664 Internship) is required of all majors and serves as their major capstone requirement. The internship is designed to create a bridge between theory and practical application. Students, working with their advisers and the internship coordinator, select an appropriate setting based on their professional and career interests. They must register for a 14-16 credit full-time internship that ranges from 14 to 16 weeks and is under the supervision of a qualified professional. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

**Criteria for Admission and Retention**

Recreation Management and Policy Admission: The recreation management and policy major has two options, therapeutic recreation and program and event management. Internal transfer students should obtain major and option materials from the Department of Recreation Management and Policy 108 Hewitt Hall or online (TR Option (http://chhs.unh.edu/sites/chhs.unh.edu/files/departments/recreation_management_and_policy/Curriculum/rmp_tr_packet.pdf), PEM Option (http://chhs.unh.edu/sites/chhs.unh.edu/files/departments/recreation_management_and_policy/Curriculum/rmp_pem_packet.pdf)). After reading over the materials students should apply online (https://unh.az1.qualtrics.com/jfe/form/SV_ahQREETOa465Ks1).

**Application Deadlines**

Program and event management: This option prepares students for supervisory or middle management positions and emphasizes planning, leadership, and administrative concepts in settings such as youth sport organizations, recreation resource management, business and entrepreneurial recreation, municipal recreation, campus recreation, residential communities, festivals and events planning, employee services recreation, recreational sports agencies, youth service agencies, and resorts. Students must maintain a 2.50 semester GPA once admitted into the RMPPEM Option. Admission decisions are made after the student completes the online application process and has a meeting with the PEM option coordinator. If you have questions about the program and event management option, please contact Dr. Nate Trauntvein (neh34@unh.edu).

To apply, please complete the online transfer application form (https://unh.az1.qualtrics.com/jfe/form/SV_ahqREETOa465Ks1).

PEM transfer applications are accepted throughout the year and decisions are accepted online. PEM transfer applications are accepted online. Students should apply by December 1st for Fall admission or March 15th for Spring admission. Admission decisions are made on a rolling admission basis.

**Therapeutic recreation**: Internal transfer applications are accepted online throughout the year and admissions decisions are made each month. Students must apply by December 1st for Fall admission or March 15th for Spring admission. Admission decisions are based on the content of the online application as well as a personal interview with the therapeutic recreation option coordinator. Students must have a minimum cumulative grade point average of 2.75 to be considered for admission into the major and it is highly recommended that students have completed or are enrolled in BMS 507 Human Anatomy and Physiology I or BMS 508 Human Anatomy and Physiology II at the time of application. If you have questions about the therapeutic recreation option, please contact Dr. Allison Wilder (allison.wilder@unh.edu).

To apply, please complete the online transfer application form (https://unh.az1.qualtrics.com/jfe/form/SV_ahqREETOa465Ks1).

We ask students to go through a short informational meeting with the therapeutic recreation option coordinator in order to better understand the RMP curriculum and the process to submitting an application for the major. We want students to be prepared to be active and satisfied participants in the RMP major. It is strongly recommended that you attend an informational session prior to submitting your application. These informational sessions take place throughout the academic year and may take the form of either group or individual meetings. To find out the schedule of meetings, please contact Dr. Allison Wilder. (allison.wilder@unh.edu)

**Recreation Management and Policy Retention**

Students within the major are required to maintain a minimum 2.5 grade-point average every semester. In addition, majors must obtain a grade of C (2.0) or better in RMP courses and a grade of C- (1.67) or better in all other courses specifically required by the department.

http://www.chhs.unh.edu/rmp/index

**Programs**

- Recreation Management and Policy Major: Program and Event Management Option (B.S.) (p. 194)
- Recreation Management and Policy Major: Therapeutic Recreation Option (B.S.) (p. 194)
- Adolescent and Youth Development Minor (p. 195)
- Child Life Minor (p. 196)

**Faculty**

http://chhs.unh.edu/our-faculty-and-staff-model-excellence
Recreation Management and Policy Major: Program and Event Management Option (B.S.)

http://chhs.unh.edu/rmp/program-and-event-management-bs

Description

This option prepares students for managerial positions in commercial, public, and nonprofit organizations that provide recreation and leisure services. Curriculum design emphasizes the effective and efficient planning, delivery, and evaluation of leisure-based programs, services, and enterprises. Applied experience is a component of most courses, in addition to a required practicum and the 14-16 week full-time internship under professional supervision. Depending upon the RMP electives and the career support emphasis or minor chosen, students may expect to find employment in a broad range of settings. Recent graduates have found employment in the areas of conference and event planning, municipal park and recreation services, recreational sports, commercial and entrepreneurial recreation businesses, youth-serving agencies, resorts, camps, and natural resource management positions in state and federal agencies.

Requirements

Core Requirements

All majors must complete a core curriculum of seven courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 490</td>
<td>Recreation and Leisure in Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
<td>4</td>
</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
<td>2</td>
</tr>
<tr>
<td>RMP 654</td>
<td>Professional Development and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>RMP 664</td>
<td>Internship</td>
<td>14-16</td>
</tr>
<tr>
<td>RMP 724</td>
<td>Grantsmanship, Evaluation, and Research</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>34-36</td>
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</table>

1 RMP majors cannot count RMP 490 Recreation and Leisure in Society toward the University Social Sciences requirement.

In addition to the required core courses, students who pursue the program and event management option must complete the following departmental requirements:

Program and Event Management Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 559</td>
<td>Program and Event Marketing</td>
<td>4</td>
</tr>
<tr>
<td>RMP 661</td>
<td>Recreation and Event Leadership</td>
<td>4</td>
</tr>
<tr>
<td>RMP 663</td>
<td>Recreation and Event Management</td>
<td>4</td>
</tr>
<tr>
<td>RMP 772</td>
<td>Law and Public Policy in Leisure Services</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>Statistics - Take any one of the following</strong></td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
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<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
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</table>

RMP Electives select three of the following: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 511</td>
<td>Issues of Wilderness and Nature in American Society</td>
</tr>
<tr>
<td>RMP 515</td>
<td>History of Outdoor Pursuits in North America</td>
</tr>
<tr>
<td>RMP 560</td>
<td>Recreational Sport Management</td>
</tr>
<tr>
<td>RMP 593</td>
<td>Special Topics (as offered)</td>
</tr>
<tr>
<td>RMP 668</td>
<td>Youth Culture and Programs</td>
</tr>
<tr>
<td>RMP 680</td>
<td>Festival and Event Planning</td>
</tr>
<tr>
<td>RMP 711</td>
<td>Recreation Resource Management</td>
</tr>
<tr>
<td>RMP 730</td>
<td>Camp Administration and Leadership</td>
</tr>
<tr>
<td>RMP 750</td>
<td>Aging, Advocacy, and Active Learning</td>
</tr>
<tr>
<td>RMP #768</td>
<td>Theories and Philosophies of Youth Development</td>
</tr>
<tr>
<td>RMP 770</td>
<td>Management and Design of Recreation and Park Facilities</td>
</tr>
<tr>
<td>RMP 775</td>
<td>Entrepreneurial and Commercial Recreation</td>
</tr>
<tr>
<td>RMP 793</td>
<td>Advanced Topics (as offered)</td>
</tr>
</tbody>
</table>

*RMP courses taken to fulfill the elective course requirement may not also be used to fulfill the emphasis area requirement unless prior approval from the student’s academic adviser is obtained in unique circumstances.

Total Credits 32

Program and Event Management students must complete a minor or emphasis area of 18–20 credits to support their specific career goals.

Professional Internship

A supervised internship (RMP 664 Internship) is required of all majors and serves as their major capstone requirement. The internship is designed to create a bridge between theory and practical application. Students, working with their advisers and the internship coordinator, select an appropriate setting based on their professional and career interests. They must register for a 14-16 credit full-time internship that ranges from 14 to 16 weeks and is under the supervision of a qualified professional. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

Recreation Management and Policy Major: Therapeutic Recreation Option (B.S.)

http://chhs.unh.edu/rmp/therapeutic-recreation-bs

Description

Therapeutic recreation utilizes recreation to assist people with disabilities or illnesses to develop and use their leisure in ways that enhance health, independence, and well-being. Therapeutic recreation recognizes the importance of quality of life and uses activities to remediate or rehabilitate functional abilities. Therapeutic recreation services are provided in a variety of settings, including hospitals, long-term care facilities, residential treatment facilities, schools, home health care, community recreation, correctional facilities, rehabilitation centers, camp and outdoor education centers, and adult day programs. Observation and applied experience is a component of several courses. Students complete
a 14-16-week full-time clinical internship under the supervision of a certified therapeutic recreation specialist (CTRS). The Bureau of Labor Statistics occupational outlook reports the employment of recreational therapists is projected to grow 13 percent from 2012 to 2022, about as fast as the average for all occupations. As the large baby-boom generation ages, they will need recreational therapists to help treat age-related injuries and illnesses, such as strokes. Recreational therapists will also be needed to help patients manage chronic conditions such as diabetes and obesity (Bureau of Labor Statistics). A CNN Money report identifies recreation therapy among the top ten "best jobs for saving the world." In particular, they note the profession's high benefit to society and high personal job satisfaction (CNN Money Magazine). On the job front, interested readers may also wish to review an article on Recreational Therapy published on Monster.com at http://www.monster.com/healthcare/a/recreational-therapists-help-patients-play-to-win-0615 (2015).

Upon successful completion of this option, students are prepared to meet sitting requirements for the National Council for Therapeutic Recreation Certification Examination. Students/graduates who pass the NCTRC exam and attain the CTRS are eligible to seek licensure to practice in the state of New Hampshire.

Students may be required to submit to a criminal background check.

### Requirements

#### Core Requirements

All majors must complete a core curriculum of seven courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 490</td>
<td>Recreation and Leisure in Society ¹</td>
<td>4</td>
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<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
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</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
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</tr>
<tr>
<td>RMP 654</td>
<td>Professional Development and Ethics</td>
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<tr>
<td>RMP 664</td>
<td>Internship</td>
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</tr>
<tr>
<td>RMP 724</td>
<td>Grantsmanship, Evaluation, and Research</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>34-36</td>
</tr>
</tbody>
</table>

¹ RMP majors cannot count RMP 490 Recreation and Leisure in Society toward the University Social Sciences requirement.

In addition to required core courses, students who choose this option must meet the following departmental requirements:

#### Therapeutic Recreation Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 500</td>
<td>Therapeutic Recreation Methods in Physical Rehabilitation Settings</td>
<td>1</td>
</tr>
<tr>
<td>RMP 502</td>
<td>Foundations of Therapeutic Recreation</td>
<td>4</td>
</tr>
<tr>
<td>RMP 503</td>
<td>Therapeutic Recreation Rehabilitation Principles &amp; Interventions</td>
<td>4</td>
</tr>
<tr>
<td>RMP 504</td>
<td>Therapeutic Recreation Mental Health Principles and Interventions</td>
<td>4</td>
</tr>
<tr>
<td>RMP 612</td>
<td>Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation</td>
<td>4</td>
</tr>
<tr>
<td>RMP 613</td>
<td>Interventions and Documentation in Therapeutic Recreation</td>
<td>3</td>
</tr>
</tbody>
</table>

### Adolescent and Youth Development Minor (RMP)

http://chhs.unh.edu/rmp/minors

#### Description

This interdisciplinary minor is offered by the Department of Recreation Management and Policy and the Department of Human Development and Family Studies.

#### Requirements

All students must complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 668</td>
<td>Youth Culture and Programs</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td>4</td>
</tr>
</tbody>
</table>

Select three additional courses from an interdisciplinary list of courses approved for the minor          12

Total Credits 20

RMP majors may use only RMP 668 Youth Culture and Programs to meet both major and minor requirements. Additional information and the application for the minor may be obtained from the sponsoring department offices or at adolescent and youth development minor.
Child Life Minor (RMP)

http://chhs.unh.edu/rmp/minors

**Description**

The Department of Human Development and Family Studies (HDFS) and the Department of Recreation Management and Policy (RMP) offer an interdisciplinary minor in child life for students majoring in HDFS and RMP’s Therapeutic Recreation Option only.

**Requirements**

**Core Courses**

- RMP 502 Foundations of Therapeutic Recreation 4
- HDFS 525 Human Development 4
- HDFS/RMP 565 Introduction to Child Life 4

**Electives for RMP Majors**

Select two of the following: 8

- HDFS 623 Developmental Perspectives on Infancy and Early Childhood
- HDFS 635 Teaching and Learning in Early Childhood Settings
- HDFS 641 Parenting Across the Life Span
- HDFS 734 Curriculum for Young Children
- HDFS 772 International Approaches to Child Advocacy
- HDFS 797 Advanced Special Topics (Impact of Autism on the Family)
- RMP 593 Special Topics (Child Life Design & Programming)

Participate in a 480-hour internship under the supervision of a CCLS.

Complete 100 hours of volunteer work in direct care of children in healthcare setting before internship.

**Total Credits** 20

1. RMP majors take RMP 593 Special Topics and HDFS majors take HDFS 707 Practicum.

RMP students interested in the child life minor should contact Dr. Patti Craig and HDFS students interested in the child life minor should contact Dr. Kerry Kazura.

Social Work (SW)

The Department of Social Work’s undergraduate program is accredited by the Council on Social Work Education (CSWE) and must meet rigorous academic standards to retain this accreditation. Social work majors pursue a program that encompasses the professional social work competencies of professional identity, critical thinking, knowledge of diversity and human rights, social, environmental and economic justice, social welfare policy and services, social work practice with all client system sizes, human behavior in the social environment, research, and ethics.

According to the National Association of Social Workers (NASW), “The social work profession provides ethical, practical, and compassionate leadership to help people confront and resolve personal and social challenges” through their work with individuals, families, small groups, organizations, and communities. All social work majors complete a field internship under the direction of a qualified supervisor.

The Department of Social Work’s undergraduate program offers both a major and a minor in social work. It is a specialized degree that prepares graduates for generalist social work practice with a solid foundation in the liberal arts and in the knowledge, skills, and value base of social work. Through the mastery of core competencies, social work graduates apply their education working with individuals, families, groups, organizations, and communities. In addition, the program prepares qualified students to pursue graduate education in schools of social work and related fields.

To connect the theoretical and conceptual content of the classroom with the practice world, students must complete 40 hours of volunteer service in an approved agency/program setting by the end of the semester prior to applying to the field. Twenty of the forty hours must be in the same agency/program. The remaining hours may be across multiple sites/programs. This experience may be paid or volunteer and must be pre-approved by the student’s faculty adviser. The service hours must be completed post high school and by the end of the semester prior to field application. In addition, students complete a 450-hour internship over two semesters during the senior year. This is the senior capstone experience. The field placement in the final year of the baccalaureate program is arranged between the student and the field education coordinator.

Evaluation of this senior field placement is one tool that measures student achievement of program competencies. Students are required to pay a liability insurance fee for their off-campus field education.

Social Work Major (B.S.)

http://chhs.unh.edu/sw/social-work-bs

**Description**

This program is designed to prepare students for generalist social work practice with a solid foundation in the liberal arts and in the knowledge, skills, and value base of social work. Through the mastery of core competencies, social work graduates apply their education working with individuals, families, small groups, organizations, and communities. All social work majors complete a field internship under the direction of a qualified supervisor.
experience. In compliance with CSWE accreditation standards, the B.S. in social work program does not grant social work course credit for life or work experience.

Social work majors earn a B.S. degree in social work. Graduates are eligible for practice in a variety of social work settings throughout the United States. In addition, qualified graduates are eligible to apply for advanced standing in M.S.W. programs that offer advanced standing. Depending upon the program, this can mean earning the M.S.W. in one calendar year versus two academic years.

### Requirements

#### Academic Program

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of the social work major. Social work majors are required to take:

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4</td>
</tr>
<tr>
<td>SW 550</td>
<td>Human Behavior and Social Environment I</td>
<td>4</td>
</tr>
<tr>
<td>SW 551</td>
<td>Human Behavior and Social Environment II</td>
<td>4</td>
</tr>
<tr>
<td>SW 601</td>
<td>Research Methods in Social Work</td>
<td>4</td>
</tr>
<tr>
<td>SW 622</td>
<td>Social Work Practice: Interventions with Individuals and Families</td>
<td>4</td>
</tr>
<tr>
<td>SW 623</td>
<td>Social Work Practice: Interventions with Groups, Organizations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>SW 625</td>
<td>Social Welfare Policy in a Global Context</td>
<td>4</td>
</tr>
</tbody>
</table>

**Senior Capstone Course Sequence**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 640</td>
<td>Social Work Field Experience I</td>
<td>5</td>
</tr>
<tr>
<td>SW 640A</td>
<td>Social Work Field Experience I: Seminar</td>
<td>3</td>
</tr>
<tr>
<td>SW 641</td>
<td>Social Work Field Experience II</td>
<td>5</td>
</tr>
<tr>
<td>SW 641A</td>
<td>Social Work Field Experience II: Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

48

Students must maintain a 2.0 and earn a C or better in the 12 social work major courses. In addition, students are expected to successfully complete four additional courses as part of a liberal arts foundation for the major. Students choose one course from an approved list of courses in two different categories: anthropology/sociology and zoology and then must choose two additional courses from an approved list of diversity courses. These four courses may also satisfy University Discovery requirements. Students wishing to minor in social work are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4</td>
</tr>
</tbody>
</table>

Select any three other courses offered by the department

1

**Total Credits**

20

1 Excluding SW 640 Social Work Field Experience I, SW 641 Social Work Field Experience II.

Students interested in either a major or minor in social work should consult with the undergraduate program coordinator, Martha Byam, Pettee Hall, Room 231, (603) 862-1077.

### Gerontology Minor

http://chhs.unh.edu/sw/gerontology-minor

#### Description

The gerontology interdisciplinary minor provides students with the opportunity to examine and evaluate the aging process as it affects the individual and society within the United States. Through a multidisciplinary course selection, students develop an understanding of aging from a variety of perspectives with a focus on how people age physically, cognitively, emotionally, and socially. Students are encouraged to analyze the historical and philosophical foundation from which policies, programs, and professional activities affecting the aged are developed, implemented, and evaluated. The purpose of this minor is to prepare students as they enter their career fields on the effects that the growing elderly population will have in every component of modern life.

#### Requirements

To complete a minor in gerontology students are required to take a minimum of 20 credits (five courses).

GERO 795 Independent Study, is not a required course but is used by students and faculty as an option for creating an individual experience relating to aging. A faculty member must approve and oversee (mentor) the student’s work in GERO 795 Independent Study. Additionally, the GMM coordinator must also approve of the proposal and retain a copy. A copy of the proposal and the final copy will be kept in the student’s major academic folder.

Other courses available to students are courses within the various University colleges containing a 50 percent focus on aging in the United States and approved by the GMM coordinator with reviews by the Gerontology Minor Advisory Board.

Students who wish to discuss or find out more about the minor may make an appointment with the GMM Coordinator, College of Health and Human Services, Department of Social Work.

**Required courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERO 500</td>
<td>I'm Old, So What! An introduction to aging in the United States</td>
<td>4</td>
</tr>
<tr>
<td>KIN 607</td>
<td>Biology of Aging</td>
<td>4</td>
</tr>
</tbody>
</table>

Select 3 additional courses. Some of the accepted courses are the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 535</td>
<td>Death and Dying</td>
<td></td>
</tr>
<tr>
<td>OT 501</td>
<td>Developmental Tasks of Adulthood</td>
<td></td>
</tr>
<tr>
<td>PSYC 582</td>
<td>Adult Development and Aging</td>
<td></td>
</tr>
<tr>
<td>PSYC 741</td>
<td>Advanced Topics</td>
<td></td>
</tr>
<tr>
<td>SW 625</td>
<td>Social Welfare Policy in a Global Context</td>
<td></td>
</tr>
<tr>
<td>SW 701</td>
<td>Women and Aging</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

20
An updated list of University-wide approved courses may be picked up in the Gerontology Minor Coordinator’s office, College of Health & Human Services, Department of Social Work, Pettee Hall.

# Sport Studies

## Programs

- Sport Studies Major (B.S.) (p. 198)

## Sport Studies Major (B.S.)

http://chhs.unh.edu/kin_ss

## Description

Sport studies is an interdisciplinary major that provides a foundation for careers in the sport industry. Students may prepare for careers in school, college, and professional athletic administration, coaching, marketing, and sports media. The program also prepares majors for graduate study in areas such as sport law and sport psychology. Sport studies students are encouraged to pursue a second major or minor in a complementary discipline, such as business, journalism, or psychology.

Majors take a core of foundation courses (e.g., The Sport Industry) as well as electives in applied areas such as sport marketing, athletic administration, and sport psychology. Majors must earn a grade of B- or better in KIN 565 Principles of Coaching and KIN 580 Sport Industry, and a grade of C or better in each required University and KIN course. All majors must complete 20 credits of prior-approved coursework in supporting areas such as business, psychology, or education. In addition, an internship experience or independent study is required. An internship experience is strongly recommended since it is often critical to career development. Interested students should consult with the program coordinator, Tim Ashwell, Tim.Ashwell@unh.edu.

## Requirements

### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 560</td>
<td>Sport Psychology</td>
<td>4</td>
</tr>
<tr>
<td>KIN 562</td>
<td>Sports Media Relations</td>
<td>4</td>
</tr>
<tr>
<td>KIN 565</td>
<td>Principles of Coaching</td>
<td>4</td>
</tr>
<tr>
<td>KIN 580</td>
<td>Sport Industry</td>
<td>4</td>
</tr>
<tr>
<td>KIN 740</td>
<td>Athletic Administration</td>
<td>4</td>
</tr>
<tr>
<td>KIN 741</td>
<td>Social Issues in Contemporary Sports</td>
<td>4</td>
</tr>
<tr>
<td>KIN 743</td>
<td>Sport Marketing</td>
<td>4</td>
</tr>
<tr>
<td>KIN 761</td>
<td>Senior Seminar Sport Studies 2</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Select one approved statistics course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electives

Select sixteen credits of approved KIN electives 3

### Cognate Requirement (outside of Department of Kinesiology)

Select a minimum of 20 credits from other departments 1

Total Credits 76

1 Each course must be approved in advance by faculty advisor.

2 Majors must complete a minimum of 150 hours of industry experience before they can take KIN 761 Senior Seminar Sport Studies. Students must be enrolled as a sport studies major for one full semester before taking KIN 761 Senior Seminar Sport Studies. See advisor for details.

3 Include 4 credits of KIN 650C Internship in Sport Studies or KIN 696 Independent Study.

Internal transfers to sport studies must have a 2.5 GPA as well as a minimum grade of C in PSYC 401 Introduction to Psychology, Statistics (PSYC, SOC, DS) and a minimum grade of B- in both KIN 565 Principles of Coaching and KIN 580 Sport Industry.

## Degree Plan

### Recommended Major Sequencing of Courses

This list only includes major classes. Students should be registered for, and taking an average of 16 credits per semester to be ‘on track’ to graduate in 4 years. In most semesters, this means a student will be taking Discovery or elective course, to meet this 16 credit ‘load’.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIN 580</td>
<td>Sport Industry</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIN 565</td>
<td>Principles of Coaching</td>
<td>4</td>
</tr>
<tr>
<td>or KIN 562</td>
<td>Sports Media Relations</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

| Second Year |                                            |         |
| Fall        |                                            |         |
| KIN 562  | Sports Media Relations                     | 4       |
| or KIN 565 | Principles of Coaching                    | 4       |
| PSYC 402  | Statistics in Psychology                   | 4       |
| or SOC 502 | Statistics                                  | 4       |
| Credits   |                                            | 8       |

| Spring     |                                            |         |
| KIN 560  | Sport Psychology                           | 4       |
| Sport Studies Elective |                        | 4       |
| Credits   |                                            | 8       |

| Third Year |                                            |         |
| Fall       |                                            |         |
| KIN 650C | Internship in Sport Studies                | 2-4     |
| 2 Sport Studies Electives |                        | 8       |
| Credits   |                                            | 10-12   |

| Spring     |                                            |         |
| KIN 740  | Athletic Administration                     | 4       |
| or KIN 741 | Social Issues in Contemporary Sports       | 4       |
| Sport Studies Elective |                        | 4       |
| Credits   |                                            | 8       |
### Fourth Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 761</td>
<td>Senior Seminar Sport Studies</td>
<td>4</td>
</tr>
<tr>
<td>KIN 650C</td>
<td>Internship in Sport Studies</td>
<td>2-4</td>
</tr>
<tr>
<td>Sport Studies Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>10-12</strong></td>
</tr>
</tbody>
</table>

#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 740</td>
<td>Athletic Administration</td>
<td>4</td>
</tr>
<tr>
<td>or KIN 741</td>
<td>Social Issues in Contemporary Sports</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>64-68</strong></td>
</tr>
</tbody>
</table>

1. 16 required credits of electives including 4 credits from KIN 650C Internship in Sport Studies or KIN 696 Independent Study.
College of Life Sciences and Agriculture

Jon M. Wraith, Dean
Kimberly J. Babbitt, Associate Dean
Theodore E. Howard, Associate Dean

The College of Life Sciences and Agriculture (COLSA) provides students a fundamental education in the agricultural, biological, life, natural, and social sciences. Advanced technical and professional courses are offered to prepare students for graduate school or entry-level positions in their chosen field. Preparation can vary from fundamental studies of cancer cells to community service planning, resource protection to genetic engineering, and molecular biology to biotechnology.

A blend of Discovery and foundational science courses, careful selection of supportive upper level courses, and ample opportunities to engage in internships, research, and study abroad experiences ensures graduates develop the background and experiences necessary to be competitive in the job market. Potential employers include federal, state, and local governments; consulting firms and industrial organizations. Graduates are employed as watershed, soil, and natural resource managers; associates in biomedical and agricultural research laboratories; marketing analysts and extension specialists; nutrition supervisors and environmental regulators; and information educators and communication experts. Community governments employ graduates as service planners and land-use specialists, teachers in traditional education, public health technicians, and urban pest control specialists. Positions are available in private and commercial organizations in production agriculture, food processing, landscaping, agribusiness, sales, and private planning. Graduates may also pursue entrepreneurial careers.

Additionally, COLSA prepares students for advanced study in their chosen field of interest where graduate study is required for attaining their career goals.

Degrees

The college offers three undergraduate degrees: the bachelor of arts, the bachelor of science, and the bachelor of science in forestry. Some of the courses prescribed in these degree programs partially fulfill the Discovery requirements. Students should see their advisers for specific information.

General Science Certification

Students majoring in biochemistry, molecular and cellular biology; biomedical science; biology; environmental conservation sustainability; environmental sciences; forestry; wildlife and conservation biology; or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the Department of Education.

Advising System

A member of the faculty whose area of interest is closely related to the student’s is appointed as an adviser to assist the undergraduate in planning his or her academic program. Further advising is also available in the dean’s office, Rudman Hall.

Undeclared Status

Students may select a major upon entering the college or wait until registration for the sophomore year. Students who are uncertain about choosing a specific major may remain undeclared during their freshman year. In most cases, they should take the following courses, after which they should be ready to declare a major:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSA 400</td>
<td>Freshmen Seminar</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery Program requirement</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery Program Requirement or an introductory course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>in any department in the college</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

**Spring**

| BIOL 411                | Introductory Biology: Molecular and Cellular               | 4       |
| CHEM 404                | General Chemistry II                                       | 4       |
| MATH 424B               | Calculus for Life Sciences                                 | 4       |
|                      | Discovery Program requirement                              | 4       |
|                      | **Credits**                                                | **16**  |

|                      | **Total Credits**                                          | **33**  |

Undeclared freshmen should explore possible majors by taking courses in the areas or programs that interest them most. They should talk to faculty, students, and their adviser concerning requirements, job opportunities, etc., in the various programs and should be prepared to declare a major when they register for the first semester of the sophomore year.

UNH-EcoQuest New Zealand Study Abroad Program

The Department of Natural Resources and the Environment offers highly motivated students the opportunity to study abroad through the UNH-EcoQuest New Zealand applied field studies program. Students engage in a unique multidisciplinary, research-oriented program and receive grade-point average credit for a semester abroad. Four fully integrated courses (NR 660 Ecology and Biogeography of New Zealand, NR 661 Restoration Ecology and Ecosystem Management in New Zealand, NR 662 Environmental Policy, Planning and Sustainability in New Zealand, and NR 663 Applied Directed Research in New Zealand for 16 credit hours) focus on the ecological, resource management, and conservation and sustainability issues important to the natural environment, economy, and culture of New Zealand. Alternatively, students may participate in a two-course (NR 660 Ecology and Biogeography of New Zealand, NR 662 Environmental Policy, Planning and Sustainability in New Zealand for 8 credits hours) summer session. Contact Donna Dowal, (603) 862-2036.

Degrees

Bachelor of Arts

The bachelor of arts degree is available in Sustainable Agriculture and Food Systems, and Zoology. Students must accumulate 128 credits, attain a 2.0 cumulative grade-point average, satisfy Discovery requirements, and complete a foreign language requirement (see University Academic Requirements for specific B.A. language
requirements). Check individual departmental listings for specific major requirements and minimum acceptable grades in major courses.

**Bachelor of Science**

The bachelor of science degree is available in all departments or programs. University requirements are the same as for the bachelor of arts degree, except that a foreign language is not required and minimum acceptable grades may differ in some programs. Check individual departmental or program listings for specific major requirements.

http://www.colsa.unh.edu/

### Departments

- Agriculture, Nutrition and Food Systems (p. 201)
- Biological Sciences (p. 208)
- Molecular, Cellular, and Biomedical Sciences (p. 244)
- Natural Resources and the Environment (p. 244)

### Programs of Study

- Agribusiness (p. 201)
- Animal Behavior (p. 202)
- Animal Science (ANSC) (p. 202)
- Biochemistry, Molecular and Cellular Biology (BMCB) (p. 205)
- Biology (BIOL) (p. 208)
- Biomedical Science (BMS) (p. 211)
- Community and Environmental Planning (CEP) (p. 219)
- Ecogastronomy (p. 221)
- Environmental Conservation and Sustainability (p. 222)
- Environmental Horticulture (p. 225)
- Environmental Sciences (p. 226)
- Environmental and Resource Economics (EREC) (p. 228)
- Equine Studies (p. 230)
- Forestry (p. 233)
- Genetics (GEN) (p. 235)
- GeoSpatial Analysis (p. 240)
- Green Real Estate (p. 241)
- Marine, Estuarine, and Freshwater Biology (MEFB) (p. 242)
- Neuroscience and Behavior (NSB) (p. 244)
- Nutrition (NUTR) (p. 246)
- Plant Biology (p. 251)
- Sustainable Agriculture and Food Systems (SAFS) (p. 252)
- Water Resources Management (p. 256)
- Wetland Ecology (p. 257)
- Wildlife and Conservation Biology (p. 257)
- Zoology (ZOOL) (p. 259)

### Agribusiness Minor

http://colsa.unh.edu/interdisciplinary-minors/agribusiness-minor

#### Description

The agribusiness minor is designed to provide students in disciplines other than environmental and resource economics with training in the economics and management of agricultural and other natural resource business firms. This program prepares students to work for private companies, governmental agencies, or nonprofit, nongovernmental organizations. Students who are interested in operating their own businesses will also find this minor very useful. The courses in the agribusiness minor emphasize the applications of economic and business management principles.

#### Requirements

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411 Environmental and Resource Economics Perspectives (or equivalent)</td>
<td>4</td>
<td>EREC 411 cannot be taken for credit if credit has been earned for ECON 402.</td>
</tr>
<tr>
<td>ABM 407 Applied Marketing</td>
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<tr>
<td>or MKTG 550 Survey of Marketing</td>
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<tr>
<td>ABM 508 Managerial Accounting</td>
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<tr>
<td>EREC 606 Land Economics Perspectives: Uses, Policies, and Taxes</td>
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<tr>
<td>EREC 601 Agribusiness Economics and Management</td>
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<td>Total Credits</td>
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</table>

For additional information, contact John M. Halstead, Environmental and Resource Economics Program Coordinator, 168 James Hall, (603) 862-3914.

### Agriculture, Nutrition and Food Systems

http://colsa.unh.edu/anfs

#### Overview

The Department of Agriculture, Nutrition, and Food Systems offers programs designed for students interested in any of the broad range of exciting and challenging careers that are critical for providing current and future generations with adequate amounts of nutritious food through efficient, sustainable agriculture and food systems.

Programs in this department include animal science, equine sciences, nutritional sciences and sustainable agriculture and food systems. Our majors have extensive course offerings, access to our farm and research facilities, and an outstanding and dedicated teaching and research faculty. We offer a number of integrated study away programs including travel to Italy, Costa Rica and Ireland. Our graduates are well prepared for careers in the dairy, equine, fish aquaculture, food crop and ornamental
plant industries, as nutritional scientists or registered dietitians, or to pursue veterinary or M.S. and Ph.D. degrees.

Programs

- Animal Science (p. 202)
- Equine Studies (p. 230)
- Nutrition (p. 246)
- Sustainable Agriculture & Food Systems (p. 252)

Faculty

http://colsa.unh.edu/faculty/all

Animal Science (ANSC)

The undergraduate program in animal science is designed to prepare students for a variety of careers by providing strong fundamental and applied education in animal nutrition, reproduction, genetics, physiology, health, and large animal management. On-campus animal facilities available to provide practical experience with agricultural animals include the Fairchild Dairy Teaching and Research Center, the Lou and Lutza Smith Equine Center, the nearby organic dairy housed at the Burley-Demeritt Farm, and aquaculture facilities. Program graduates may be employed in farm ownership, management, marketing, the pharmaceutical industry, agribusiness, finance, manufacturing, public relations, extension, vocational education, or consulting. The animal science B.S. is designed for students interested in animal agriculture. Students who are considering continuing their studies through graduate school or veterinary school are advised to take the recommended additional courses in chemistry, math, and physics.

http://colsa.unh.edu/anfs/animalsci

Programs

- Animal Science Major (B.S.) (p. 202)
- Animal Science Major: Dairy Management Option (B.S.) (p. 204)
- Animal Science Minor (p. 205)
- Dairy Management Minor (p. 205)

Faculty

http://colsa.unh.edu/faculty/all

Animal Science Major (B.S.)

http://colsa.unh.edu/anfs/animalsci/animal-science-bs

Description

The Animal Science B.S. is designed for students interested in animal agriculture. Students who are considering continuing their studies through graduate school are advised to take the recommended additional courses in Chemistry, Math and Physics. The Animal Science B.S. is one of many pathways for admission to veterinary school. Because admission to veterinary school is highly competitive due to the limited number of available spaces and the high standards for admission, students are advised to choose an academic program that deeply interests them. Simply taking the prerequisite courses required by veterinary schools without considering alternate career goals is not advisable.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Animal Behavior</td>
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<td>Electives</td>
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<tr>
<td>ZOOL 726</td>
<td>Conservation Behavior</td>
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<td>NSB 727</td>
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<td>ZOOL 777</td>
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<td>Psychology of Primates</td>
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<td>PSYC 720</td>
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<td>PSYC 731</td>
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<td>MEFB 714</td>
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<tr>
<td>Category II:</td>
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<tr>
<td>ZOOL 625</td>
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<td>BMS 718</td>
<td>Mammalian Physiology</td>
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<td>PSYC 521</td>
<td>Behavior Analysis</td>
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<td>AAS 525</td>
<td>Canine Learning Theory and Application</td>
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# Requirements

## Major Requirements

### Foundation Courses

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<td>BMS 503 &amp; BMS 504</td>
<td>General Microbiology and General Microbiology Laboratory</td>
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<td>BMCB 501</td>
<td>Biological Chemistry</td>
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### Requirements for All Animal Science Majors

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<td>ANSC 421</td>
<td>Animal Agriculture Today</td>
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<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
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</tr>
<tr>
<td>ANSC 512</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 543</td>
<td>Technical Writing in Animal Sciences (or equivalent)</td>
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<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
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<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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### Ethics Course

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<tbody>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
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</table>

### Disease Course

Select one of the following: 2-4

- AAS 574 Dairy Cattle Disease Seminar
- ANSC 620 Equine Diseases
- ANSC 625 Diseases of Small Ruminants, Swine, Poultry, and Camelids

### Reproduction Course

Select one of the following: 4

- ANSC 701 Physiology of Reproduction
- ANSC 715 Physiology of Lactation
- ANSC 724 Reproductive Management and Artificial Insemination
- BMS 702 Endocrinology

### Major Electives

Select 3 electives from the following: 3

1. ANSC 504 Equine Science
2. ANSC 507 Survey of Equine Training Techniques
3. ANSC 510 Integration of Culture and Agriculture in Ireland: Past, Present, and Future
4. ANSC 600 Field Experience
5. ANSC 620 Equine Diseases
6. ANSC 625 Diseases of Small Ruminants, Swine, Poultry, and Camelids
7. ANSC 650 Dairy Industry Travel Course
8. ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM)

- ANSC 701 Physiology of Reproduction
- ANSC 708 Ruminant Nutritional Physiology
- ANSC 710 Dairy Nutrition
- ANSC 715 Physiology of Lactation
- ANSC 724 Reproductive Management and Artificial Insemination
- ANSC 725 Equine Sports Medicine
- ANSC 727 Advanced Dairy Management I
- ANSC 728 Advanced Dairy Management II
- ANSC 750 Collaborative Farm Design and Development
- ANSC 795 Investigations
- ANSC 796 Equine Senior Seminar
- ANSC 799 Honors Senior Thesis
- AAS 402 Introduction to Livestock and Poultry Management
- AAS 421 Large Animal Behavior and Handling Techniques
- AAS 423 Dairy Selection
- AAS 425 Introduction to Dairy Herd Management
- AAS 426 Equine Conformation and Lameness
- AAS 432 Introduction to Forage and Grassland Management
- AAS 434 Equipment and Facilities Management
- AAS 527 Companion Animal Diseases
- AAS 546 Animal Business Applications
- AAS 547 Applied Equine Management
- AAS 574 Dairy Cattle Disease Seminar
- ADMN 502 Financial Accounting
- BMCB 753 Cell Culture
- BMS 602 Pathogenic Microbiology
- BMS 623 Histology: Microscopic Cellular Structure and Function
- BMS 702 Endocrinology
- BMS 703 Infectious Disease and Health
- BMS 704 Pathologic Basis of Disease
- BMS 705 Immunology
- BMS 706 Virology
- BMS 718 Mammalian Physiology
- CMN 500 Public Speaking
- CMN 600 Public Speaking as a Civic Art
- EREC 411 Environmental and Resource Economics Perspectives
- EREC 680 Agricultural and Food Policy
- MGT 580 Introduction to Organizational Behavior
- SAFS 642 Team Experience in Agroecosystems Management (TEAM - Organic)
- ZOOL 610 Principles of Aquaculture
- ZOOL 611 Principles of Aquaculture Lab
- ZOOL 613 Animal Behavior
- ZOOL 777 Neurobiology and Behavior

**Total Credits:** 74-81
Students interested in graduate school should take 2 semesters of Organic Chemistry (CHEM 651/653 and CHEM 652/654) and one semester of General Biochemistry (BMCB 658/659) in place of BMCB 501.

ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 Introduction to Literary Analysis

Two courses must be selected at the 500 level or above. For classes less than 3 credits, 2 must be taken together to count as 1 elective.

**Capstone Experience**

The capstone requirement may be satisfied through a course (e.g., ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM), ANSC 728 Advanced Dairy Management II, ANSC 750 Collaborative Farm Design and Development, ANSC 795 Investigations, ANSC 797 Equine Capstone Experience or ANSC 799 Honors Senior Thesis), created work, product, or some form of experiential learning (e.g., mentored research projects, and other special student activities).

**GPA Requirements for All Students in Animal Science**

Students will be required to earn a C- or better in all required courses for the animal science major to receive credit toward graduation. Students failing to do this will need to retake the course in order to receive credit.

**Requirements for All Animal Science/Dairy Management Option Majors**

<table>
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<tr>
<th>Course Code</th>
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</tr>
<tr>
<td>Total Credits</td>
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<td>55</td>
</tr>
</tbody>
</table>

1. ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 Introduction to Literary Analysis (WI)

Students are responsible for the completion of the animal science foundation courses and the requirements for all animal science majors (both lists of courses above).

Students interested in graduate school should take two semesters of Organic Chemistry and one semester of Biochemistry.

**Animal Science Major: Dairy Management Option (B.S.)**

http://colsa.unh.edu/anfs/animalsci/dairy-management-option

**Description**

The ANSC: dairy management option is designed to provide students with solid training in areas important to the successful management of a dairy enterprise, for employment in related agribusinesses (e.g., pharmaceutical and feed industries), or for those wishing to pursue additional training leading to the M.S. or Ph.D. degree in dairy science or its related disciplines. Dairy management students receive training in areas such as nutrition, reproduction, diseases, genetics, lactation physiology, forages, agribusiness finance, personnel management, computer science, and public relations. The Fairchild Dairy Teaching and Research Center and the Burley-DeMerritt Organic Dairy Research Farm are modern dairy facilities. The Fairchild Dairy houses 85 lactating Holstein cows plus a similar number of non-lactating animals. The Burley-DeMerritt Farm houses 50 lactating Jersey cows plus a small number of non-lactating animals. For additional information and answers to questions regarding the option in dairy management, email Dr. Peter Erickson.

**Requirements**

**Major Requirements**

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<tr>
<th>Foundation Courses</th>
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<td>BMCB 501</td>
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<td>Biological Chemistry</td>
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1. ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 Introduction to Literary Analysis (WI)

Students interested in veterinary medicine should consult the pre-veterinary medicine program website http://colsa.unh.edu/mcbs/prevet.

**Animal Science Major: Dairy Management Option (B.S.)**

http://colsa.unh.edu/anfs/animalsci/dairy-management-option

**Description**

The ANSC: dairy management option is designed to provide students with solid training in areas important to the successful management of a dairy enterprise, for employment in related agribusinesses (e.g., pharmaceutical and feed industries), or for those wishing to pursue additional training leading to the M.S. or Ph.D. degree in dairy science or its related disciplines. Dairy management students receive training in areas such as nutrition, reproduction, diseases, genetics, lactation physiology, forages, agribusiness finance, personnel management, computer science, and public relations. The Fairchild Dairy Teaching and Research Center and the Burley-DeMerritt Organic Dairy Research Farm are modern dairy facilities. The Fairchild Dairy houses 85 lactating Holstein cows plus a similar number of non-lactating animals. The Burley-DeMerritt Farm houses 50 lactating Jersey cows plus a small number of non-lactating animals. For additional information and answers to questions regarding the option in dairy management, email Dr. Peter Erickson.

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1. ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 Introduction to Literary Analysis (WI)

Students are responsible for the completion of the animal science foundation courses and the requirements for all animal science majors (both lists of courses above).

Students interested in graduate school should take two semesters of Organic Chemistry and one semester of Biochemistry.

**Animal Science: Dairy Management Option B.S. students must also complete:**

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<tr>
<td>AAS 423</td>
<td>Dairy Selection</td>
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<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
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</table>
A minor in Animal Science consists of a minimum of 20 credits of Animal Science (ANSC) courses. No more than 7 credits may be taken in the Thompson School of Applied Science (AAS) and at the 400-level. Students must receive a minimum grade of C- in any course used for the minor. Students failing to do this will need to retake the course in order to receive credit. No more than eight credits used to satisfy major requirements may be used for the minor.

Students wanting to declare a minor in animal science must meet with animal science minor coordinator Dr. Elizabeth Boulton DVM, DACVS as early as possible and no later than first semester of their junior year. Students must complete a the minor completion form during their final semester at UNH.

**Biochemistry, Molecular and Cellular Biology (BMCB)**

The field of biochemistry, molecular and cellular biology (BMCB) encompasses a broad range of the life sciences, from biophysics and biochemistry to applied biology and medicine. The B.S. in biochemistry, molecular and cellular biology is designed for students to gain a solid foundation in biology, chemistry, physics, and math, along with advanced knowledge in molecular biology, biochemistry, cell biology, and genetics. The program offers cutting-edge research opportunities in the areas of structural biology, cell signaling pathways, cancer biology, gene regulation, neurobiology, cellular structure and function, proteomics and glycomics, and lipid metabolism. BMCB students are highly-motivated and seek exposure to cutting-edge techniques and "hands-on" experience through laboratory- and research-based opportunities. Graduates are "profession-ready" people who are well-prepared for entry-level positions in biomedical research or in the biotechnology and pharmaceutical industries, for graduate education, or for post-baccalaureate professional programs (e.g., medical school, veterinary school, dental school, etc.).

The curriculum provides most of the required and recommended courses for students seeking admission to graduate schools and to professional schools in medicine, dentistry, veterinary medicine, and pharmacy. Students who major in BMCB can also use their training in conjunction with advanced degrees in law and business. Students obtaining the B.S. in BMCB enjoy excellent job prospects immediately upon graduation. There is currently a demand for skilled research
technicians in biotechnology companies, pharmaceutical companies, government agencies, forensics, academic research laboratories, and hospitals. Graduates also have knowledge that is valuable in the fields of management, sales, marketing, regulatory affairs, technical writing, and science journalism. With additional courses in education, the B.S. in BMCB also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty participating in the BMCB major combine a passion for teaching and student advising with strong research expertise in their chosen discipline. BMCB faculty are committed to providing independent research experiences for undergraduate students, and many faculty have well-funded research programs utilizing state-of-the-art equipment and techniques. On-campus research facilities that students can use to enhance their research experience include the Hubbard Center for Genome Studies (http://hcgs.unh.edu) and the Center for Comparative and Molecular Endocrinology (http://unh.edu/cme).

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions (e.g., medical, dental, physician assistant, pharmacy, etc.) should visit the Pre-Professional Health Programs Advising Office (http://www.unh.edu/uacc/premed-advising) online or in person (Hood House, Room 102). Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program (http://colsa.unh.edu/mcbs/prevet) website. While many of the prerequisite courses required by professional schools are also requirements of the BMCB major, students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

http://colsa.unh.edu/mcbs/bmcb

For students interested in biophysics and biochemistry research careers, more rigorous training in math and physics is recommended (see footnotes in requirements list).

**Requirements**

A minimum grade of C-minus or above must be earned in all courses offered by the College of Life Sciences and Agriculture.

### Foundation Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I ¹</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 547</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 549</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 548</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 550</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences ², ³</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

¹ Fulfills the Physical Science Discovery requirement
² Fulfills Quantitative Reasoning Discovery requirement
³ MATH 425 and MATH 426 can be substituted for MATH 424B and BIOL 528
⁴ PHYS 407 and PHYS 408 can be substituted for PHYS 401 and PHYS 402

### Bioscience Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology. Molecular and Cellular ⁵</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology. Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

⁵ BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement

### BMCB Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 401</td>
<td>Professional Perspectives in Biochemistry, Molecular and Cellular Biology</td>
<td>1</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 751</td>
<td>Principles of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 752</td>
<td>Principles of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes 4-5</td>
<td></td>
</tr>
<tr>
<td>or GEN 771</td>
<td>Molecular Genetics</td>
<td></td>
</tr>
</tbody>
</table>

### BMCB Major Electives

A total of three unique major electives is required: one Laboratory Techniques course and two Major Elective courses.

### Laboratory Techniques Courses (Pick one)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
</tbody>
</table>


**Description**

Students in the Biochemistry, Molecular and Cellular Biology (BMCB) major take eight Foundation courses, four Bioscience Core courses, five BMCB Core courses, and three Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University academic requirements must be completed, including those for the Discovery Program (p. 26) and the University Writing Requirement. (http://www.unh.edu/undergrad-catalog/gi.cfm?thisid=28&masterid=27&headingid=27/#28)
### Bioscience Major Electives (Pick two)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 750</td>
<td>Physical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 755</td>
<td>Laboratory in Biochemistry and Molecular Biology</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 760</td>
<td>Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 783</td>
<td>Proteomics for Biological Discoveries</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 794</td>
<td>Protein Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 715</td>
<td>Physiology of Lactation</td>
<td>4</td>
</tr>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 705 &amp; BMS 715</td>
<td>Immunology and Immunology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 706 &amp; BMS 708</td>
<td>Virology and Virology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 755</td>
<td>Advanced Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 777</td>
<td>Neurobiology and Behavior</td>
<td>4</td>
</tr>
</tbody>
</table>

6 If course was used to fulfill BMCB Core or Laboratory Technique requirement, course cannot count as Bioscience Major Elective.

### Approved BMCB Capstone Courses

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 799W</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 799W</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis</td>
<td>1-4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
</tr>
</tbody>
</table>

For a Capstone experience not listed above, such as an internship, submit a Capstone Approval form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/department_of_molecular_cellular_and_biomedical_sciences/bmcb_capstone_approval_form_10-2016.pdf) prior to beginning the experience.

### Degree Plan

#### SAMPLE Course Sequence for Biochemistry, Molecular, and Cellular Biology

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>BMCB 401 Professional Perspectives in Biochemistry, Molecular and Cellular Biology</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 401 First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411 Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 404 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 547 &amp; CHEM 549 Organic Chemistry I and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 503 &amp; BMS 504 General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 528 Applied Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401 Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>18</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 548 &amp; CHEM 550 Organic Chemistry II and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604 Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402 Introduction to Physics II</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>BMCB 751 Principles of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BMCB Core or Laboratory Techniques course</td>
<td>4-5</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
</tbody>
</table>
Biochemistry, Molecular and Cellular Biology Minor


Description

Students who wish to develop focused competencies in biochemistry, molecular biology, and/or cell biology can complement their major academic program with a minor in biochemistry, molecular and cellular biology (BM CB). The minor consists of a minimum of 20 credits, no more than 8 of which can be used to fulfill major requirements. A grade of C- minus or better is required for all courses counted towards the minor. A C average (2.00) is required in courses that the minor department approves. It is the student's responsibility to complete a Certification of Completion of Minor form (http://www.unh.edu/registrar/forms/minorform.pdf) during their final semester at UNH.

Requirements

Complete 20 credits from the courses listed below, with a grade of C- or better.

No more than 8 credits used to satisfy major requirements may be used for the minor. 4 credits of BM CB 795 (Investigations) may be used toward the minor. Pass/fail courses may not be used for the minor.

BM CB 605  Eukaryotic Cell and Developmental Biology  4
BM CB 750  Physical Biochemistry  3
BM CB 751  Principles of Biochemistry  4
BM CB 752  Principles of Biochemistry  4
BM CB 753  Cell Culture  5
BM CB 850  Molecular Biology Research Methods  5
BM CB 855  Laboratory in Biochemistry and Molecular Biology  5
BM CB 860  Pharmacology  4
BM CB 863  Biochemistry of Cancer  4
BM CB 870  Proteomics for Biological Discoveries  4
BM CB 894  Protein Structure and Function  4
BM CB 895  Investigations in Molecular and Cellular Biology (4-14 credit maximum)
GEN 704  Genetics of Prokaryotic Microbes  5
GEN 771  Molecular Genetics  4

Biological Sciences

The Department of Biological Sciences embraces all areas of biology in its diverse teaching and research programs. Majors target the areas of Biology (BIOL), Marine, Estuarine and Freshwater Biology (MEFB), Neuroscience and Behavior (NSB), and Zoology (ZOOL). All of these offer a Bachelor of Science degree, with Zoology also offering a Bachelor of Arts. Minors provide a focus on special areas of the biological sciences for students within and outside the College of Life Sciences and Agriculture. Minors are: Animal Behavior, Biology, Marine Biology, Plant Biology, and Zoology. Our course offerings provide a wide selection of both field and lab-based courses, that provide opportunities and experiences appropriate for the diverse array of positions that are available in the broad area of Biology. There are a common set of core or foundation courses for each major that allow a simple transfer between majors up to the end of the second year, and each major has a set of topical categories with options that lead to a more focused exposure to the breadth of biology, while allowing a personal focus to be developed in the major.

Students in the DBS majors find it easy to integrate the biology core courses with those recommended for establishment of the background appropriate for application to the professional biomedical and health-care programs, as well as to schools with graduate programs.

http://colsa.unh.edu/dbs

Programs

• Biology (BIOL) (p. 208)
• Marine, Estuarine, and Freshwater Biology (MEFB) (p. 242)
• Neuroscience and Behavior (NSB) (p. 244)
• Zoology (ZOOL) (p. 259)

Faculty

http://colsa.unh.edu/faculty/all

Biology (BIOL)

UNH's location and facilities provide unique opportunities for the study of biology due to its access to the seacoast, the Shoals Marine Laboratory (http://marine.unh.edu/SML), the lakes region of NH, and the White Mountains National Forest. The Biology faculty strongly believe in a hands-on approach to teaching and active involvement of undergraduates in research. We have a wide range of faculty expertise, including freshwater, estuarine and marine biology, aquaculture, agriculture, sustainability, physiology, neurobiology and behavior. A
Biology degree provides the background for a variety of professional positions in the public and private sectors, and provides an excellent foundation for students seeking to apply for graduate, medical or veterinary school.

http://colsa.unh.edu/dbs/biology

Programs

- Biology Major (B.S.) (p. 209)
- Biology Minor (p. 211)

Faculty

http://colsa.unh.edu/faculty/all

Biology Major (B.S.)

http://colsa.unh.edu/dbs/biology/biology-bs

Description

The biology major is designed to provide a strong, broad background in biological sciences to students interested in education in the life sciences. The biology major integrates theoretical and practical (hands-on laboratory and field work) courses in different aspects of the biology of animals, microbes, and plants. The curriculum is designed to reflect the diversity of the biological systems in nature. It encompasses the study of structural and functional relationships of living organisms at the molecular, cellular, and organismal level, the interactions of the living systems with the environment and with each other, and the evolutionary relationships of various forms of life. The goal is to create a facilitative environment for those with a scholarly interest in the biological sciences, and to extend their understanding, awareness, and appreciation of the diversity of the biological sciences.

The major is aimed at promoting excellence in biological science education by involving undergraduate students in strong interaction with faculty both in the classroom and in research laboratories, and encouraging the development of quality undergraduate programs in all aspects of biology.

The biology major prepares students for graduate work in the biological, medical, and agricultural sciences, and for job opportunities in industry (biomedical, pharmaceutical, agrochemical, environmental, and biotechnological) and governmental research, and secondary school teaching, or a general education about living organisms. Completion of the four-year undergraduate program plus a fifth-year internship will be necessary for biology teaching certification. Students who plan to enter medical, dental, or related professional schools are advised to confer with their faculty adviser to build the requirements for these programs into their academic majors.

Courses in the biology major are selected from departments that constitute the biological sciences community at UNH. The flexibility of the curriculum allows student choice of a wide selection of courses in various departments. Students in the major take a biology core curriculum involving introductory and upper-level science courses. They must also take seven additional courses in the biological sciences; three of these must be selected from course lists in three broad categories.

While students are advised to declare the biology major as incoming first-year students to assure adequate program planning, transfer into the program at a later stage is also possible. Since several of the other biological sciences majors share the same biology core curriculum, it is quite easy to change to or from other biological sciences majors.

Requirements

Biology Core Curriculum

The biology courses in the core curriculum constitute an integrated sequence of courses imparting basic skills and concepts of biology to expose students to the breadth of knowledge inherent in the biological sciences. The biology core allows a student to obtain a broad background in biology, and in the related physical sciences and math.

Core Curriculum Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 400</td>
<td>Professional Perspectives on Biology</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>&amp;</td>
<td>and Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
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</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>MATH 424B &amp;</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 555</td>
<td>Experimental Design and Analysis Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 402</td>
<td>and Introduction to Physics II</td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td></td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 46

1 BIOL 400 Professional Perspectives on Biology is required only for first-year biology majors.
2 Students exploring pre-health professions should take a full year of Organic Chemistry (CHEM 651/653 and CHEM 652/654) in place of CHEM 545/CHEM 546 and BMCB 658/BMCB 659.

Biology Electives

In addition to the biology core curriculum, students must complete seven biology elective courses. Three of the seven courses are to be selected from courses listed in three categories/disciplines; the other four can be chosen from the category lists or can be any other biological sciences course with approval of the student’s adviser. The seven selected courses must be 500-level or above, should include at least one each from the three categories, and must include one animal-identified course (A) and one plant-identified course (P). At least two of these must be courses with labs. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement is completed in the senior year, and may be satisfied through a course (C), created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student projects).
activity). A complete list of approved courses in each category/discipline is available from the student’s adviser, the Department of Biological Sciences office, and the biology website at colsa.unh.edu/dbs/biology. (http://colsa.unh.edu/dbs/biology) Corequisite lecture and lab courses count as one course.

Category 1: Form and Function (Morphology, Anatomy and Physiology)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 512</td>
<td>Anatomy and Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction (A)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 701</td>
<td>Plant Physiology (P)</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 702</td>
<td>Techniques in Plant Physiology and Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 709</td>
<td>Plant Stress Physiology (P)</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 758</td>
<td>Plant Anatomy (P)</td>
<td>5</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 727</td>
<td>Algal Physiology (P)</td>
<td>3</td>
</tr>
<tr>
<td>ZOOL 518</td>
<td>Vertebrate Morphology (A)</td>
<td>5</td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology (A)</td>
<td>3</td>
</tr>
<tr>
<td>ZOOL 773</td>
<td>Physiology of Fish (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 777</td>
<td>Neurobiology and Behavior</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 754</td>
<td>Anatomy and Function of Marine Vertebrates (SML, A)</td>
<td>4</td>
</tr>
</tbody>
</table>

BioSM 1650 Whales, Seals and Sharks (SML, A) 3

Category 2: Genetics/Development (including molecular biology and bioinformatics)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics (A)</td>
<td>4</td>
</tr>
<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants (P, C)</td>
<td>4</td>
</tr>
<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology (P, C)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 529</td>
<td>Developmental Biology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 736</td>
<td>Genes and Behavior (A, C)</td>
<td>4</td>
</tr>
</tbody>
</table>

Category 3: Evolution, Ecology and Biodiversity (including population biology)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 510</td>
<td>Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 720</td>
<td>Plant-Animal Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 752</td>
<td>Mycology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany (P)</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 525</td>
<td>Introduction to Aquatic Botany (P)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 527</td>
<td>Aquatic Animal Diversity (A)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 616</td>
<td>Tropical Coastal Plant Ecology (P)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 717</td>
<td>Lake Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 722</td>
<td>Marine Physiology (P, C)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 725</td>
<td>Marine Ecology (C)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 747</td>
<td>Aquatic Plants in Restoration/Management (P)</td>
<td>4</td>
</tr>
<tr>
<td>NR 642</td>
<td>Introduction to Biogeography</td>
<td>4</td>
</tr>
<tr>
<td>NR 663</td>
<td>Applied Directed Research in New Zealand (C)</td>
<td>4</td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy (A)</td>
<td>4</td>
</tr>
<tr>
<td>NR 713</td>
<td>Quantitative Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology (A)</td>
<td>5</td>
</tr>
<tr>
<td>ZOOL 690</td>
<td>Evolution (C)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Ichthyology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 733</td>
<td>Behavioral Ecology (A, C)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 745</td>
<td>Biology and Diversity of Insects (A, C)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 510</td>
<td>Field Ornithology (SML, A)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 630</td>
<td>Biodiversity and Biology of Marine Invertebrates (SML, A)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 674</td>
<td>Ecology and Marine Environment (SML)</td>
<td>4</td>
</tr>
<tr>
<td>MEBF 714</td>
<td>Field Animal Behavior (SML, A, C)</td>
<td>4</td>
</tr>
<tr>
<td>BioSM 1780</td>
<td>Evolution and Marine Diversity (SML)</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: It is strongly recommended that students participate in an exchange semester at another university, or in a field-oriented program or internship. There are many exchange opportunities available in which a full semester of credits toward the major may be earned. In addition, students should explore the courses at the Shoals Marine Laboratory (SML), which provides an excellent setting for several "field-oriented" courses during the summer. Often there is financial support available for the SML programs. (See the SML website at https://marine.unh.edu/SML or the Cornell website at http://www.shoalsmarinelaboratory.org for details.) It is further recommended that students explore possibilities of one or more semesters of independent investigation (research projects). For details, students should contact their adviser. Financial support is available for most of these programs.

One 600, 795, or 796 experience totaling three or more credits or any two 795-796 experiences of two credits each can fulfill one course requirement in any category with adviser approval. A Petition for Academic Variance approved by the chair of the Department of Biological Sciences is required to count 795-796 experiences for more than one major required course. Students should check the biology website colsa.unh.edu/dbs/biology and the UNH online catalog for updates and current course offerings.

Academic Requirements

To receive the B.S. degree in biology, students must complete 128 credit hours with a 2.0 cumulative grade-point average. Courses must include all UNH Discovery Program requirements, biology core curriculum requirements, seven additional courses from the biological sciences, and a capstone experience or course. The capstone explores areas of interest based on the integration of prior learning. Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors. A minimum grade of C- is required in all biological science courses that are counted toward the requirements for a degree in biology. Students who expect to compete successfully for post-baccalaureate programs should attain a cumulative GPA of 3.0 or higher by the end of the sophomore year and maintain it at that level.
Biology Minor
http://colsa.unh.edu/dbs/biology/biology-minor

Description
The Biology Minor is designed to give students a broad background in basic biological theories and processes, while providing experiences in ecology, evolution, and organismal diversity.

Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology (both are writing intensive)</td>
<td>4</td>
</tr>
<tr>
<td>or ZOOL 690</td>
<td>Evolution</td>
<td></td>
</tr>
</tbody>
</table>

Two courses dealing with organismal surveys

Animal Survey Course: Choose one 4-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEB 527</td>
<td>Aquatic Animal Diversity</td>
<td></td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 745</td>
<td>Biology and Diversity of Insects</td>
<td></td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td></td>
</tr>
</tbody>
</table>

Plant or Fungus Survey Course: Choose one 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
<td></td>
</tr>
<tr>
<td>MEB 525</td>
<td>Introduction to Aquatic Botany</td>
<td></td>
</tr>
<tr>
<td>MEB 722</td>
<td>Marine Phycology</td>
<td></td>
</tr>
</tbody>
</table>

Fungus Survey Course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 752</td>
<td>Mycology</td>
<td></td>
</tr>
</tbody>
</table>

Pre-Professional Health Programs
Students interested in postgraduate careers in the health care professions (e.g., medical, dental, physician’s assistant, pharmacy, etc.) should visit the Pre-Professional Health Programs Advising Office (http://www.unh.edu/uacc/premed-advising). Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program (http://colsa.unh.edu/mcbs/prevet) website. While many of the prerequisite courses required by professional schools are also requirements of the biomedical science major, students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

Biomedical Science (BMS)
The Biomedical Science (BMS) major focuses on fundamental concepts in biological sciences as they apply to human and animal health, medicine, and disease. Students attracted to Biomedical Science have a profound interest in human and animal physiology and diseases. The BMS major encompasses three options: Medical Laboratory Sciences (MLS), Medical Microbiology (MM), and Medical and Veterinary Sciences (MVS). Each of the options in the BMS major is based on solid foundational and advanced courses in chemistry and the biological sciences. BMS:MLS focuses on the laboratory diagnosis of human disease, BMS:MM focuses on infectious agents and host response, and BMS:MVS focuses on health and manifestations of disease in animals, including humans. For descriptions of each option and their curricular details, visit http://colsa.unh.edu/mcbs/biomedical/biomedical-science-bs.

Faculty in the BMS major have expertise in many areas of biomedical science, including physiology, cell biology, infectious diseases, veterinary pathology, and laboratory medicine. The biomedical science faculty strongly encourage students to complement their academic courses with experiential learning opportunities through internships, field experience, and independent research projects conducted with biomedical research faculty. On-campus facilities include state-of-the-art research and teaching laboratories and the New Hampshire Veterinary Diagnostic Laboratory (https://nhvdl.unh.edu) (NHVDL) that provides unique learning opportunities for students interested in veterinary medicine, pathobiology, and laboratory diagnostics.

There is high demand for skilled biomedical scientists as research technicians in biotechnology companies, pharmaceutical companies, government agencies, forensics, academic research laboratories, and hospitals, so BMS majors enjoy excellent job prospects upon graduation. The BMS curriculum also provides graduates with the required and recommended courses for admission to most graduate schools and professional schools of medicine, veterinary medicine, dentistry, public health, and pharmacy, as well as to physician assistant and pathology assistant programs. BMS graduates have a knowledge base that is valuable in the fields of sales, marketing, regulatory affairs, technical writing, patent law, and scientific journalism. With additional courses in education, the B.S. in biomedical science also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty
http://colsa.unh.edu/faculty/all

Biomedical Science Major: Medical Laboratory Sciences Option (B.S.)
http://colsa.unh.edu/mcbs/biomedical/medical-laboratory-science-mls-option
The Medical Laboratory Sciences (MLS) program is NAACLS accredited (http://www.naacls.org/) and follows accreditation requirements. Students in this option take four Foundation courses, five Bioscience Core courses, six required BMS:MLS core courses, and five Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. In addition, all other University academic requirements must be completed, including those for Discovery Program (p. 26) and the University Writing Requirement (p. 29).

A grade of C-minus or above is required in BMS:MLS Core Courses.

### Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 439</td>
<td>Statistical Discovery for Everyone</td>
<td>4</td>
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</table>

### Bioscience Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
</tbody>
</table>

### BMS-MLS Major Electives

A total of five unique Major Electives is required. Two courses must have a Laboratory component.

Choose TWO Major Electives with a Laboratory component

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 623</td>
<td>Histology: Microscopic Cellular Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>6</td>
</tr>
<tr>
<td>&amp; BMS 645</td>
<td>and Clinical Hematology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 656</td>
<td>Immunohematology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 657</td>
<td>and Blood Hematology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 658</td>
<td>Medical Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 659</td>
<td>and Clinical Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 708</td>
<td>and Virology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 721</td>
<td>Mycology, Parasitology, and Virology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>(coreq BMS 720)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
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</tbody>
</table>

Choose THREE Major Electives from the list below (FOUR if BMS 721 is counted as a Laboratory course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 610</td>
<td>Biomedical Lab Management</td>
<td>4</td>
</tr>
<tr>
<td>BMS 623</td>
<td>Histology: Microscopic Cellular Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care</td>
<td>2</td>
</tr>
<tr>
<td>BMS 640</td>
<td>Phlebotomy Theory</td>
<td>2</td>
</tr>
<tr>
<td>BMS 641</td>
<td>Phlebotomy Clinical Internship</td>
<td>1-2</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 645</td>
<td>and Clinical Hematology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 656</td>
<td>Immunohematology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 657</td>
<td>and Blood Hematology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 658</td>
<td>Medical Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 659</td>
<td>and Clinical Chemistry Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

1. CHEM 403 fulfills the Physical Science Discovery requirement.
2. Students applying to health profession schools need a full year of English, a full year of Introductory Biology, and a full year of Organic Chemistry. ENGL 502 or 503 should be taken in addition to ENGL 401; CHEM 651/653 and CHEM 652/654 should be taken in place of CHEM 545/546. See Pre-Professional Health Program Advising. (http://www.unh.edu/uacc/premed-advising)
3. Any of these courses fulfills the Quantitative Reasoning Discovery requirement
4. Either course fulfills the Biological Science Discovery requirement and Discovery Laboratory requirement. BIOL 411 also fulfills the Discovery Inquiry requirement.

### BMS-MLS Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BMS 560</td>
<td>Body Fluids</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 561</td>
<td>and Body Fluids Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 642</td>
<td>Clinical Immunology and Serology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 643</td>
<td>and Clinical Serology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 650</td>
<td>Molecular Diagnostics</td>
<td>5</td>
</tr>
<tr>
<td>BMS 720</td>
<td>Mycology, Parasitology, and Virology</td>
<td>3</td>
</tr>
</tbody>
</table>

5. BMS 650 fulfills the Environment, Tech and Society Discovery requirement
6. If BMS 721 Mycology, Parasitology, and Virology Laboratory is taken concurrently with BMS 720, it may count as one of the two required laboratory elective components. However, BMS 721 does not count as a Major Elective course, so five Major Electives must still be completed, at least one of which includes a lab component, plus four additional Major Electives with or without lab.
Approved BMS:MLS Capstone Courses

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). The capstone requirement can only be fulfilled once a student has senior standing in the major.

For a Capstone experience not listed above, such as an internship, submit a Capstone Experience Approval form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/biomedical_science/BMS%20Non%20CapstoneExperienceApprovalForm.pdf) prior to beginning the experience.

Degree Plan

SAMPLE Course Sequence for Medical Laboratory Science

<table>
<thead>
<tr>
<th>Course First Year</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507 or BIOL 411</td>
<td>Human Anatomy and Physiology I or Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>Statistics</td>
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<td>Discovery Course</td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
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<td><strong>Credits</strong></td>
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<td>17</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology and Pathogenic Microbiology Laboratory</td>
<td>5</td>
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<tr>
<td><strong>Credits</strong></td>
<td></td>
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Biomedical Science Major: Medical Microbiology Option (B.S.)
http://colsa.unh.edu/mcbs/biomedical/medical-microbiology-mm-option

Description

Students in the Medical Microbiology (MM) option take seven Foundation courses, five Bioscience Core courses, four BMS-MM Core courses, and five BMS-MM Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University academic requirements must be completed, including those for the Discovery Program (p. 26) and the University Writing Requirement (p. 29).

Requirements

A grade of C-minus or above is required in all course within the major, which includes BMS-MM Core, BMS-MM Major Elective, and Bioscience Core courses.

Foundation Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I ¹</td>
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<td>General Chemistry II</td>
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<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory ²</td>
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<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences ³</td>
<td>4</td>
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<tr>
<td>BIOL 502</td>
<td>Applied Biostatistics I ⁴</td>
<td>4</td>
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<td>PHYS 401</td>
<td>Introduction to Physics I ⁵</td>
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<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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Bioscience Core Courses

<table>
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<th>Course Title</th>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Laboratory</td>
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</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology ⁶</td>
<td>4</td>
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<tr>
<td>or BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
</tbody>
</table>

¹ CHEM 403 fulfills the Physical Science Discovery requirement.
² Students applying to health profession schools need a full year of English, a full year of Organic Chemistry, and a full year of Introductory Biology. ENGL 502 or 503 should be taken in addition to ENGL 401; CHEM 651/653 and CHEM 652/654 should be taken in place of CHEM 545/546.
³ MATH 424B fulfills the Quantitative Reasoning Discovery requirement.
⁴ PSYC 402 and SOC 502 are acceptable alternatives.
⁵ PHYS 401 fulfills the Physical Science Discovery requirement.
⁶ BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement.

BMS-MM Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences ¹</td>
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</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
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</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
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</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 708</td>
<td>and Virology Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

¹ Required for first-year students only.
A total of five unique major elective courses is required. At least one course must be taken in each of the following subject areas: Host-Microbe Interaction Elective, Molecular Biology Elective, and Community Elective. Two additional courses are taken from any of the major elective subject areas.

**Host-Microbe Interaction Electives**

- BMS 655 Human and Animal Parasites 7 3
- BMS 703 Infectious Disease and Health 4
- BMS 704 Pathologic Basis of Disease 4
- BMS 719 Host-Microbe Interactions 7 4
- BMS 720 Mycology, Parasitology, and Virology 3
- BMS 740 Human Microbiome 7 4

**Molecular Biology Electives**

- BMS 623 Histology: Microscopic Cellular Structure and Function 4
- BMS 650 Molecular Diagnostics 4
- BMS 655 Human and Animal Parasites 7 3
- BMS 711 Toxicology 4
- BMS 719 Host-Microbe Interactions 7 4
- BMS 740 Human Microbiome 7 4
- BMCB 605 Eukaryotic Cell and Developmental Biology 4
- BMCB 753 Cell Culture 5
- BMCB 754 Molecular Biology Research Methods 5
- BMCB 763 Biochemistry of Cancer 4
- GEN 704 Genetics of Prokaryotic Microbes 5
- GEN 713 Microbial Ecology and Evolution 4
- GEN 717 Molecular Microbiology 5

**Community Electives**

- BMS 716 Public Health: Food- and Water-borne Diseases 4
- BMS 730 Ethical Issues in Biomedical Science 4
- ANTH 685 Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa 4
- HMP 501 Epidemiology and Community Medicine 4

7 Course may be used as a Host-Microbe Interaction elective or Molecular Biology elective, but not both.

**Other Major Electives**

- BMS 795 Investigations in Biomedical Science (4-credit minimum) 1-8
- BMS 795W Investigations in Biomedical Science (4-credit minimum) 1-8
- BMS 799 Senior Thesis (4-credit minimum) 1-4
- BMS 799H Senior Honors Thesis 1-4

**BMS:MM Capstone**

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). The capstone requirement can only be fulfilled once a student has senior standing in the major.

**Approved BMS:MM Capstone Courses**

- BMS 635 Preceptorial in Prehospital Care (4-credit minimum) 2
- BMS 716 Public Health: Food- and Water-borne Diseases 4
- BMS 719 Host-Microbe Interactions 4
- BMS 730 Ethical Issues in Biomedical Science 4
- BMS 740 Human Microbiome 4
- BMS 795 Investigations in Biomedical Science (4-credit minimum) 1-8
- BMS 795W Investigations in Biomedical Science (4-credit minimum) 1-8
- BMS 799 Senior Thesis (4-credit minimum) 1-4
- BMS 799H Senior Honors Thesis 1-4

For a Capstone experience not listed above, such as an internship, submit a Capstone Experience Approval form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/department_of_molecular_cellular_and_biomedical_sciences/bms_major_noncapstoneexperienceapprovalform.pdf) prior to beginning the experience.

**Degree Plan**

**SAMPLE Course Sequence for Medical Microbiology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology &amp; BMS 504 and General Microbiology Laboratory</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>CHEM 545 &amp; CHEM 546</td>
<td>Organic Chemistry and Organic Chemistry Laboratory</td>
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<td>Discovery Course</td>
<td></td>
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<tr>
<td>Credits</td>
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<td>18</td>
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</tbody>
</table>
### Biomedical Science Major: Medical and Veterinary Sciences Option (B.S.)

http://colsa.unh.edu/mcbs/biomedical/medical-and-veterinary-sciences-mvs-option

#### Description

Students in the Medical and Veterinary Sciences (MVS) option take eight Foundation courses, five Bioscience Core courses, three MVS Core courses, and seven MVS Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other university academic requirements must be completed, including those for the Discovery Program (http://www.unh.edu/undergrad-catalog/gi.cfm?thistid=242&masterid=27&headingid=27/#242) and the University Writing Requirement (http://www.unh.edu/undergrad-catalog/gi.cfm?thistid=28&masterid=27&headingid=27/#28).

#### Requirements

A grade of C-minus or above is required in all courses within the major, which includes Foundation courses, Bioscience Core, BMS-MVS Core and BMS-MVS Major Electives.

Students applying to health profession schools need a full year of English. ENGL 415C, ENGL 419, ENGL 501, ENGL 502 or ENGL 503 should be taken in addition to ENGL 401. For further details, visit the Pre-Professional Health Program Advising Office (http://www.unh.edu/uacc/premed-advising) on-line or in person (Hood House, Room 102).

##### Foundation Courses

<table>
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<tr>
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<tbody>
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<td>CHEM 403</td>
<td>General Chemistry I</td>
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<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<td>CHEM 651</td>
<td>Organic Chemistry I</td>
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<td>and Organic Chemistry Laboratory</td>
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<td>CHEM 652</td>
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<td>and Organic Chemistry Laboratory</td>
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<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
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<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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<td>PHYS 401</td>
<td>Introduction to Physics I</td>
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<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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1. CHEM 403 fulfills the Physical Science Discovery requirement
2. MATH 424B fulfills the Quantitative Reasoning Discovery requirement

##### Bioscience Core Courses

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
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<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
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<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
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</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td></td>
</tr>
</tbody>
</table>

3. BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement.

##### BMS-MVS Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
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<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>or ANSC 512</td>
<td>Anatomy and Physiology</td>
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</table>

##### BMS-MVS Major Elective Courses

A total of seven unique major elective courses are required. At least two courses must be taken in each of the following subject areas: biomedical systems, pathobiology and disease, and health and environmental issues.
One additional course is taken from any of the three major elective subject areas.

**Biomedical Systems Electives**

**Recommended Courses**

<table>
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<tr>
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<td>BMS 718</td>
<td>Mammalian Physiology</td>
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<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
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<td>BMCB 760</td>
<td>Pharmacology</td>
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<td>GEN 717</td>
<td>Molecular Microbiology</td>
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<td>NUTR 750</td>
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**Other Appropriate Courses**

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<th>Course Title</th>
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<tr>
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<td>Histology: Microscopic Cellular Structure and Function</td>
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<td>BMS 740</td>
<td>Human Microbiome</td>
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<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
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<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
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<td>ANSC 710</td>
<td>Dairy Nutrition</td>
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<td>ANSC 715</td>
<td>Physiology of Lactation</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>BMCB 753</td>
<td>Cell Culture</td>
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<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
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<td>BMCB 794</td>
<td>Protein Structure and Function</td>
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<td>CHE 762</td>
<td>Biomedical Engineering</td>
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<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
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<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
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<td>GEN 706</td>
<td>Human Genetics</td>
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<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
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<td>GEN 713</td>
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<td>Molecular Evolution</td>
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<td>ZOOL 613</td>
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<td>ZOOL 777</td>
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**Pathobiology and Disease Electives**

**Recommended Courses**

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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
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</tr>
<tr>
<td>BMS 655</td>
<td>Human and Animal Parasites</td>
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</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 711</td>
<td>Toxicology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
<td>4</td>
</tr>
</tbody>
</table>

**Other Appropriate Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 650</td>
<td>Molecular Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 656</td>
<td>Immunohematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 658</td>
<td>Medical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMS 703</td>
<td>Infectious Disease and Health</td>
<td>4</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 712</td>
<td>Grand Rounds (4-credit minimum)</td>
<td>2</td>
</tr>
<tr>
<td>BMS 720</td>
<td>Mycology, Parasitology, and Virology</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 773</td>
<td>Clinical Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>AAS 527</td>
<td>Companion Animal Diseases</td>
<td>2</td>
</tr>
<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

**Health and Environmental Issues Electives**

**Recommended Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 716</td>
<td>Public Health: Food- and Water-borne Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BMS 730</td>
<td>Ethical Issues in Biomedical Science</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 610</td>
<td>Medical Anthropology: Illness and Healing</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
</tr>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>SOC 635</td>
<td>Medical Sociology</td>
<td>4</td>
</tr>
</tbody>
</table>

*Only one 400-level course may be taken to fulfill a Major Elective requirement.*

**Other Major Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis</td>
<td>1-4</td>
</tr>
</tbody>
</table>

**BMS: MVS Capstone**

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). The capstone requirement can only be fulfilled once a student has senior standing in the major.

**Approved BMS:MVS Capstone Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care (4-credit minimum)</td>
<td>2</td>
</tr>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 711</td>
<td>Toxicology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
</tr>
<tr>
<td>BMS 795</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 795W</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis</td>
<td>1-4</td>
</tr>
<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience</td>
<td>1-4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>Other 795</td>
<td>Investigations course in the biological sciences</td>
<td></td>
</tr>
</tbody>
</table>

For a Capstone experience not listed above, such as an internship, submit a Capstone Experience Approval form [here](https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/biomedical_science/BMS%20Major%20NonCapstoneExperienceApprovalForm.pdf) prior to beginning the experience.

## Degree Plan

### SAMPLE Course Sequence for Medical and Veterinary Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>and Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

| **Third Year** |                                                        |         |
| **Fall**       |                                                        |         |
| BMCB 658      | General Biochemistry                                     | 5       |
| & BMCB 659    | and General Biochemistry Laboratory                       | 5       |
| PHYS 401      | Introduction to Physics I                                | 4       |
| BIOL 528      | Applied Biostatistics I                                  | 4       |
| Major Elective |                                                        | 3-4     |
| Discovery Course |                                               | 4       |
| **Credits**   |                                                        | 16-17   |

| **Spring** |                                                        |         |
| Major Elective |                                                        | 4       |
| PHYS 402     | Introduction to Physics II                              | 4       |
| Major Elective |                                                        | 4       |
| Discovery Course |                                               | 4       |
| **Credits**  |                                                        | 16      |

| **Fourth Year** |                                                        |         |
| **Fall**        |                                                        |         |
| Major Elective (Capstone) |                                                        | 4       |
| Major Elective  |                                                        | 4       |
| Discovery Course |                                               | 4       |
| Elective (any course) |                                                        | 4       |
| **Credits**     |                                                        | 12      |

| **Total Credits** |                                                        | 128-129 |

## Biomedical Science Minor

[http://colsa.unh.edu/mcbs/biomedical/biomedical-science-minor](http://colsa.unh.edu/mcbs/biomedical/biomedical-science-minor)

### Description

Students who wish to develop focused competencies in the broad area of the biomedical sciences can complement their major academic program with a minor in biomedical science (BMS). The minor consists of a minimum of 20 credits, no more than 8 of which can also be used to fulfill major requirements. A grade of C-minus or better is required for all courses counted towards the minor. A C average (2.00) is required in courses that the minor department
approves. It is the student’s responsibility to file an Intent to Minor form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/department_of_molecular_cellular_and_biomedical_sciences/intent_to_minor.pdf) with the BMS minor advisor by the end of the junior year and to complete a Certification of Completion of Minor form (http://www.unh.edu/registrar/forms/minorform.pdf) during their final semester at UNH.

**Requirements**

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 512</td>
<td>Anatomy and Physiology</td>
<td></td>
</tr>
</tbody>
</table>

Choose courses from this list to reach a minimum of 20 credits (choice may be limited if student does not have the prereqs for certain courses):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 560</td>
<td>Body Fluids</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 561</td>
<td>and Body Fluids Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 610</td>
<td>Biomedical Lab Management</td>
<td>4</td>
</tr>
<tr>
<td>BMS 640</td>
<td>Phlebotomy Theory</td>
<td>2</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 656</td>
<td>Immunohematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 658</td>
<td>Medical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 703</td>
<td>Infectious Disease and Health</td>
<td>4</td>
</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 711</td>
<td>Toxicology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 712</td>
<td>Grand Rounds</td>
<td>2</td>
</tr>
<tr>
<td>BMS 716</td>
<td>Public Health: Food- and Water-borne Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 720</td>
<td>Mycology, Parasitology, and Virology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 730</td>
<td>Ethical Issues in Biomedical Science</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

**Community and Environmental Planning (CEP)**

Community and Environmental Planning students have an appreciation for communities designed for people to live, work and play. Our students study a diverse and interconnected number of topics including perspectives in community development, fundamentals of land use planning, community economics, and natural resource conservation issues. If you want to help communities deal with problems associated with the intersection of our built and natural environments, such as economic development, transportation, affordable housing, green space and local agriculture, than a degree in Community and Environmental Planning may be the right fit for you.

http://colsa.unh.edu/nren/cep

**Programs**

- Community and Environmental Planning Major (B.S.) (p. 219)
- Community Planning Minor (p. 221)

**Faculty**

http://colsa.unh.edu/faculty/all

**Community and Environmental Planning Major (B.S.)**

http://colsa.unh.edu/nren/cep/community-and-environmental-planning-bs

**Description**

The Community and Environmental Planning (CEP) program is designed to provide students with the knowledge and skills to become effective community planners in the public or private sector. There are 16 courses required for the major. All of the courses are designed to give the student a diverse skill-set in planning for the sustainability of communities. CEP students are provided a solid planning background with planning courses covering local, state and regional planning topics and methods. CEP students also take foundational courses in natural resources, geographic information systems, economics, and statistics, as well as a political science course, and a social issues course. The internship requirement (CEP 794) allows the planning student to apply their knowledge in the real world for instrumental hands-on experience. Semester in the City is also an option for the internship experience. CEP students are encouraged to focus their remaining hours on skills that can enhance their CEP major such as a dual major, a minor, or study abroad.

Expected CEP Student Outcomes:

- The foundational education in planning, natural resources, economics and sustainability.
- The fundamental values of diversity, equity, justice, and protection of community and the environment.
- The ability to assess, discuss, and engage others in the problems and potential solutions associated with impacts of land use changes.
- The ability to work with community members and professionals in the design and implementation of community improvements in building and transportation while protecting natural and built resources.

Students may go on to work in the community development or community planning departments in local communities. They may also choose to work in regional planning agencies, or with a state or federal office. Other options include the private sector, such as architectural
or development companies, or the non-profit sector, such as with community development corporations or conservation groups. The American Planning Association provides a certification process for the planning profession (American Institute of Certified Planners) after several years of planning experience. Students may also choose to go on to graduate studies in Community and Environmental Planning, Natural Resources Management, Public Administration, or a related field.

**Requirements**

Courses with the prefix CEP must be completed with a C- or above (6 courses total). In addition to the CEP degree requirements (below), students must complete the University Discovery Program and the University Writing Requirements.

**Planning Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP 415</td>
<td>Community Development Perspectives (Discovery Course)</td>
<td>4</td>
</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
<td>4</td>
</tr>
<tr>
<td>CEP 614</td>
<td>Fundamentals of Planning</td>
<td>4</td>
</tr>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>or CEP 672</td>
<td>Fundamentals of Real Estate</td>
<td></td>
</tr>
<tr>
<td>CEP 794</td>
<td>Community and Environmental Planning Internship-12</td>
<td></td>
</tr>
<tr>
<td>or INCO 505A</td>
<td>Semester in the City</td>
<td></td>
</tr>
<tr>
<td>CEP 777</td>
<td>Topics in Community Planning (Capstone for the major)</td>
<td>4</td>
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</table>

**Natural Resources Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>or NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
<td></td>
</tr>
<tr>
<td>or NR 507</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
<td></td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
<td>4</td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment</td>
<td>4</td>
</tr>
<tr>
<td>or NR 724</td>
<td>Resolving Environmental Conflicts</td>
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</tbody>
</table>

**Economics and Statistics Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td>4</td>
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</table>

**Political Science Course:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 502</td>
<td>State and Local Government</td>
<td>4</td>
</tr>
<tr>
<td>or POLT 500</td>
<td>American Public Policy</td>
<td></td>
</tr>
</tbody>
</table>

**Social Issues Course:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 540</td>
<td>Contemporary Social Problems</td>
<td>4</td>
</tr>
<tr>
<td>or INCO 505B</td>
<td>Social Innovator's Toolbox</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 64-72

CEP students are encouraged to have a study away/abroad experience, a dual degree, a minor, or focused area of study which add value to the CEP degree. Consider the following to complete the minimum of 128 credits:

- Semester in the City (if you have not done this in the CEP major)
- EcoQuest New Zealand (16 credits in electives - must qualify with EcoQuest)
- Study Away
- Study Abroad
- Minor as approved by the minor program
- Courses to round out a focus area. It is recommended that you choose upper level courses in NR and EREC.

**Degree Plan**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEP 415</td>
<td>Community Development Perspectives (Also counts as Discovery Social Science)</td>
<td>4</td>
</tr>
<tr>
<td>NR 435 or NR 502 or NR 507</td>
<td>Contemporary Conservation Issues and Environmental Awareness or Forest Ecosystems and Environmental Change or Introduction to our Energy System and Sustainable Energy</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (Counts as Discovery Writing)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose any Discovery courses. Here are some suggestions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Biological Science with Lab (Consider BIOL 430 or NR 433)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Historical Perspectives (Consider ARTS 574)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Humanities (Consider PHIL 430)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Inquiry Course (Choose any)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications (Also counts as Discovery Quantitative)</td>
<td>4</td>
</tr>
<tr>
<td>POLT 502</td>
<td>State and Local Government</td>
<td>4</td>
</tr>
<tr>
<td>Choose any Discovery courses. Here are some suggestions:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Physical Science (Consider ESCI 409, ESCI 405, or NR 504)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Fine and Performing Arts (Choose any)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
<td>4</td>
</tr>
<tr>
<td>SOC 540</td>
<td>Contemporary Social Problems</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td><strong>Elective</strong></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEP 614</td>
<td>Fundamentals of Planning</td>
<td>4</td>
</tr>
</tbody>
</table>
Community Planning Minor

http://colsa.unh.edu/nren/cep/community-planning-minor

**Description**

Land use and its impact on the quality of life has emerged as a major policy issue locally, nationally, and globally. Planning is a multidisciplinary profession that requires professionals who understand both social and natural systems and have command of professional tools required to guide the selection and implementation of alternative approaches compatible with long-term environmental and socio-economic objectives. Students may supplement their major and Discovery Program requirements with specific courses that will enhance their ability to find employment that requires knowledge of planning concepts and tools used in the formulation and implementation of effective land and resource planning by government agencies, nonprofit organizations, and private business firms. Required: 20 hours of credit

**Requirements**

**Group I: Theory and Practice of Planning**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment (Or NR 724 in Spring)</td>
<td>4</td>
</tr>
<tr>
<td>Discovery World Cultures (Choose any)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>May consider CEP 794 Internship or Semester in the City</td>
<td></td>
<td></td>
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</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
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<tr>
<td>May consider CEP 794 Internship or Semester in the City</td>
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</table>

**Fourth Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>Elective</td>
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<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

| May consider CEP 794 Internship or Semester in the City |                      |         |

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP 777</td>
<td>Topics in Community Planning</td>
<td>4</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
<td>4</td>
</tr>
<tr>
<td>NR 724</td>
<td>Resolving Environmental Conflicts (Counts as Elective if taken TOUR 767)</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>May consider CEP 794 Internship or Semester in the City</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 124

---

**Ecogastronomy**

The Peter T. Paul College of Business and Economics and the College of Life Sciences and Agriculture offer undergraduate students the opportunity to pursue a dual major in EcoGastronomy. The dual major requires completion of the EcoGastronomy program and any other major.

The EcoGastronomy program prepares students for professions within our rapidly evolving food community—from farm to fork to nutrition and health outcomes—where ever-greater integration of agriculture, food, and nutrition requires a broad perspective and a specific blend of skills and knowledge. The dual major in EcoGastronomy is international by providing a context for studying “gastronomy” in Ascoli-Piceno, Italy.

**International Experience**

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. Students will study in Ascoli Piceno, Italy (fall semester) or at the Burgundy School of Business in Dijon, France (spring semester).

Dual majors will complete a series of upper-level core courses such as history of cuisine and gastronomy, history of food, aesthetics, food law, food technology processes, cross-cultural comparisons, and language.

**Portfolio**

Students will be required to submit a portfolio annually to the director, and a cumulative portfolio to the instructor of their capstone course for final assessment.

The courses in the dual major program are multidisciplinary, taught by faculty from different departments in the University. They are designed to integrate UNH strengths in sustainable agriculture, hospitality management, and nutrition to offer a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields. The program is experiential by requiring students to work in the field growing food, in the kitchen preparing food, and developing the skills associated with both. They will
also experience the local food cultures and get firsthand experience on the issues of food security locally, regionally, and globally.

Students who wish to declare a dual major in EcoGastronomy must have a cumulative grade-point average of 2.5; have declared, or be prepared to declare, a disciplinary major; and complete the Introduction to EcoGastronomy course (ECOG 401 Introduction to Ecogastronomy) with a grade of C or better.

ECOG 401 Introduction to Ecogastronomy is prerequisite for study abroad, ECOG 685 EcoGastronomy Study Abroad. All required classes and the elective are a pre/corequisite for the senior EcoGastronomy capstone course, ECOG 701 EcoGastronomy Capstone. Exceptions are possible with a late declaration of the dual major. All foreign experiences must be pre-approved by the EcoGastronomy director.

The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for EcoGastronomy must be completed with a grade C or better. For information, contact the dual major in EcoGastronomy, PCBE 370Z, (603) 862-3327, ecog.info@unh.edu.

http://www.unh.edu/ecogastronomy/

Programs

- Ecogastronomy Dual Major (p. 222)

Faculty

http://www.unh.edu/ecogastronomy/faculty

Ecogastronomy Dual Major

http://www.unh.edu/ecogastronomy/curriculum

Description

The Dual Major in EcoGastronomy integrates UNH strengths in sustainable agriculture, hospitality management, and nutrition. EcoGastronomy offers a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields.

The EcoGastronomy Dual Major is a collaboration with the University of New Hampshire’s College of Life Sciences and Agriculture, Peter T. Paul College of Business and Economics, and the Sustainability Institute.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>ECOG 685</td>
<td>EcoGastronomy Study Abroad</td>
<td>20</td>
</tr>
<tr>
<td>ECOG 701</td>
<td>EcoGastronomy Capstone</td>
<td>2-4</td>
</tr>
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</table>

Select one elective from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
</tr>
<tr>
<td>ANSC 694</td>
<td>Summer Cooperative for Real Education in Agricultural Management (CREAM)</td>
</tr>
<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management</td>
</tr>
<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
</tr>
<tr>
<td>HIST 618</td>
<td>American Environmental History</td>
</tr>
<tr>
<td>HMGT 771</td>
<td>International Wine and Beverage</td>
</tr>
<tr>
<td>HMGT 570</td>
<td>International Food and Culture</td>
</tr>
<tr>
<td>MGT 732</td>
<td>Exploration in Entrepreneurial Management</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
</tr>
<tr>
<td>NR 620</td>
<td>Farm to Table: A Case Study in the Northern Beauce Region of France</td>
</tr>
<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values</td>
</tr>
<tr>
<td>NR 720</td>
<td>International Environmental Politics and Policies for the 21st Century</td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living - Global Perspectives</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
</tr>
<tr>
<td>NR 797</td>
<td>Special Topics</td>
</tr>
<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
</tr>
<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
</tr>
<tr>
<td>SAFS 679</td>
<td>Food Production Field Experience I</td>
</tr>
<tr>
<td>SOC 665</td>
<td>Environmental Sociology</td>
</tr>
<tr>
<td>TOUR 705</td>
<td>Ecotourism: Managing for the Environment</td>
</tr>
<tr>
<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
</tr>
<tr>
<td>&amp; ZOOL 611</td>
<td>Principles of Aquaculture Lab</td>
</tr>
<tr>
<td>ZOOL 772</td>
<td>Fisheries Biology</td>
</tr>
</tbody>
</table>

Total Credits 42-44

1 Satisfies the capstone requirement of the Discovery Program for the EcoGastronomy major.

Environmental Conservation and Sustainability

Mission of the ECS Major

Graduates of the environmental conservation and sustainability major understand the complexity of social-ecological systems and meet environmental challenges in innovative ways. ECS students understand ecological principles and comprehend the connections between natural resource and social systems (history, economics, law, policy, international perspectives). They integrate scientific information and human values and articulate problems in ways that point to solutions leading to a sustainable future.

ECS graduates have the theoretical, methodological, technical, and practical skills necessary to solve complex problems. They work collaboratively and across disciplinary boundaries and at all scales from the local to the international. Their critical thinking and communication skills allow them to serve as liaisons among diverse interest groups and to design, implement, and facilitate policy and action toward a sustainable future.

ECS graduates are environmental citizens, sustainability advocates, and leaders for constructive change. They typically serve as policy analysts, sustainability officers, resource managers, journalists, scientists, and...
teachers in business, non-profit organizations, and government agencies, including the Peace Corps and Ameri-Corps. Many ECS graduates attend graduate or professional programs following graduation.

http://colsa.unh.edu/nren/ecs

Programs

- Environmental Conservation and Sustainability Major (B.S.) (p. 223)
- Environmental Conservation and Sustainability Minor (p. 225)

Faculty

http://colsa.unh.edu/faculty/all

Environmental Conservation and Sustainability Major (B.S.)

http://colsa.unh.edu/nren/ecs/environmental-conservation-and-sustainability-bs

Description

ECS Major Curriculum

The ECS major is comprised of 14 core requirements providing integrative courses in both environmental conservation and sustainability, along with a foundation in biology, ecology, physical and social science, and the basic tools and skills applied to problem solving. These core requirements are typically fulfilled in the first two years. Beginning in their junior year, ECS students, in consultation with their advisers, create a seven course focus area based on an ecological system or natural resource of their choosing. The focus area provides advanced study in ecology and natural resources; social sciences; tools, skills, and/or natural history and should reflect the student’s interests and future goals. Additionally, each ECS student completes a practicum experience and a capstone option.

The ECS major provides the opportunity for students to gain a common foundation of knowledge and skills emphasizing integration and critical thinking, while allowing for sufficient flexibility to pursue their interests and passions within a large and complex field of study. The design of the curriculum will allow each student at least four, and as many as six, free electives, which they may fulfill as they choose. Many students pursue international experiences, such as the UNH EcoQuest program in New Zealand, add a minor or dual degree (such as the dual degree in international studies), and/or pursue research opportunities with our faculty or through another of UNH’s undergraduate research opportunity programs.

Requirements

ECS Major Requirements

Degree Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness (ETS)</td>
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</tbody>
</table>

Natural Science:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology (BS DLAB, INQ)</td>
<td>4</td>
</tr>
<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
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</table>

Ecosystem Principles: Select one of the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 439</td>
<td>Environmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology (WI)</td>
<td>4</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
<td>4</td>
</tr>
</tbody>
</table>

Physical Science: Select one of the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science (INQ)</td>
<td>4</td>
</tr>
<tr>
<td>NR 458</td>
<td>The Science of Where (Summer, on-line, PS DLAB)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I (PS DLAB)</td>
<td>4</td>
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<tr>
<td>CHE 410</td>
<td>Energy and Environment (PS)</td>
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<tr>
<td>ESCI 409</td>
<td>Geology and the Environment (PS DLAB)</td>
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</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I (PS DLAB)</td>
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Social Science:

<table>
<thead>
<tr>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (SS)</td>
<td>4</td>
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<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values (WI)</td>
<td>4</td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living - Global Perspectives</td>
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<tr>
<td>SOC 565</td>
<td>Environment and Society</td>
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</table>

Natural Resources Policy: Select one of the following

<table>
<thead>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy (WI)</td>
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</tr>
<tr>
<td>NR 662</td>
<td>Environmental Policy, Planning and Sustainability in New Zealand (WI)</td>
<td>4</td>
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</tbody>
</table>

Essential Tools and Skills:

<table>
<thead>
<tr>
<th>Field Methods:</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
<td></td>
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</table>

Statistics: Select one of the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
<td>4</td>
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</table>

Geospatial Analysis:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
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</tbody>
</table>

Writing Skills: Select one of the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing (WI)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing (WI)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 521</td>
<td>Nature Writers (WI)</td>
<td>4</td>
</tr>
</tbody>
</table>

Presentation Skills: Select one of the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>THDA 520</td>
<td>Creative Drama</td>
<td>4</td>
</tr>
<tr>
<td>THDA 583</td>
<td>Introduction to Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 522</td>
<td>Storytelling, Story Theatre, and Involvement Dramatics</td>
<td>4</td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
</tr>
</tbody>
</table>
Select seven total courses to create a focus area addressing an environmental issue, ecological system, or natural resource (see below).

**Ecology and Natural Resources:**
Select one to four courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.

- ESCI 405 Global Environmental Change
- NR 433 Wildlife Ecology
- NR 501 Studio Soils
- NR 502 Forest Ecosystems and Environmental Change
- NR 504 Freshwater Resources
- NR 603 Landscape Ecology
- NR 625 Physiological Ecology
- NR 640 Wildlife Population Ecology
- NR 642 Introduction to Biogeography
- NR 650 Principles of Conservation Biology
- NR 660 Ecology and Biogeography of New Zealand
- NR 661 Restoration Ecology and Ecosystem Management in New Zealand
- NR 663 Applied Directed Research in New Zealand
- NR 664 Conservation Genetics
- NR 706 Soil Ecology
- NR 711 Wetland Ecology and Management
- NR 729 Silviculture
- NR 730 Terrestrial Ecosystems
- NR 734 Tropical Ecology
- NR 744 Biogeochemistry
- NR 751 Aquatic Ecosystems
- NR 761 Environmental Soil Chemistry
- NR 765 Community Ecology
- NR 782 Forest Health in a Changing World
- NR 783 Forest Communities of New Hampshire
- MEFB 717 Lake Ecology
- MEFB 725 Marine Ecology
- MEFB 747 Aquatic Plants in Restoration/Management
- SAFS 760 Insect Pest Management
- ZOOL 628 Marine Invertebrate Evolution and Ecology
- ESCI 750 Biological Oceanography
- ZOOL 772 Fisheries Biology
- MEFB 616 Tropical Coastal Plant Ecology
- MEFB 674 Ecology and Marine Environment
- MEFB 702 Sustainable Marine Fisheries

**Social Sciences**
Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.

- CEP 415 Community Development Perspectives
- NR 507 Introduction to our Energy System and Sustainable Energy
- NR 606 International Energy Topics
- NR 643 Economics of Forestry
- NR 662 Environmental Policy, Planning and Sustainability in New Zealand
- NR 701 Ecological Sustainability and Values
- NR 718 Law of Natural Resources and Environment
- NR 720 International Environmental Politics and Policies for the 21st Century
- NR 724 Resolving Environmental Conflicts
- NR 784 Sustainable Living - Global Perspectives
- NR 787 Advanced Topics in Sustainable Energy
- ANTH 680 Globalization, Development, and Poverty
- ANTH 695 Globalization and Global Population Health
- CEP 508 Applied Community Development
- CEP 614 Fundamentals of Planning
- ECON 605 Intermediate Microeconomic Analysis
- ECON 645 International Economics
- ECON 668 Economic Development
- ECON 669 Women and Economic Development
- ECON 706 Economics of Climate Change
- EREC 627 Community Economics
- EREC 680 Agricultural and Food Policy
- EREC 708 Environmental Economics
- EREC #711 Marine Resource Economics
- EREC 756 Rural and Regional Economic Development
- GEOG 673 Political Ecology
- HIST 618 American Environmental History
- POLT 751 Comparative Environmental Politics and Policy
- POLT 780 International Environmental Politics, Policy, and Law
- SOC 665 Environmental Sociology
- SOC 730 Communities and the Environment

**Advanced Tools & Skills and Natural History**
Select at least one course

- NR 425 Field Dendrology
- NR 655 Vertebrate Biology
- NR 703 Watershed Water Quality Management
- NR 707 Environmental Modeling
- NR 712 Mammalogy
- NR 713 Quantitative Ecology
- NR 716 Wetland Delineation
- NR #719 Wetlands Restoration and Mitigation
- NR 745 Forest Management
- NR 749 Forest Inventory and Modeling
- NR 757 Remote Sensing of the Environment
- NR 759 Digital Image Processing for Natural Resources
- NR 760 Geographic Information Systems in Natural Resources
- NR 785 Systems Thinking for Sustainable Solutions
- SOC 601 Methods of Social Research
- MEFB 719 Field Studies in Lake Ecology
- MEFB 732 Lake Management
- ZOOL 542 Ornithology
- BIOL 752 Mycology
- ZOOL 745 Biology and Diversity of Insects

**Senior Capstone Options**
The ECS major capstone experience may be filled by any one (1) of the following options:

- NR 425 Field Dendrology
- NR 655 Vertebrate Biology
- NR 703 Watershed Water Quality Management
- NR 707 Environmental Modeling
- NR 712 Mammalogy
- NR 713 Quantitative Ecology
- NR 716 Wetland Delineation
- NR #719 Wetlands Restoration and Mitigation
- NR 745 Forest Management
- NR 749 Forest Inventory and Modeling
- NR 757 Remote Sensing of the Environment
- NR 759 Digital Image Processing for Natural Resources
- NR 760 Geographic Information Systems in Natural Resources
- NR 785 Systems Thinking for Sustainable Solutions
- SOC 601 Methods of Social Research
- MEFB 719 Field Studies in Lake Ecology
- MEFB 732 Lake Management
- ZOOL 542 Ornithology
- BIOL 752 Mycology
- ZOOL 745 Biology and Diversity of Insects
Option 1:  
NR 786 Leadership for Sustainability

Option 2: Both seminars must be scheduled. At least one must be taken in the senior year.

NR 753 & NR 754 Critical Issues in Sustainability: Sustainability as an Abundance Paradigm and Critical Issues in Sustainability: Sense of Place

Option 3:
NR 663 Applied Directed Research in New Zealand (NZ Directed projects, if taken in the senior year)

Option 4:
Directed projects fulfilling one of the following: McNair Research Theses, Hamel Center Programs (IROP, SURF USA, SURF Abroad, etc.) may be applied in consultation with the adviser and ECS program coordinator.

Work Experience
NR 600 Work Experience

Total Credits 86

1 The focus area is based upon at least one course in the ecology and natural resources category, along with a combination of courses in the social sciences; tools, skills, and natural history categories; and any additional courses from the ecology and natural resources category reflecting the student's interests and future direction. Focus areas should be designed in close consultation with the adviser. Courses used to fulfill core requirements may not be used in the focus area.

2 If NR 663 Applied Directed Research in New Zealand is taken in the junior year or earlier, then one Critical Issues seminar (2cr) or Leadership for Sustainability must be taken in the senior year to fulfill the capstone requirement.

3 Each ECS major will engage in a practical experience reflecting their interests and goals. The choice of the experience will be made in conjunction with the adviser and may occur any time beginning with the sophomore year.

Environmental Conservation and Sustainability Minor
http://colsa.unh.edu/nren/ecs/environmental-conservation-and-sustainability-minor

Description
The Environmental Conservation and Sustainability minor consists of 5 courses/20 credits, with an earned grade of C or better. No more than 8 credits used to satisfy major requirements may be used for the minor. Credit/fail courses may not be used for the minor.

Requirements
20 credits total required

- Two required courses: NR 435 Contemporary Conservation Issues and Environmental Awareness and NR 437 Principles of Sustainability
- Three other courses: one course from each of the designated categories (2-4) below.
- A grade of C or better in each of the 5 courses.
- No more than 8 credits used to satisfy major requirements may be used for the minor
- Credit/fail courses may not be used for the minor.

Required Courses
NR 435 Contemporary Conservation Issues and Environmental Awareness
NR 437 Principles of Sustainability

Select one course from each of the following categories:

Ecology:
BIOL 541 General Ecology
NR 433 Wildlife Ecology
NR 502 Forest Ecosystems and Environmental Change
NR 527 Forest Ecology
NR 660 Ecology and Biogeography of New Zealand

Social Science and Management:
NR 507 Introduction to our Energy System and Sustainable Energy
NR 662 Environmental Policy, Planning and Sustainability in New Zealand
NR 718 Law of Natural Resources and Environment
NR 720 International Environmental Politics and Policies for the 21st Century
NR 724 Resolving Environmental Conflicts
NR 786 Leadership for Sustainability
EREC 606 Land Economics Perspectives: Uses, Policies, and Taxes
EREC 627 Community Economics

Advanced Topics in Conservation and Sustainability:
NR 603 Landscape Ecology
NR 606 International Energy Topics
NR 650 Principles of Conservation Biology
NR 661 Restoration Ecology and Ecosystem Management in New Zealand
NR 711 Wetland Ecology and Management
NR 784 Sustainable Living - Global Perspectives
NR 785 Systems Thinking for Sustainable Solutions
NR 787 Advanced Topics in Sustainable Energy
MEFB 702 Sustainable Marine Fisheries

Environmental Horticulture

Programs
- Environmental Horticulture Minor (p. 225)

Environmental Horticulture Minor
http://colsa.unh.edu/anfs/safs/environmental-horticulture-minor
A minor in environmental horticulture is designed to provide a flexible and broad selection of applied horticulture courses to complement any other major area of study. A minimum of 20 credits is required.

Interested students should contact Dr. Catherine Neal in the Department of Biological Sciences, (603) 862-3208.

### Requirements

#### Required Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFS 421</td>
<td>Introductory Horticulture</td>
<td>4</td>
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</table>

#### Electives

Select an additional 16 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 409</td>
<td>Introductory Botany</td>
</tr>
<tr>
<td>BIOL #601</td>
<td>Biology of Plants</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
</tr>
<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
</tr>
<tr>
<td>SAFS 410</td>
<td>A Taste of the Tropics</td>
</tr>
<tr>
<td>SAFS 651</td>
<td>Plant Pathology</td>
</tr>
<tr>
<td>SAFS 760</td>
<td>Insect Pest Management</td>
</tr>
<tr>
<td>SAFS 601</td>
<td>Fruit Crop Production</td>
</tr>
<tr>
<td>SAFS 679</td>
<td>Food Production Field Experience I (4 cr each)</td>
</tr>
<tr>
<td>SAFS 689</td>
<td>Greenhouse Management and Operation</td>
</tr>
<tr>
<td>SAFS 731</td>
<td>Sustainable Landscape Design and Management</td>
</tr>
<tr>
<td>SAFS 795</td>
<td>Investigations (Horticulture related topics)</td>
</tr>
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</table>

#### Total Credits

20

Up to 8 of the 16 credits may be fulfilled by TSAS (Thompson School) Horticulture Technology classes such as:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HT 404</td>
<td>Plant Propagation</td>
</tr>
<tr>
<td>HT 557</td>
<td>Woody Landscape Plants</td>
</tr>
<tr>
<td>HT 458</td>
<td>Herbaceous Ornamental Plants</td>
</tr>
<tr>
<td>HT 566</td>
<td>Garden Design and Culture</td>
</tr>
</tbody>
</table>

### Environmental Sciences

The College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have a comprehensive understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of geographic information systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 12 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include environmental consulting firms; educational facilities (e.g., science centers); environmental monitoring laboratories (e.g., water treatment plants, the Environmental Protection Agency); government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories; and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The program has three options: ecosystems, soils and watersheds, and hydrology. Choices for meeting foundation requirements for the major vary by option.

http://colsa.unh.edu/nren/envsci

### Programs

- Environmental Sciences Major: Ecosystems Option (B.S.) (p. 226)
- Environmental Sciences Major: Hydrology Option (B.S.) (p. 145)
- Environmental Sciences Major: Soil and Watersheds Option (B.S.) (p. 227)

### Faculty

COLSA faculty: http://colsa.unh.edu/faculty/385
CEPS faculty: http://ceps.unh.edu/faculty/earth-sciences

### Environmental Sciences Major: Ecosystems Option (B.S.)

http://colsa.unh.edu/nren/envsci/environmental-sciences-bs

### Description

The College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of geographic information systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 15 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.
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The Program has three options: ecosystems, soils and watersheds, and hydrology. Environmental science B.S. degrees with options in ecosystems and soil and watersheds are managed by the Department of Natural Resources and the Environment in COLSA. The Department of Earth Sciences in CEPS offers the hydrology option of the B.S. environmental sciences degree. Specific course requirements for the major vary by option.

### Requirements

#### Introductory Environmental Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NR 400</td>
<td>Professional Perspectives in Natural Resources</td>
</tr>
<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science</td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
</tr>
<tr>
<td>or NR 437</td>
<td>Principles of Sustainability</td>
</tr>
</tbody>
</table>

#### Foundation Courses

<table>
<thead>
<tr>
<th>Subject</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>CHEM 403</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>or</td>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
</tr>
<tr>
<td>or</td>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
</tr>
<tr>
<td>Physics</td>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
</tr>
<tr>
<td>or</td>
<td>PHYS 407</td>
<td>General Physics I</td>
</tr>
<tr>
<td>Calculus</td>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
</tr>
<tr>
<td>or</td>
<td>MATH 425</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Statistics</td>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
</tr>
<tr>
<td>or</td>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
</tr>
<tr>
<td>or</td>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
</tr>
<tr>
<td>Geology</td>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
</tr>
<tr>
<td>or</td>
<td>ESCI 402</td>
<td>Earth History</td>
</tr>
<tr>
<td>or</td>
<td>ESCI 409</td>
<td>Geology and the Environment</td>
</tr>
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</table>

#### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ESCI 534</td>
<td>Techniques in Environmental Sciences</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
</tr>
<tr>
<td>ESCI 654</td>
<td>Fate and Transport in the Environment</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
</tr>
<tr>
<td>or GEOG 673</td>
<td>Political Ecology</td>
</tr>
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</table>

#### Additional Requirements

<table>
<thead>
<tr>
<th>Subject</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
</tr>
<tr>
<td>or</td>
<td>NR 439</td>
<td>Environmental Biology</td>
</tr>
<tr>
<td>Ecology</td>
<td>NR 527</td>
<td>Forest Ecology</td>
</tr>
<tr>
<td>or</td>
<td>BIOL 541</td>
<td>General Ecology</td>
</tr>
<tr>
<td>Community/Population Ecology</td>
<td>NR 765</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>or</td>
<td>NR 734</td>
<td>Tropical Ecology</td>
</tr>
<tr>
<td>or</td>
<td>NR 640</td>
<td>Wildlife Population Ecology</td>
</tr>
<tr>
<td>Spatial Ecology</td>
<td>NR 603</td>
<td>Landscape Ecology</td>
</tr>
<tr>
<td>or</td>
<td>NR 642</td>
<td>Introduction to Biogeography</td>
</tr>
<tr>
<td>Ecosystems</td>
<td>NR 751</td>
<td>Aquatic Ecosystems</td>
</tr>
<tr>
<td>or</td>
<td>NR 730</td>
<td>Terrestrial Ecosystems</td>
</tr>
<tr>
<td>or</td>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
</tr>
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</table>

### Environmental Chemistry: Choose one

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>NR 761</td>
<td>Environmental Soil Chemistry</td>
</tr>
<tr>
<td>or</td>
<td>NR 744</td>
</tr>
<tr>
<td>or</td>
<td>ESCI 747</td>
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<tr>
<td>or</td>
<td>ESCI 741</td>
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#### 4 Approved Electives

- Elective (CHEM 404 can be used if CHEM 403 was taken)
- Elective
- Elective
- Elective

### Capstone

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 791</td>
<td>Project in Environmental Science I (and approved Capstone Experience)</td>
</tr>
</tbody>
</table>

1. Many students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement, and capstone requirement if taken senior year.
2. NR 791 must be taken Spring semester Junior year. Capstone experience (e.g. EcoQuest, Internship) must be completed during the senior year/final 2 semesters.

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### Environmental Sciences Major: Soil and Watersheds Option (B.S.)

http://colsa.unh.edu/nren/envsci/environmental-sciences-bs

### Description

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Employment opportunities include environmental consulting firms; educational facilities (e.g., science centers); environmental monitoring laboratories (e.g., water treatment plants, the Environmental Protection Agency); government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories; and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has three options: ecosystems, soils and watersheds, and hydrology. Environmental science B.S. degrees with options in ecosystems and soil and watersheds are managed by the Department of Natural Resources and the Environment in COLSA. The Department of Earth Sciences in CEPS offers the hydrology option of the B.S. environmental sciences degree. Specific course requirements for the major vary by option.

### Requirements

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<tr>
<td>or NR 437</td>
<td>Principles of Sustainability</td>
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</table>

#### Foundation Courses

**Biology**

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
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**Chemistry: Choose one**

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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<td>or CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<td>or CHEM 411</td>
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**Physics: Choose one**

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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
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**Calculus: Choose one**

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<tbody>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
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<td>or MATH 425</td>
<td>Calculus I</td>
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**Statistics: Choose one**

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<tbody>
<tr>
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<td>Applied Biostatistics I</td>
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<tr>
<td>or MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
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<td>or EREC 525</td>
<td>Statistical Methods and Applications</td>
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**Geology: Choose one**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
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**Core Courses**

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<tbody>
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<tr>
<td>ESCI 654</td>
<td>Fate and Transport in the Environment</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
</tr>
<tr>
<td>or GEOG 673</td>
<td>Political Ecology</td>
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</table>

#### Additional Requirements

**Biology or Physics: Choose one**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 439</td>
<td>Environmental Biology</td>
</tr>
<tr>
<td>or BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
</tr>
<tr>
<td>or PHYS 402</td>
<td>Introduction to Physics II</td>
</tr>
<tr>
<td>or PHYS 408</td>
<td>General Physics II</td>
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**Ecology: Choose one**

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<tbody>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
</tr>
<tr>
<td>or BIOL 541</td>
<td>General Ecology</td>
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**Soils**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 501</td>
<td>Studio Soils</td>
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**Watersheds**

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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 703</td>
<td>Watershed Water Quality Management</td>
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**Ecosystems: Choose one**

<table>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>NR 751</td>
<td>Aquatic Ecosystems</td>
</tr>
<tr>
<td>or NR 730</td>
<td>Terrestrial Ecosystems</td>
</tr>
<tr>
<td>or NR 711</td>
<td>Wetland Ecology and Management</td>
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</table>

**Soils II: Choose one**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 761</td>
<td>Environmental Soil Chemistry</td>
</tr>
<tr>
<td>or NR 744</td>
<td>Biogeochemistry</td>
</tr>
<tr>
<td>or NR 706</td>
<td>Soil Ecology</td>
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</table>

#### 4 Approved Electives

- Elective (CHEM 404 can be used if CHEM 403 was taken)
- Elective
- Elective

#### Capstone

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>NR 791</td>
<td>Project in Environmental Science I (and approved Capstone Experience)</td>
</tr>
</tbody>
</table>

---

1 Many students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement, and capstone requirement if taken senior year.

2 NR 791 must be taken Spring semester Junior year. Capstone experience (e.g. EcoQuest, Internship) must be completed during the senior year/final 2 semesters.

### Environmental and Resource Economics (EREC)

The Environmental and Resource Economics program offers training in areas that include public resource policy, resource management, natural resource and environmental economics, and community economics and finance. The curriculum emphasizes applied economics in the context of public policy. Training is also available in agricultural economics,
including agribusiness, small business management, food marketing, agricultural policy, and world food supplies.

http://colsa.unh.edu/nrec/erec

**Programs**

- Environmental and Resource Economics Major (B.S.) (p. 229)
- Environmental and Resource Economics Minor (p. 229)

**Faculty**

http://colsa.unh.edu/faculty/all

**Environmental and Resource Economics Major (B.S.)**

http://colsa.unh.edu/nrec/erec/environmental-and-resource-economics-bs

**Description**

Students majoring in environmental and resource economics will normally concentrate in one of the following three areas: environmental and natural resource economics, agricultural economics, or community economics. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors theses, mentored research project, and other special student activity). In addition, students must satisfy University requirements, including those for the Discovery Program. Majors interested in the economic or business aspects of agriculture and natural resources will be expected to take courses in the biological sciences.

Upon graduation, students are qualified for a wide variety of opportunities. Private business, public institutions, and government agencies currently have a strong demand for specialists trained in natural resource development; land and water use policy; natural resource and small business management; agricultural, fisheries, and forestry marketing; and community development. In many cases, students may wish to improve their qualifications by pursuing more specialized graduate studies.

**Requirements**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
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<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 635 Money and Banking</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>or EREC 635 Money and Banking</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
<td>4</td>
</tr>
<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424B Calculus for Life Sciences</td>
<td>4</td>
<td></td>
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</tbody>
</table>

**Select at least five of the following, two must be 700 level:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EREC 535</td>
<td>Being a Locavore</td>
<td>4</td>
</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>EREC 606</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td>4</td>
</tr>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td>4</td>
</tr>
<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
<td>4</td>
</tr>
<tr>
<td>EREC 708</td>
<td>Environmental Economics</td>
<td>4</td>
</tr>
<tr>
<td>EREC 756</td>
<td>Rural and Regional Economic Development</td>
<td>4</td>
</tr>
<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>NR 643</td>
<td>Economics of Forestry</td>
<td>4</td>
</tr>
<tr>
<td>CEP 614</td>
<td>Fundamentals of Planning</td>
<td>4</td>
</tr>
<tr>
<td>CEP 777</td>
<td>Topics in Community Planning</td>
<td>4</td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment</td>
<td>4</td>
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</tbody>
</table>

**Capstone**

The capstone can be fulfilled through a course (EREC 708, EREC 756, EREC 760, CEP 777 or TOUR 767), or a created work or product, or some form of experiential learning (e.g., honors theses, mentored research projects in EREC 795, EREC 799, and other special student activities). 1

1 EREC 411 cannot be used to satisfy the Social Science Discovery program requirement; EREC 411 cannot be taken for credit if credit has been earned for ECON 402.

Students are encouraged to consider adding additional courses from the economics (ECON) department to their program. In special cases, students may petition to have these courses, particularly ECON 706 and ECON 726, substitute for major EREC electives.

**Environmental and Resource Economics Minor**

http://colsa.unh.edu/nrec/erec/environmental-and-resource-economics-minor

**Description**

The Environmental and Resource Economics minor aims to provide students majoring in other disciplines with an understanding of environmental and resource economics, and their uses in personal, social, business and government decision-making. Students learn how to apply economic analyses in evaluating environmental and resource problems, identifying their causes and examining alternative solutions. The minor also offers courses that teach techniques useful for decision making by local and regional communities. Students also obtain skills in the management of agricultural and natural-resource business firms.
Requirements

Minor Requirements

• Complete 5 Courses with a minimum of 20 credits from the courses listed below, with a grade of C- or better.
• No more than 8 credits used to satisfy major requirements may be used for the minor.
• Pass/Fail courses may not be used for the minor.

Select at least 5 of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>EREC 444</td>
<td>The New Pirates of the Caribbean</td>
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</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
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</tr>
<tr>
<td>EREC 535</td>
<td>Being a Locavore</td>
<td></td>
</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>EREC 595</td>
<td>Problems in Natural and Agricultural Resources</td>
<td></td>
</tr>
<tr>
<td>or EREC 595W</td>
<td>Problems in Natural and Agricultural Resources</td>
<td></td>
</tr>
<tr>
<td>EREC 596</td>
<td>Problems in Natural and Agricultural Resources</td>
<td></td>
</tr>
<tr>
<td>or EREC 596W</td>
<td>Problems in Natural and Agricultural Resources</td>
<td></td>
</tr>
<tr>
<td>EREC 600</td>
<td>Field Experience</td>
<td></td>
</tr>
<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td></td>
</tr>
<tr>
<td>EREC 606</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td></td>
</tr>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td></td>
</tr>
<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
<td></td>
</tr>
<tr>
<td>EREC 708</td>
<td>Environmental Economics</td>
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<tr>
<td>EREC 710</td>
<td>Seminar</td>
<td></td>
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<tr>
<td>EREC 756</td>
<td>Rural and Regional Economic Development</td>
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<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
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<tr>
<td>EREC 775</td>
<td>Research Methods</td>
<td></td>
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<tr>
<td>EREC 795</td>
<td>Investigations</td>
<td></td>
</tr>
<tr>
<td>EREC 795W</td>
<td>Investigations</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 20

Equine Studies

The equine studies degree program at UNH offers a unique and well-rounded program of study to students pursuing a career in the horse industry. All students receive a background in science and business, as well as equine-specific courses that incorporate outstanding opportunities for experiential learning. Students then choose a specialization in one of three options.

Equine Industry and Management

This option combines business classes and hands-on equine classes, such as teaching training, stable management, and competition management for students interested in a traditional equine career or a career in equine business.

Therapeutic Riding

This option includes classes in equine studies, therapeutic riding, non-profit organizations, and human development and special needs for students interested in a career in therapeutic riding. Students also test for PATH International instructor certification.

Equine Science

This option combines equine classes with a more intensive science curriculum, which includes genetics, reproduction, and nutrition. This program is suited for pre-veterinary students or those interested in graduate education or research.

GPA Requirements for All Students in Equine Studies

All students enrolled in the equine studies major will be required to receive a minimum grade of C- in all classes required for the major. Students failing to do this will need to retake the course in order to receive credit.

http://www.equine.unh.edu

Programs

- Equine Studies Major: Equine Industry and Management Option (B.S.) (p. 230)
- Equine Studies Major: Equine Science Option (B.S.) (p. 231)
- Equine Studies Major: Therapeutic Riding Option (B.S.) (p. 232)
- Equine Studies Minor (p. 233)

Faculty

http://colsa.unh.edu/faculty/all

Equine Studies Major: Equine Industry and Management Option (B.S.)

http://colsa.unh.edu/anfs/equine/equine-studies-bs

Description

The Industry and Management option combines business classes and hands-on equine classes, such as teaching training, stable management, and competition management for students interested in a traditional equine career or a career in equine business.

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 437</td>
<td>Equine Handling and Care Techniques</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 402</td>
<td>Horsemanship (Intermediate 2 level or above)</td>
<td>3</td>
</tr>
<tr>
<td>or ANSC 405</td>
<td>Theory of Horsemanship</td>
<td></td>
</tr>
<tr>
<td>ANSC 411</td>
<td>Freshman Seminar in Equine Science</td>
<td>1</td>
</tr>
<tr>
<td>ANSC 504</td>
<td>Equine Science</td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ANSC 665</td>
<td>Principles of Horse Trials Management</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 600</td>
<td>Field Experience</td>
<td>1-4</td>
</tr>
<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>or GEN 604</td>
<td>Principles of Genetics</td>
<td></td>
</tr>
<tr>
<td>ANSC 620</td>
<td>Equine Diseases</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 796</td>
<td>Equine Senior Seminar</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 725</td>
<td>Equine Sports Medicine</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 797</td>
<td>Equine Capstone Experience</td>
<td></td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and</td>
<td>4</td>
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<tr>
<td></td>
<td>Ecology</td>
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</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
<td>4</td>
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<tr>
<td>or ENGL 419</td>
<td>Introduction to Literary Analysis</td>
<td></td>
</tr>
<tr>
<td>or ENGL 502</td>
<td>Professional and Technical Writing</td>
<td></td>
</tr>
<tr>
<td>or ENGL 503</td>
<td>Persuasive Writing</td>
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<tr>
<td>or ANSC 543</td>
<td>Technical Writing in Animal Sciences</td>
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</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td></td>
</tr>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
<td>8</td>
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<tr>
<td>&amp; ANSC 512</td>
<td>and Anatomy and Physiology</td>
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</tr>
<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
<td>4</td>
</tr>
<tr>
<td>AAS 426</td>
<td>Equine Conformation and Lameness</td>
<td>4</td>
</tr>
<tr>
<td>AAS 436</td>
<td>Equine Show Preparation and Competition</td>
<td>1</td>
</tr>
<tr>
<td>AAS 434</td>
<td>Equipment and Facilities Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 538</td>
<td>Equine Handling/Longeing</td>
<td>1</td>
</tr>
<tr>
<td>AAS 547</td>
<td>Applied Equine Management</td>
<td>3</td>
</tr>
<tr>
<td>ADMN 502</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 500</td>
<td>Equine Assisted Activities and Therapies</td>
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</tr>
<tr>
<td>ANSC 507</td>
<td>Survey of Equine Training Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
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<tr>
<td>ANSC 640</td>
<td>Principles of Riding Instruction</td>
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</tr>
<tr>
<td>ANSC 641</td>
<td>Principles of Dressage Instruction</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 642</td>
<td>Principles of Jumping Instruction</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 643</td>
<td>Principles of Therapeutic Riding Instruction</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 695</td>
<td>Supervised Teaching Experience</td>
<td>1-2</td>
</tr>
<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>KIN 560</td>
<td>Sport Psychology</td>
<td>4</td>
</tr>
<tr>
<td>KIN 565</td>
<td>Principles of Coaching</td>
<td>4</td>
</tr>
<tr>
<td>MGT 580</td>
<td>Introduction to Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 550</td>
<td>Survey of Marketing</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 720</td>
<td>Animal Cognition</td>
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</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
<td>5</td>
</tr>
</tbody>
</table>

1 Waived for TSAS equine management graduates

### Equine Studies Major: Equine Science Option (B.S.)

http://colsa.unh.edu/anfs/equine/equine-studies-bs

#### Description

The Equine Science option combines equine classes with a more intensive science curriculum, which includes genetics, reproduction, and nutrition. This program is suited for pre-veterinary students or those interested in graduate education or research.

#### Requirements

**Core Equine Studies Requirements**

- AAS 437 Equine Handling and Care Techniques 4
- ANSC 402 Horsemanship (Intermediate 2 level or above) 3
  - or ANSC 405 Theory of Horsemanship
- ANSC 411 Freshman Seminar in Equine Science 1
- ANSC 504 Equine Science 4
- ANSC 665 Principles of Horse Trials Management 2
  - or ANSC 600 Field Experience 1
- ANSC 612 Genetics of Domestic Animals 4
  - or GEN 604 Principles of Genetics
- ANSC 620 Equine Diseases 4
- ANSC 796 Equine Senior Seminar 2
- ANSC 725 Equine Sports Medicine 4
- ANSC 797 Equine Capstone Experience 4
- BIOL 411 Introductory Biology: Molecular and Cellular 4
- BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology 4
- ENGL 501 Introduction to Creative Nonfiction 4
  - or ENGL 419 Introduction to Literary Analysis
  - or ENGL 502 Professional and Technical Writing
  - or ENGL 503 Persuasive Writing
  - or ANSC 543 Technical Writing in Animal Sciences
- EREC 411 Environmental and Resource Economics Perspectives 4
  - or ECON 402 Principles of Economics (Micro)

**Industry and Management Electives:** Choose 20 credits from the following:

- AAS 426 Equine Conformation and Lameness 4
- AAS 436 Equine Show Preparation and Competition 1
- AAS 434 Equipment and Facilities Management 3
- AAS 538 Equine Handling/Longeing 1
- AAS 547 Applied Equine Management 3
- ADMN 502 Financial Accounting 4
- ANSC 500 Equine Assisted Activities and Therapies 4
- ANSC 507 Survey of Equine Training Techniques 3
- ANSC 602 Animal Rights and Societal Issues 4
- ANSC 640 Principles of Riding Instruction 4
- ANSC 641 Principles of Dressage Instruction 2
- ANSC 642 Principles of Jumping Instruction 2
- ANSC 643 Principles of Therapeutic Riding Instruction 4
- ANSC 695 Supervised Teaching Experience 1-2
- ANSC 701 Physiology of Reproduction 4
- EDUC 500 Exploring Teaching 4
- KIN 560 Sport Psychology 4
- KIN 565 Principles of Coaching 4
- MGT 580 Introduction to Organizational Behavior 4
- MKTG 550 Survey of Marketing 4
- PSYC 720 Animal Cognition 4
- ZOOL 613 Animal Behavior 5

**Equine Science Requirements**

- ANSC 511 & ANSC 512 Anatomy and Physiology 8
- ANSC 609 Principles of Animal Nutrition 4
  - or NUTR 750 Nutritional Biochemistry
- ANSC 724 Reproductive Management and Artificial Insemination 4
  - or ANSC 701 Physiology of Reproduction
- BIOL 555 Experimental Design and Analysis Laboratory (EDAL) 4
  - or BIOL 528 Applied Biostatistics I
Equine Science Electives: Choose 20 credits from the following:

- AAS 426 Equine Conformation and Lameness 4
- AAS 432 Introduction to Forage and Grassland Management 3
- AAS 538 Equine Handling/Longeining 1
- ANSC 500 Equine Assisted Activities and Therapies 4
- ANSC 507 Survey of Equine Training Techniques 3
- ANSC 602 Animal Rights and Societal Issues 4
- BMS 623 Histology: Microscopic Cellular Structure and Function 4
- ANSC 695 Supervised Teaching Experience 1-2
- ANSC 701 Physiology of Reproduction 4
- BMS 704 Pathologic Basis of Disease 4
- BMS 703 Infectious Disease and Health 4
- BMS 712 Grand Rounds 2
- ANSC 724 Reproductive Management and Artificial Insemination 4
- NUTR 750 Nutritional Biochemistry 4
- BMCB 658 General Biochemistry and General Biochemistry Lab 5
- BMS 503 General Microbiology and General Microbiology Laboratory 5
- BMS 718 Mammalian Physiology 4
- CHEM 651 Organic Chemistry I and Organic Chemistry Laboratory 3
- CHEM 652 Organic Chemistry II and Organic Chemistry Laboratory 3
- EDUC 500 Exploring Teaching 4
- MATH 424B Calculus for Life Sciences 4
- NSB 727 Animal Communication 4
- PHYS 401 Introduction to Physics I 4
- PHYS 402 Introduction to Physics II 4
- PSYC 720 Animal Cognition 4
- ZOOL 613 Animal Behavior 5
- ZOOL 736 Genes and Behavior 4

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Equine Studies Major: Therapeutic Riding Option (B.S.)

http://colsa.unh.edu/anfs/equine/equine-studies-bs

Description

The Therapeutic Riding option includes classes in equine studies, therapeutic riding, non-profit organizations, and human development and special needs for students interested in a career in therapeutic riding. Students also test for PATH International instructor certification.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSL 509</td>
<td>Essentials of Grant Writing for Community-Based Organizations</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
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<tr>
<td>EDUC 701</td>
<td>Human Development and Learning: Educational Psychology</td>
<td>4</td>
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<tr>
<td>EDUC 750</td>
<td>Introduction to Exceptionality</td>
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<tr>
<td>EDUC 751A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td>4</td>
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<tr>
<td>EDUC 751B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td>4</td>
</tr>
<tr>
<td>MGT 580</td>
<td>Introduction to Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>OT 510</td>
<td>Exploring Occupational Therapy and Occupation</td>
<td>4</td>
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<tr>
<td>OT 500</td>
<td>Behavior and Development of Children</td>
<td>4</td>
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<tr>
<td></td>
<td>or HDFS 525 Human Development</td>
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<tr>
<td>PSYC 561</td>
<td>Abnormal Behavior</td>
<td>4</td>
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<tr>
<td>PSYC 581</td>
<td>Child Development</td>
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<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
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<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4</td>
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<tr>
<td>SW 797</td>
<td>Special Topics in Social Welfare</td>
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<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
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</tr>
</tbody>
</table>

1 Waived for TSAS equine management graduates

### Equine Studies Minor

http://colsa.unh.edu/anfs/equine/equine-studies-minor

#### Description

A minor in equine studies consists of a minimum of 20 credits of equine-related animal science courses. ANSC 402 may be counted only once for minor credit. Students MUST take either ANSC 504 Equine Science or ANSC 437 Equine Care and Handling Techniques. Students must receive a minimum grade of C- in any course used for the minor. Students failing to do this will need to retake the course in order to receive credit. No courses taken on a pass/credit/fail basis may count toward the minor. Students who transfer from other institutions may petition the equine program faculty for course approval, but no more than 8 transfer credits can be used towards the minor. Students who choose both ANSC 500 and ANSC 643 as two of their courses toward the minor in equine studies will be eligible for PATH International therapeutic riding instructor certification.

#### Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 504</td>
<td>Equine Science</td>
<td>4</td>
</tr>
<tr>
<td>or AAS 437</td>
<td>Equine Handling and Care Techniques</td>
<td></td>
</tr>
</tbody>
</table>

Select a minimum of 16 credits from the following electives: 16

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 434</td>
<td>Equipment and Facilities Management</td>
<td></td>
</tr>
<tr>
<td>AAS 426</td>
<td>Equine Conformation and Lameness</td>
<td></td>
</tr>
<tr>
<td>AAS 436</td>
<td>Equine Show Preparation and Competition</td>
<td></td>
</tr>
<tr>
<td>AAS 437</td>
<td>Equine Handling and Care Techniques</td>
<td></td>
</tr>
<tr>
<td>AAS 538</td>
<td>Equine Handling/Longeining</td>
<td></td>
</tr>
<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td></td>
</tr>
<tr>
<td>AAS 547</td>
<td>Applied Equine Management</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 553</td>
<td>Equine Competition Management</td>
<td></td>
</tr>
<tr>
<td>ANSC 402</td>
<td>Horsemanship</td>
<td></td>
</tr>
<tr>
<td>ANSC 405</td>
<td>Theory of Horsemanship</td>
<td></td>
</tr>
<tr>
<td>ANSC 419</td>
<td>Horse Power</td>
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</tr>
<tr>
<td>ANSC #444B</td>
<td>Horse Power: Transforming and Reflecting Civilization</td>
<td></td>
</tr>
<tr>
<td>ANSC 500</td>
<td>Equine Assisted Activities and Therapies</td>
<td></td>
</tr>
<tr>
<td>ANSC 507</td>
<td>Survey of Equine Training Techniques</td>
<td></td>
</tr>
<tr>
<td>ANSC 620</td>
<td>Equine Diseases</td>
<td></td>
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<tr>
<td>ANSC 640</td>
<td>Principles of Riding Instruction</td>
<td></td>
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<tr>
<td>ANSC 641</td>
<td>Principles of Dressage Instruction</td>
<td></td>
</tr>
<tr>
<td>ANSC 642</td>
<td>Principles of Jumping Instruction</td>
<td></td>
</tr>
<tr>
<td>ANSC 643</td>
<td>Principles of Therapeutic Riding Instruction</td>
<td></td>
</tr>
<tr>
<td>ANSC 645</td>
<td>Principles of Horse Trials Management</td>
<td></td>
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<tr>
<td>ANSC 695</td>
<td>Supervised Teaching Experience</td>
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<tr>
<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>ANSC 725</td>
<td>Equine Sports Medicine</td>
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<tr>
<td>ANSC 795</td>
<td>Investigations</td>
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<tr>
<td>ANSC 795W</td>
<td>Investigations</td>
<td></td>
</tr>
<tr>
<td>ANSC 799</td>
<td>Honors Senior Thesis</td>
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</tbody>
</table>

Total Credits 20

1 Subject to approval. Must be equine-related.

### Forestry

Climate change, carbon storage, biodiversity, and ecosystem integrity in the context of sustainable human use of forests and associated resources are important scientific and social issues. The forestry program at the University of New Hampshire prepares its graduates with the scientific and managerial knowledge and skills to address these environmental and resource management problems at local, regional, and global levels.

Forestry is the art and science of managing and understanding the natural and human dimensions of forests and forest use. Forestry education at UNH focuses on sustainable management of forests for biodiversity, productivity, and health, based on a multidisciplinary approach. The program's goal is to provide a sound professional preparation, a broad general education, and the flexibility to cultivate special abilities and interests, leading to a bachelor of science in forestry degree (B.S.F) accredited by the Society of American Foresters (SAF). The SAF is recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education as the accrediting body for forestry education at UNH focuses on sustainable management of forests for biodiversity, productivity, and health, based on a multidisciplinary approach. The program's goal is to provide a sound professional preparation, a broad general education, and the flexibility to cultivate special abilities and interests, leading to a bachelor of science in forestry degree (B.S.F) accredited by the Society of American Foresters (SAF). The SAF is recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education as the accrediting body for the United States. Students are encouraged to develop an area of concentration or to complete a minor in consultation with their academic adviser.

UNH forestry graduates manage forests to provide wildlife habitat and recreation opportunities, care for soil and water resources, protect and restore forest ecosystems, and assure a sustainable supply of forest products. They are employed by private industry, public agencies, public interest groups, education institutions, research organizations, and consulting firms. Many students enter graduate school for advanced study in forest biology or management while others have found challenging international opportunities.
Forestry education at UNH focuses on sustainable management of forests for biodiversity, productivity, and health, based on a multidisciplinary approach.

The program's goals are to provide a sound professional preparation, a broad general education, and the flexibility to cultivate special abilities and interests, leading to a bachelor of science forestry degree (B.S.F.), accredited by the Society of American Foresters.

Forestry graduates help answer major environmental challenges involving climate change, sustainable development and resource management, and biodiversity protection. They work to protect and restore forest ecosystems, assure a sustainable supply of forest products, provide wildlife habitat and recreational opportunities, and care for soil and water resources.

All forestry majors must satisfy the B.S.F. requirements and all Discovery Program requirements. Students must satisfy the inquiry requirement of the Discovery Program by completing an inquiry or inquiry-attribute course. Seniors must also satisfy the capstone experience requirement of the Discovery Program. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course (NR 745 Forest Management), created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student activity). Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

### Degree Plan

#### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td></td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
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<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 409</td>
<td>Introductory Botany</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
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</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td></td>
</tr>
<tr>
<td>NR 501</td>
<td>Studio Soils</td>
<td>4</td>
</tr>
<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4</td>
</tr>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td>4</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 600</td>
<td>Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td></td>
</tr>
</tbody>
</table>

#### Select one of the following: (NR 501, NR 504, NR 506, NR 527, NR 600, CMN 500, or ECON 402)
Forestry Minor

http://colsa.unh.edu/nren/forestry/forestry-minor

Description

The Forestry minor consists of 20 credits with a grade of C- or better. No More than 8 credits used to satisfy major requirements may be used for the minor. Pass/Fail courses may not be used for the minor.

Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>NR 749</td>
<td>Forest Inventory and Modeling</td>
<td></td>
</tr>
<tr>
<td>NR 757</td>
<td>Remote Sensing of the Environment</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>NR 729</td>
<td>Silviculture</td>
<td></td>
</tr>
<tr>
<td>NR 745</td>
<td>Forest Management</td>
<td></td>
</tr>
</tbody>
</table>

Electives - Choose one of the following or one of the alternative courses from above:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td>4</td>
</tr>
</tbody>
</table>

Genetics (GEN)

Genetics and genomics are central to all aspects of the life sciences. Genetics is the branch of biology that deals with heredity, variation of genes among individuals in a population, and the expression and regulation of genes. Genomics focuses on determining the structure and function of genomes and includes the mapping of genes, high-throughput DNA sequencing, and investigating the molecular mechanisms by which genetic and environmental factors contribute to phenotypes. Every day, scientists are using the tools of genetics and genomics to make exciting discoveries in fields such as molecular medicine, cancer research, biodiversity, and sustainability.

The Genetics (GEN) major has two options: Genetics and Genetics:Genomics. The option in Genetics provides a solid foundation in biology, biochemistry, microbiology, chemistry, physics, math, and cell biology. Students also take advanced courses in molecular genetics, bioinformatics, molecular evolution, genomics, and laboratory techniques. There are many opportunities for interested students to gain research experience through formal or informal research projects in faculty members’ laboratories. The Genetics:Genomics option provides additional training in genomics, evolutionary genetics, and computer programming for bioinformatics.

Students with degrees in genetics or genomics are well prepared to apply to graduate schools (e.g., for training as genetic counselors or researchers) and professional schools, or to pursue careers in biotechnology companies, forensics labs, hospitals, university research laboratories, and government agencies. Two additional courses are needed for application to professional programs (e.g., medical or dental school). Graduates may also be employed in fields such as management, sales, marketing, regulatory affairs, technical writing, or science journalism. With supplementary courses in education, graduates with a bachelor’s degree in genetics or genomics can teach at the elementary, middle, or high school level.

The genetics faculty conduct research on diverse topics such as evolution, gene structure and function, host-microbe interactions, genome sequencing and analysis, heredity, and diversity in populations. Faculty research areas encompass microbial, plant, and animal genetics. Genetics faculty are committed to mentoring undergraduate students in independent research experiences in their laboratories, which provide students with exposure to and training in cutting-edge research technologies.

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions should visit the Pre-Professional Health Programs Advising (http://www.unh.edu/premed-advising) website or visit the office in person. Requirements for specific types of professional schools (e.g., medical, dental, physician assistant, pharmacy, etc.) are available here (http://www.unh.edu/uacc/premed-advising/explore-health-professions).
Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program (http://colsa.unh.edu/mcbs/prevet). Many of the prerequisite courses required by professional schools are also requirements of the genetics major, but students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

http://colsa.unh.edu/mcbs/genetics

**Programs**

- Genetics Major (B.S.) (p. 236)
- Genetics Major: Genomics Option (B.S.) (p. 238)
- Genetics Minor (p. 240)

**Faculty**

http://colsa.unh.edu/faculty/all

**Genetics Major (B.S.)**

http://colsa.unh.edu/mcbs/genetics/genetics-bs

**Description**

**Genetics**

Students majoring in genetics take seven Foundation courses, six Bioscience Core courses, four Genetics Core courses and four Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University requirements must be completed, including those for the Discovery Program (http://www.unh.edu/undergrad-catalog/gi.cfm?thisid=242&masterid=27&headingid=27/#242) and the University Writing Requirement (http://www.unh.edu/undergrad-catalog/gi.cfm?thisid=28&masterid=27&headingid=27/#28).

**Requirements**

A minimum grade of C-minus or above must be earned in all courses offered by the College of Life Sciences and Agriculture.

**Foundation Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

1. CHEM 403 fulfills the Physical Science Discovery requirement

2. Students applying to health profession schools need a full year of English, a full year of Introductory Biology, and a full year of Organic Chemistry. ENGL 502 or 503 should be taken in addition to ENGL 401; CHEM 651/653 and CHEM 652/654 should be taken in place of CHEM 545/546. See Pre-Professional Health Program Advising (http://www.unh.edu/uacc/premed-advising/advising).

3. MATH 424B fulfills the Quantitative Reasoning Discovery requirement

**Bioscience Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504 &amp; &amp; BMS 504</td>
<td>General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td>5</td>
</tr>
</tbody>
</table>

4. BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement

**Genetics Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
<td>1</td>
</tr>
<tr>
<td>GEN 606</td>
<td>Genetics Lab</td>
<td>4</td>
</tr>
<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
</tr>
</tbody>
</table>

5. Students who take GEN 704 to fulfill the Genetics Core requirement may also count it toward their Laboratory Techniques requirement IF they take one additional Bioscience Major Elective course. GEN 704 can count as a Genetic Core course or a Bioscience Major Elective course but not both.

6. GEN 771 can be used as a Genetic Core course or Bioscience Major Elective but not both.

**Select one of the following:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Major Electives**

A total of four unique major electives is required: one course from the laboratory-based major elective group, one course from the population genetics or evolutionary genetics major elective group, two courses from the bioscience major elective group.

**Laboratory-Based Major Electives (Pick One)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
<td>4</td>
</tr>
</tbody>
</table>

7. Students who take GEN 795 to fulfill the Genetics Core requirement may also count it toward their Laboratory Techniques requirement IF they take one additional Bioscience Major Elective course. GEN 795 can count as a Genetic Core course or a Bioscience Major Elective course but not both.

8. GEN 771 can be used as a Genetic Core course or Bioscience Major Elective but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 795</td>
<td>Investigations in Genetics (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 795W</td>
<td>Investigations in Genetics (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 799H</td>
<td>Honors Senior Thesis</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
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</table>
### Degree Plan

#### SAMPLE Course Sequence for Genetics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>Discovery course</td>
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<td>4</td>
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<tr>
<td></td>
<td><strong>Credits</strong></td>
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</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<tr>
<td>Discovery course</td>
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</tr>
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<td></td>
<td><strong>Credits</strong></td>
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<td><strong>Second Year</strong></td>
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<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

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7 Must be a laboratory-based project with a genetics focus; submit approval form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/genetics/Lab%20Techniques%20Approval%20form%206-2013.pdf) prior to beginning the course.

8 Capstone research project must have a genetics focus.
CHEM 545 Organic Chemistry 
and Organic Chemistry Laboratory 5 
& CHEM 546

BIOL 528 Applied Biostatistics I 4

Discovery course 4

Credits 17

Spring

GEN 606 Genetics Lab 4

BMS 503 General Microbiology 
& BMS 504 
and General Microbiology Laboratory 5

Major Elective (Bioscience) 4

Discovery course 4

Credits 17

Third Year

Fall

BMCB 658 General Biochemistry 
& BMCB 659 
and General Biochemistry Lab 5

PHYS 401 Introduction to Physics I 4

Discovery course 4

Elective (any course) 4

Credits 17

Spring

Major Elective (Population or Evolutionary Genetics) 4

PHYS 402 Introduction to Physics II 4

Genetics Core course 4

Discovery course 4

Credits 16

Fourth Year

Fall

Major Elective (Lab Techniques) 4-5

GEN 711 Genomics and Bioinformatics 4

Major Elective (Bioscience) 4-5

Elective (any course) 4

Credits 16-18

Spring

BMCB 605 Eukaryotic Cell and Developmental Biology 4

Elective (any course) 4

Elective (any course) 4

Credits 12

Total Credits 128-130

Genetics Major: Genomics Option (B.S.)

http://colsa.unh.edu/mcbs/genetics/option-genomics

Description

Students majoring in Genetics with the Genomics option take seven Foundation courses, six Bioscience Core courses, four Genetics Core courses and five Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. In addition, all other University requirements must be completed, including those for the Discovery Program (http://www.unh.edu/undergrad-catalog/gi.cfm?thisid=242&masterid=27&headingid=27/#242) and the University Writing Requirement (http://www.unh.edu/undergrad-catalog/gi.cfm?thisid=28&masterid=27&headingid=27/#28).

Requirements

A minimum grade of C-minus must be earned in all courses offered by the College of Life Sciences and Agriculture.

Foundation Courses

CHEM 403 General Chemistry I 4

CHEM 404 General Chemistry II 4

CHEM 545 Organic Chemistry 
& CHEM 546 
and Organic Chemistry Laboratory 5

MATH 424B Calculus for Life Sciences 4

PHYS 401 Introduction to Physics I 4

PHYS 402 Introduction to Physics II 4

1 CHEM 403 fulfills the Physical Science Discovery requirement

2 Students applying to health profession schools need a full year of English, a full year of Introductory Biology, and a full year of Organic Chemistry. ENGL 502 or 503 could be taken in addition to ENGL 401; CHEM 651/653 and CHEM 652/654 should be taken in place of CHEM 545/546. See Pre-Professional Health Program Advising (http://www.unh.edu/uacc/premed-advising/advising).

3 MATH 424B fulfills the Quantitative Reasoning Discovery requirements

Bioscience Core Courses

BIOL 411 Introductory Biology: Molecular and Cellular 4

BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology 4

GEN 604 Principles of Genetics 4

BMS 503 General Microbiology 
& BMS 504 
and General Microbiology Laboratory 5

BMCB 605 Eukaryotic Cell and Developmental Biology 4

BMCB 658 General Biochemistry 
& BMCB 659 
and General Biochemistry Lab 5

4 BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement and the Discovery Inquiry requirement

Genetics Core Courses

GEN 401 Professional Perspectives in Genetics 1

GEN 606 Genetics Lab 4

GEN 711 Genomics and Bioinformatics 4

Select one of the following:

GEN 704 Genetics of Prokaryotic Microbes 5

GEN 771 Molecular Genetics 5

5
Can be used as a Genetic Core course or Bioscience Major Elective but not both.

Major Electives

A total of five unique major electives is required: GEN 712, GEN 721, two courses from the population or evolutionary genetics elective group, and one course from the bioscience major elective group.

Required Major Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 712</td>
<td>Introduction to Programming for Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
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</table>

Population or Evolutionary Genetics Major Electives (Pick Two)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
<td>4</td>
</tr>
</tbody>
</table>

Bioscience Major Electives (Pick One)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 712</td>
<td>Introduction to Programming for Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>5</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
<td>4</td>
</tr>
<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 795</td>
<td>Investigations in Genetics (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 795W</td>
<td>Investigations in Genetics (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
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<tr>
<td>GEN 799H</td>
<td>Honors Senior Thesis</td>
<td>1-4</td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
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<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
<td>4</td>
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<tr>
<td>BIOL 702</td>
<td>Techniques in Plant Physiology and Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 704</td>
<td>Plant-Microbe Interactions</td>
<td>3</td>
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<tr>
<td>BIOL 711</td>
<td>Applied Biostatistics II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 752</td>
<td>Mycology</td>
<td>4</td>
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<tr>
<td>BMCB 750</td>
<td>Physical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
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<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
<td>5</td>
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<tr>
<td>BMCB 760</td>
<td>Pharmacology</td>
<td>4</td>
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<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
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<tr>
<td>BMCB 783</td>
<td>Proteomics for Biological Discoveries</td>
<td>4</td>
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<tr>
<td>BMCB 794</td>
<td>Protein Structure and Function</td>
<td>4</td>
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<tr>
<td>BMS 650</td>
<td>Molecular Diagnostics</td>
<td>4</td>
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<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>3</td>
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<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
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<tr>
<td>NR 706</td>
<td>Soil Ecology</td>
<td>4</td>
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<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td>5</td>
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<tr>
<td>&amp; ZOOL 626</td>
<td>Animal Physiology Laboratory</td>
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<tr>
<td>ZOOL 690</td>
<td>Evolution</td>
<td>4</td>
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<tr>
<td>ZOOL 777</td>
<td>Neurobiology and Behavior</td>
<td>4</td>
</tr>
</tbody>
</table>

Approved GEN Capstone Courses

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other approved student activity). The capstone requirement can only be fulfilled once a student has senior standing in the major. Submit a Capstone Approval form (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/genetics/Capstone%20Approval%20form%202013-2016.pdf) prior to beginning the experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 790</td>
<td>Undergraduate Teaching Experience (4-credit minimum; classroom presentation required)</td>
<td>1-4</td>
</tr>
<tr>
<td>GEN 795</td>
<td>Investigations in Genetics (4-credit minimum)</td>
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</tr>
<tr>
<td>GEN 795W</td>
<td>Investigations in Genetics (4-credit minimum)</td>
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<tr>
<td>GEN 799</td>
<td>Senior Thesis (4-credit minimum)</td>
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<tr>
<td>GEN 799H</td>
<td>Honors Senior Thesis</td>
<td>1-4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
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</table>

Degree Plan

SAMPLE Course Sequence for Genomics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
<td>1</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td><strong>Discovery course</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td><strong>Discovery course</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>
CHEM 545 Organic Chemistry 5
& CHEM 546 and Organic Chemistry Laboratory
BIOL 528 Applied Biostatistics I 4
Discovery course 4
Credits 17

Spring
GEN 606 Genetics Lab 4
BMS 503 General Microbiology 5
& BMS 504 and General Microbiology Laboratory
Major Elective (Bioscience) 4
Discovery course 4
Credits 17

Third Year
Fall
BMCB 658 General Biochemistry 5
& BMCB 659 and General Biochemistry Lab
PHYS 401 Introduction to Physics I 4
Discovery course 4
Elective (any course) 4
Credits 17

Spring
Genetics Core course 4
PHYS 402 Introduction to Physics II 4
BMCB 605 Eukaryotic Cell and Developmental Biology 4
Discovery course 4
Credits 16

Fourth Year
Fall
Major Elective (Pop/Evol Genetics) 4
GEN 711 Genomics and Bioinformatics 4
GEN 712 Introduction to Programming for Bioinformatics 4
Elective (any course) 4
Credits 16

Spring
GEN 721 Comparative Genomics 4
Major Elective (Pop/Evol Genetics) 4
Elective (any course) 4
Credits 12
Total Credits 128

**Genetics Minor**
http://colsa.unh.edu/mcbs/genetics/minor-genetics

**Description**

Students in other majors who wish to develop a focus in the area of genetics and genomics can complement their major academic program with a minor in genetics. The minor consists of a minimum of 20 credits, no more than 8 of which can also be used to fulfill major requirements. A C average (2.00) is required in courses that the minor department approves. It is the student's responsibility to file an Intent to Minor (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/.../Intent%20to%20Minor%20in%20Genetics%20form.pdf) form with the GEN minor advisor by the end of the junior year and to complete a Certification of Completion of Minor (http://www.unh.edu/registrar/forms/minorform.pdf) form during their final semester at UNH.

**Requirements**

**Required Course**

GEN 604 Principles of Genetics 4

Choose at least one Transmission/Population Genetics course and one Molecular Genetics course. To reach the minimum of 20 credits for the minor, 4 credits of GEN 795 Investigations in Genetics may be used.

**Transmission/Population Genetics Courses (Choose at least One)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 664</td>
<td>Conservation Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population and Quantitative Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
<td>4</td>
</tr>
</tbody>
</table>

**Molecular Genetics Courses (Choose at least One)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
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</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 712</td>
<td>Introduction to Programming for Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
<td>4</td>
</tr>
</tbody>
</table>

**GeoSpatial Analysis**

**Programs**

- GeoSpatial Analysis Minor (p. 240)

**GeoSpatial Analysis Minor**
http://colsa.unh.edu/interdisciplinary-minors/geospatial-analysis-minor

**Description**

The geospatial analysis minor is designed for students who wish to have more learning and experience using the tools of geospatial analysis such as statistics, aerial photography, satellite imagery, and geographic information systems (GIS) as they relate to their chosen field of study. Students interested in completing the geospatial analysis minor must complete a total of 20 credits. A grade of C- or better is required in each minor course and no course can be taken pass/fail. A total of not more than 8 credits from the student’s major requirements can be counted toward the minor.
### Requirements

**Basic Statistics**
Select one of the following:  
- BIOL 528: Applied Biostatistics I  
- PSYC 402: Statistics in Psychology  
- SOC 502: Statistics  
- Other basic statistics course as approved by minor advisor

**Introductory/Field/or Overview**
Select one of the following:  
- NR 458: The Science of Where  
- NR 603: Landscape Ecology  
- CEE 404: Surveying and Mapping  
- NR 415: Natural Resources Field Methods  
- GEOG 650: Field Methods in Geography  
- NR/GEOG 757: Remote Sensing of the Environment  
- ANTH 674: Archaeological Survey and Mapping in Belize

**GIS**
Select one of the following:  
- NR/GEOG 658: Introduction to Geographic Information Systems  
- NR/GEOG 760: Geographic Information Systems in Natural Resources  
- CEE 796: Special Topics (GIS in Water Resources)  

**Remote Sensing**
Select one of the following:  
- NR/GEOG 757: Remote Sensing of the Environment  
- NR/GEOG 759: Digital Image Processing for Natural Resources

**Advanced Analysis**
Select one of the following:  
- NR 713: Quantitative Ecology  
- NR 782: Forest Health in a Changing World  
- NR 740: Inventory and Monitoring of Ecological Communities  
- NR 749: Forest Inventory and Modeling  
- NR 707: Environmental Modeling  
- EREC 760: Ecological-Economic Modeling for Decision Making

**Total Credits**: 20

Students with questions about the minor or who would like more information should contact Dr. Russell G. Congalton in the Department of Natural Resources and the Environment, (603) 862-4644, russ.congalton@unh.edu.

### Green Real Estate

**Programs**
- Green Real Estate Minor (p. 241)

---

**Green Real Estate Minor**

http://colsa.unh.edu/interdisciplinary-minors/green-real-estate-minor

**Description**

The green real estate minor will include the basic fundamentals of real estate (a class which is accredited by the New Hampshire Real Estate Commission). Students will learn about local and regional planning, environmental economics and market forces, and environmental issues as they pertain to real estate. In addition, students may choose complementary classes, such as architecture, surveying, land design, soils, wetland delineation, law, etc. Students must complete five courses (18 to 20 credits), get a C- or better in each course, and maintain a 2.0 average or better.

**Requirements**

**Required Courses**
- CEP 672: Fundamentals of Real Estate  
- CEP 673: Green Real Estate  
- CEP 508: Applied Community Development

**Electives**
Select two from one of the following groups:  
- Green Design and Building  
- Land Conservation  
- Finance and Law

**Total Credits**: 20

**Green Design and Building**

Ideal for future architects and builders

- ARTS 455: Architectural Design Studio  
- CHE 410: Energy and Environment  
- CEE 444: Housing - Everyone Needs a Place to Live  
- CT 541: Legal Aspects of Surveying  
- CT 538: Construction Contracting  
- CT 581: Architecture I History and Design  
- CT 423: Introduction to Surveying and Mapping  
- CT 557: Land Design and Regulations

**Land Conservation**

Ideal for future conservation commission members, planners, and environmental advocates in general

- EREC 606: Land Economics Perspectives: Uses, Policies, and Taxes  
- NR 507: Introduction to our Energy System and Sustainable Energy  
- NR 785: Systems Thinking for Sustainable Solutions

**Finance and Law**

Ideal for future green mortgage lenders and social choice investment portfolio managers. NOTE: Business majors only
Marine, Estuarine, and Freshwater Biology (MEFB)

The marine, estuarine, and freshwater biology (MEFB) B.S. program is designed to provide a broad background for undergraduates interested in marine, estuarine, and freshwater biology, aquaculture, and fisheries. The program integrates theoretical and practical (hands-on laboratory and field) courses. Students are encouraged to become involved in one or more of the numerous undergraduate research opportunities available in the marine, estuarine, and freshwater sciences.

UNH is located on a seacoast that provides an extraordinary diversity of marine and estuarine habitats. It is also only a short distance from mountain streams, rivers, marshes, bogs, ponds, and lakes. All of the habitats provide outstanding resources for field courses and research. The marine, estuarine, and freshwater faculty are spread across all three departments of the College of Life Sciences and Agriculture. UNH is a Sea Grant university and has an international reputation for teaching and research in aquatic sciences. UNH has aquaculture facilities, and coastal and estuarine research laboratories. In collaboration with Cornell, UNH jointly administers the summer undergraduate programs at the Shoals Marine Laboratory on Appledore Island, seven miles off the coast of New Hampshire and Maine.

http://colsa.unh.edu/dbs/mefb

Programs

- Marine, Estuarine and Freshwater Biology Major (B.S.) (p. 242)
- Marine Biology Minor (p. 244)

Faculty

http://colsa.unh.edu/faculty/all

Marine, Estuarine and Freshwater Biology Major (B.S.)


Description

The Major in Marine, Estuarine and Freshwater Biology is intended to give students interested in the fields of marine and freshwater biology the background to pursue careers, including potential advanced study, in this area of biology. The major builds on a broad set of basic scientific courses represented by a core curriculum in math, chemistry, physics and biology. The background in basic science is combined with a series of required and elective courses in the aquatic sciences from watershed to ocean. The goal is to provide a solid foundation of knowledge in freshwater, estuarine and marine biology while having the flexibility to focus on particular areas of scientific interest from molecular biology to ecosystem studies. Students will have the opportunity to specialize in areas of their own interest, such as aquaculture and fisheries or animal behavior.

The University's location and facilities provide unique opportunities for the study of aquatic organism and systems due to its access to the seacoast and the lakes region of New Hampshire, the White Mountains National Forest, and the presence of two coastal marine laboratories, as well as estuarine and freshwater facilities. There is a strong teaching and research emphasis on ecological and physiological processes in aquatic plants, animals and ecosystems. A major strength of the program is the hands-on approach to teaching combined with an emphasis on involving undergraduate students in research.

Requirements

<table>
<thead>
<tr>
<th>Biological Sciences Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 412</td>
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<tr>
<td>BIOL 411</td>
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<tr>
<td>BIOL 541</td>
</tr>
<tr>
<td>BMS 503</td>
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<tr>
<td>&amp; BMS 504</td>
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<tr>
<td>GEN 604</td>
</tr>
<tr>
<td>CHEM 403</td>
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<tr>
<td>CHEM 404</td>
</tr>
<tr>
<td>CHEM 545</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
</tr>
<tr>
<td>BMCB 658</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
</tr>
<tr>
<td>MATH 424B</td>
</tr>
<tr>
<td>BIOL 528</td>
</tr>
<tr>
<td>or BIOL 555</td>
</tr>
<tr>
<td>PHYS 401</td>
</tr>
<tr>
<td>PHYS 402</td>
</tr>
</tbody>
</table>

MEFB Required Courses

| MEFB 401 | Marine Estuarine and Freshwater Biology: Freshmen Seminar | 1 |
| MEFB 503 | Introduction to Marine Biology | 4 |
| MEFB 525 | Introduction to Aquatic Botany | 4 |
| MEFB 527 | Aquatic Animal Diversity | 4 |

Choose one Freshwater course:

| MEFB 717 | Lake Ecology | 4 |
| or MEFB 719 | Field Studies in Lake Ecology | 4 |

Choose one Physiology/Function course:

| ZOOL 625 | Principles of Animal Physiology | 4-5 |
| or ZOOL 626 | and Animal Physiology Laboratory | 4 |
| or ZOOL 773 | Physiology of Fish | 4 |

Choose one Marine or Estuarine course:

| MEFB 725 | Marine Ecology | 4 |
| or ZOOL 750 | Biological Oceanography | 4 |

MEFB Electives: Choose 3

Evolution, Systematics and Biodiversity
| BIOL 566 | Systematic Botany | 4 |
| GEN 713 | Microbial Ecology and Evolution | 4 |
| MEFB 625 | Introduction to Marine Botany | 4 |
### Fishes and Aquaculture

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MEFB 722</td>
<td>Marine Phycology</td>
<td>4</td>
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<tr>
<td>ZOOL 518</td>
<td>Vertebrate Morphology</td>
<td>5</td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td>5</td>
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<tr>
<td>ZOOL 690</td>
<td>Evolution</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
<td>4</td>
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<tr>
<td>MEFB 510</td>
<td>Field Ornithology (SML)</td>
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<tr>
<td>MEFB #609</td>
<td>Biology of the Lobster (SML)</td>
<td>3</td>
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<tr>
<td>MEFB 630</td>
<td>Biodiversity and Biology of Marine Invertebrates (SML)</td>
<td>4</td>
</tr>
<tr>
<td>MEFB #734</td>
<td>Diversity of Fishes (SML)</td>
<td>3</td>
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<tr>
<td>MEFB 754</td>
<td>Anatomy and Function of Marine Vertebrates (SML)</td>
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### Zoologica and Aquaculture

<table>
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<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
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<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
<td>4</td>
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<tr>
<td>ZOOL 750</td>
<td>Biological Oceanography</td>
<td>4</td>
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<tr>
<td>ZOOL 772</td>
<td>Fisheries Biology</td>
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<tr>
<td>ZOOL 773</td>
<td>Physiology of Fish</td>
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<tr>
<td>MEFB #609</td>
<td>Biology of the Lobster (SML)</td>
<td>3</td>
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<tr>
<td>MEFB 702</td>
<td>Sustainable Marine Fisheries (SML)</td>
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<tr>
<td>MEFB #734</td>
<td>Diversity of Fishes (SML)</td>
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### Marine, Estuarine and Freshwater Ecology

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<tr>
<td>NR 744</td>
<td>Biogeochemistry</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4</td>
</tr>
<tr>
<td>NR 703</td>
<td>Watershed Water Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 625</td>
<td>Introduction to Marine Botany</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 717</td>
<td>Lake Ecology</td>
<td>4</td>
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<tr>
<td>MEFB 719</td>
<td>Field Studies in Lake Ecology (C)</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology (C)</td>
<td>4</td>
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<tr>
<td>MEFB 732</td>
<td>Lake Management (C)</td>
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<tr>
<td>MEFB 747</td>
<td>Aquatic Plants in Restoration/Management</td>
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<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<td>ZOOL 721</td>
<td>Aquatic Invasive Species (C)</td>
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<td>ZOOL 733</td>
<td>Behavioral Ecology</td>
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<tr>
<td>ZOOL 750</td>
<td>Biological Oceanography</td>
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<tr>
<td>MEFB 515</td>
<td>Marine Environmental Science and Conservation (SML)</td>
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### Special Investigations (C)

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMS 716</td>
<td>Public Health: Food- and Water-borne Diseases</td>
<td>4</td>
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<tr>
<td>MEFB 714</td>
<td>Field Animal Behavior (SML)</td>
<td>4</td>
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<tr>
<td>MEFB 727</td>
<td>Algal Physiology</td>
<td>3</td>
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### Special Investigations (SML)

<table>
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<th>Course Name</th>
<th>Credits</th>
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<tr>
<td>MEFB 751</td>
<td>Research in Marine Biology (SML, C)</td>
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</tr>
<tr>
<td>TECH 797</td>
<td>Undergraduate Ocean Research Project (C)</td>
<td>2</td>
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</table>

### Capstone

Courses used to satisfy MEFB major requirements may not also be used to satisfy the 3 required electives.

Primary focus of the project must be Marine, Estuarine and/or Freshwater.

Courses marked with (SML) are courses taught in the summer at the Shoals Marine Laboratory.

Courses marked with (C) can be used to fulfill the Capstone requirement.

### Capstone Requirement

Courses listed in more than one category will satisfy requirements in only one category.

One 600 or 795 experience totaling three or more credits or any two 795 experiences of two credits each can fulfill one course requirement in any category with adviser approval. A Petition for Academic Variance approved by the chair of the Department of Biological Sciences is required to count 795 experiences for more than one major required course.

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student activity). Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

A minimum grade of C is required in all biological science courses that are counted toward the requirements for a degree in MEFB. Students who expect to compete successfully for post-baccalaureate programs should attain a cumulative GPA of 3.0 or higher by the end of the sophomore year and maintain it at that level.

Note: It is strongly recommended that students participate in an exchange semester at another university or in a field-oriented program or internship. There are many exchange opportunities available in which a full semester of credits toward the major may be earned. In addition, students should explore the courses at the Shoals Marine Laboratory (SML), which provides an excellent setting for several "field-oriented" courses during the summer. Often there is financial support available for the SML programs (see the SML website for details [http://marine.unh.edu/sml/](http://marine.unh.edu/sml/) or the Cornell web site at [www.sml.cornell.edu](http://www.sml.cornell.edu)). It is further recommended that students explore possibilities of one or more semesters of independent study.
investigation (research projects). For details, students should contact their adviser. Financial support is available for most of these programs.

Pre-health Professional Program

MEFB majors who wish to pursue postgraduate degrees in the health care professions should visit www.unh.edu/premed-advising (http://www.unh.edu/premed-advising). The following elective courses will be helpful in preparing for admission to post-baccalaureate programs in the health professions and for their required aptitude examinations: BMS 702, ZOOL 518, ZOOL 625 and ZOOL 626, BMCB 605, BMCB 751 and BMCB 752, ANSC 511 and ANSC 512.

Marine Biology Minor

http://colsa.unh.edu/dbs/mefb/marine-biology-minor-0

Description

The minor is designed to provide a foundation in marine biology and related sciences to any UNH undergraduate student with the exception of students majoring in marine, estuarine, and freshwater biology. It is offered through the Department of Biological Sciences. The minor consists of 20 credits with grades of C- or better and no pass/fail courses. No more than eight major requirement credits may be used toward the minor. The minor shall consist of 1 introductory Marine Science course and 4 courses selected in consultation with the minor advisor.

Requirements

Required

Five courses (20 credits); two of the five courses (eight credits) can count toward the student's major.

Select one of the following introductory courses in marine science: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
</tr>
<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
</tr>
</tbody>
</table>

Four additional courses selected in consultation with the minor adviser 16

Total Credits 20

In addition, students are encouraged to become involved in a research project, either by working in a professor's laboratory or by participating in the Undergraduate Ocean Research Project (TECH 797 Undergraduate Ocean Research Project).

Molecular, Cellular, Biomedical Sciences

The Department of Molecular, Cellular and Biomedical Sciences provides a profession-ready education with extensive and diverse course offerings and opportunities to conduct cutting-edge research in the biomedical and molecular/cellular life sciences.

For undergraduates, we offer the bachelor of science (B.S.) in:

- Biochemistry, Molecular & Cellular Biology
- Biomedical Science

http://colsa.unh.edu/mcbs

Programs

- Biochemistry, Molecular and Cellular Biology (BMCB) (p. 205)
- Biomedical Science (BMS) (p. 211)
- Genetics (GEN) (p. 235)

Faculty

http://colsa.unh.edu/faculty/all

Natural Resources and the Environment

The Department of Natural Resources and the Environment integrates the applied social sciences and natural resources sciences, enabling a more holistic, integrated approach to education, research, and outreach about use and conservation of resources.

We offer a bachelor of science degree in the following areas:

- Community and Environmental Planning
- Environmental Conservation and Sustainability
- Environmental and Resource Economics
- Environmental Sciences
- Forestry (B.S.F.)
- Wildlife and Conservation Biology

Programs

- Community and Environmental Planning (CEP) (p. 219)
- Environmental Conservation and Sustainability (p. 222)
- Environmental Sciences (p. 226)
- Environmental and Resource Economics (EREC) (p. 228)
- Forestry (p. 233)
- Wildlife and Conservation Biology (p. 257)

Faculty

http://colsa.unh.edu/faculty/all

Neuroscience and Behavior (NSB)

Neuroscience is one of the fastest-growing scientific fields, and the discoveries that are being made today are having an immediate and significant impact on our society. The importance of understanding animal behavior is likewise increasing, particularly in the face of a rapidly-changing environment. The B.S. in Neuroscience and Behavior is a great way for students to combine interests in neurobiology and animal behavior. The curriculum prepares students for various post-graduate degrees, including medical, veterinary, and graduate school, and we offer students a variety of opportunities to get hands-on research experience.

https://colsa.unh.edu/dbs/nsb
Programs

• Neuroscience and Behavior Major (B.S.) (p. 245)

Faculty

College of Liberal Arts Faculty
http://cola.unh.edu/faculty/psychology

College of Life Sciences & Agriculture Faculty
http://colsa.unh.edu/faculty/389

Neuroscience and Behavior Major (B.S.)
http://colsa.unh.edu/dbs/nsb/neuroscience-and-behavior-bs

Description

The major in neuroscience and behavior (NSB) offers an interdisciplinary approach to human and non-human behavior, focusing on the evolution and adaptiveness of certain behaviors, as well as their underlying neural mechanisms. Students who have always been fascinated by how the brain functions will be well served by this major, as will those who love wild animals and wish to better understand their behavior. The B.S. in neuroscience and behavior is based on a solid foundation in biology, chemistry, physics, statistics, and genetics (foundation courses). These are followed by a two-semester course sequence that covers the fundamentals of neuroscience and behavior. Students can then pick five or more electives focusing on areas of interest.

NSB students are encouraged to take advantage of research experiences in the laboratories of the psychology and biology faculty in the program. This provides valuable experience with cutting-edge equipment and techniques. Some students may share aspects of a larger project, whereas others may be relatively independent and design their own project under supervision. In either case, important skills are gained by the discipline of gathering data, analyzing and interpreting it, and presenting it to a broader audience.

The curriculum provides most of the requirements and recommended courses for students seeking admission to graduate school and to professional schools in medicine and veterinary medicine. Students who might choose not to go on to advanced degrees are well-prepared for employment as skilled technicians in research laboratories or, if their interests are in animal behavior, as field research assistants or animal trainers. With additional courses in education, the B.S. in NSB also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty participating in the NSB major combine a love of teaching and student mentoring with a passion for research, and encourage student participation. Research facilities that students can use include the avairy, the confocal imaging center, the Hubbard Center for Genomic Studies, and the many marine, freshwater, and estuarine laboratories associated with UNH programs. Students can also take summer courses at the Shoals Marine Laboratory.

Requirements

Students majoring in NSB are required to take foundation courses in basic science, core courses, and five electives from an extensive list of courses, including some offered by other departments including biochemistry, molecular and cellular biology, and natural resources. Finally, a capstone experience is required. This may be independent research, an advanced seminar, or other special student activity. It is meant to integrate prior experience and take the student to a new level in an area of special interest.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NSB 400</td>
<td>Topics Neuroscience &amp; Behavior</td>
<td>1</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular and Introductory Biology: Evolution, Biodiversity and Ecology (2 semesters)</td>
<td>8</td>
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<tr>
<td>&amp; BIOL 412</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
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<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II (2 semesters)</td>
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<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
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<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology or BIOL 528</td>
<td>4</td>
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<tr>
<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>NSB 500</td>
<td>Fundamentals of Neuroscience and Behavior I</td>
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<td>and Fundamentals of Neuroscience and Behavior I Laboratory</td>
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<tr>
<td>NSB 502</td>
<td>Fundamentals of Neuroscience and Behavior II/ Systems Neuroscience and Fundamentals of Neuroscience and Behavior II Laboratory</td>
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Electives (Choose 5) 20-22

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<tbody>
<tr>
<td>BIOL 541</td>
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<tr>
<td>BMCB 605</td>
<td>Eukaryotic Cell and Developmental Biology</td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>&amp; BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
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<td>BMS 711</td>
<td>Toxicology</td>
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<td>BMS 718</td>
<td>Mammalian Physiology</td>
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<td>GEN 706</td>
<td>Human Genetics</td>
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<td>KIN 706</td>
<td>Neurology</td>
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<td>&amp; KIN 707</td>
<td>and Neurology Lab</td>
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<tr>
<td>MEFB 714</td>
<td>Field Animal Behavior (SML, C)</td>
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<tr>
<td>NSB 705</td>
<td>Molecular and Cellular Neurobiology (C)</td>
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<td>NSB 727</td>
<td>Animal Communication (C)</td>
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<td>NSB 728</td>
<td>Research Methods in Animal Behavior (C)</td>
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<td>PHIL 630</td>
<td>Neuroscience and Philosophy</td>
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<td>PSYC 511</td>
<td>Sensation and Perception</td>
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<td>PSYC 512</td>
<td>Psychology of Primates</td>
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<td>PSYC 513</td>
<td>Cognitive Psychology</td>
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<tr>
<td>PSYC 521</td>
<td>Behavior Analysis</td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception (C)</td>
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</tbody>
</table>
Nutrition (NUTR)

Nutrition is the study of how nutrients and food components function at molecular, cellular, and whole-body levels to impact human health and disease. Students are grounded in fundamental sciences as they develop nutrition-specific competencies in nutrition and health, foods, nutritional assessment, wellness, life cycle nutrition, and/or metabolic biochemistry.

The nutrition program prepares students for entry-level positions in health care, education, or the biotechnology industry, or entry into post-baccalaureate professional programs such as dietetic internship, medical school, dental school, or graduate school. Nutrition faculty have expertise in obesity, diabetes, sports nutrition, food safety, food science, cardiovascular disease risk, and young adult health. Undergraduate students actively participate in ongoing research projects in these areas. The College Health and Nutrition Assessment Survey (CHANAS) (http://colsa.unh.edu/anfs/nutrition/college-health-and-nutrition-assessment-survey-chanas) is one resource that supports nutrition research at the University of New Hampshire.

Students pursuing the B.S. degree in Nutrition choose from one of three areas of specialization: Dietetics, Nutrition and Wellness, or Nutritional Sciences.

The curriculum for the Dietetics option is accredited by the Academic Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND). Students who complete the B.S. in Nutrition with the Dietetics option are eligible to apply for a dietetic internship, a prerequisite for becoming a registered dietitian.

Students who complete the Nutrition and Wellness option are prepared for jobs in agencies or businesses that have an emphasis on health and wellness, including schools, fitness centers, and non-profit or community organizations.

Students in the Nutritional Sciences option most often enter the biomedical/biotechnology workplace or enroll in a postgraduate educational degree program (e.g., medical school, graduate school, dental school, etc.).

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions should visit the Pre-Professional Health Programs Advising Office (http://www.unh.edu/uacc/premed-advising). Requirements for specific types of professional schools (e.g., medical, dental, physician's assistant, pharmacy, etc.) are also provided at the Pre-Professional Health Programs Advising website (http://www.unh.edu/uacc/premed-advising). While many of the prerequisite courses required by professional schools are also requirements of the Nutrition major, you should consult with your faculty adviser to create a plan of study that best prepares you for pursuing a career in one of these health professions.

http://colsa.unh.edu/anfs/nutrition

Programs

- Nutrition Major: Dietetics Option (B.S.) (p. 246)
- Nutrition Major: Nutrition and Wellness Option (B.S.) (p. 248)
- Nutrition Major: Nutritional Sciences Option (B.S.) (p. 249)
- Nutrition Minor (p. 251)

Faculty

http://colsa.unh.edu/faculty/all

Nutrition Major: Dietetics Option (B.S.)

http://colsa.unh.edu/anfs/nutrition/dietetics-option

Description

Students majoring in the dietetics option must take: (i) four Foundation courses; (ii) five Science Core courses; (iii) four Nutrition Core courses; and (iv) twelve courses for the Dietetics Option. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other university academic requirements, including those for the Discovery Program (https://www.unh.edu/undergrad-catalog/gi.cfm?thisid=243&masterid=27&headingid=27/#243) and the University Writing Requirement, (p. 29) must be completed.
Requirements

A grade of C-minus or better must be earned in all NUTR courses required by the major.

Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I ¹</td>
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<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or PSYC 401 Introduction to Psychology</td>
<td></td>
</tr>
<tr>
<td>Choose ONE statistics course ³</td>
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<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<td>SOC 502</td>
<td>Statistics</td>
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</table>

¹ BMS 507 fulfills the Biological Sciences Discovery requirement and the Discovery Laboratory requirement.
² SOC 400 or PSYC 401 fulfill the Social Science Discovery requirement
³ The statistics course fulfills the Quantitative Reasoning Discovery requirement

Science Core Courses

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<tr>
<td>CHEM 403</td>
<td>General Chemistry I ⁴</td>
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<td>CHEM 404</td>
<td>General Chemistry II</td>
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<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
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<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
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<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
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</table>

⁴ CHEM 403 fulfills the Physical Science Discovery requirement

Nutrition Core Courses

<table>
<thead>
<tr>
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<th>Title</th>
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<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
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<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
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Dietetics Option Courses

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUTR 504</td>
<td>Managerial Skills in Dietetics</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 700</td>
<td>Career Development in Dietetics</td>
<td>1</td>
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<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
<td>4</td>
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<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
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<tr>
<td>NUTR 773</td>
<td>Clinical Nutrition</td>
<td>4</td>
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<tr>
<td>NUTR 775</td>
<td>Practical Applications in Medical Nutrition Therapy</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 780</td>
<td>Critical Issues in Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ABM 508</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
<td></td>
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</tbody>
</table>

Dietetics Capstone Experience

One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course (NUTR 720 Community Nutrition or NUTR 780 Critical Issues in Nutrition), created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity).

Degree Plan

SAMPLE Course Sequence for Dietetics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td>Fall</td>
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</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I ¹</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>Choose ONE statistics course ³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
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</tr>
</tbody>
</table>

² SOC 400 or PSYC 401 fulfill the Social Science Discovery requirement
³ The statistics course fulfills the Quantitative Reasoning Discovery requirement

| Credits | 17 |

<table>
<thead>
<tr>
<th>Spring</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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| Credits | 16 |

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<tr>
<th>Second Year</th>
<th>Fall</th>
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<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I ⁴</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
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<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>Inquiry Course</td>
<td></td>
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| Credits | 16 |

<table>
<thead>
<tr>
<th>Spring</th>
<th></th>
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<tbody>
<tr>
<td>ABM 508</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

| Credits | 16 |

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Fall</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
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<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
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<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
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| Credits | 17 |

<table>
<thead>
<tr>
<th>Spring</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>NUTR 504</td>
<td>Managerial Skills in Dietetics</td>
<td>4</td>
</tr>
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</table>
Nutrition Major: Nutrition and Wellness Option (B.S.)

http://colsa.unh.edu/anfs/nutrition/nutrition-wellness-option

**Description**

Students choosing the Nutrition and Wellness option take: (i) four Foundation courses; (ii) three Science Core courses; (iii) four Nutrition Core courses; and (iv) thirteen courses in Nutrition and other subject areas. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other university academic requirements, including those for the Discovery Program (p. 26) and the University Writing Requirement, (p. 29) must be completed.

Nutrition and Wellness students are strongly encouraged to complete a minor or concentration depending on career goals and interests.

**Requirements**

A minimum grade of C-minus or better must be earned in all NUTR courses required by the major.

**Foundation Courses**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Choose ONE statistics course</td>
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<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics I</td>
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</table>

SOC 502 Statistics

1. BMS 507 fulfills the Biological Science Discovery requirement and Discovery Laboratory requirement
2. Either SOC 400 or PSYC 401 fulfills the Social Science Discovery requirement
3. The statistics course fulfills the Quantitative Reasoning Discovery requirement

**Science Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
<td>5</td>
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</tbody>
</table>

4. CHEM 411 fulfills the Physical Science Discovery requirement

**Nutrition Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<tr>
<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
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**Nutrition and Wellness Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>NUTR 506</td>
<td>Nutrition and Wellness</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 755</td>
<td>Treatment of Adult Obesity</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 758</td>
<td>Practicum in Weight Management</td>
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<td>OT 513</td>
<td>Stressed Out: The Science and Nature of Human Stress</td>
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<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<td>or ENGL 503</td>
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<td>HMGT 403</td>
<td>Introduction to Food Management</td>
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<td>HMP 401</td>
<td>United States Health Care Systems</td>
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<td>HMP 501</td>
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<td>KIN 620</td>
<td>Physiology of Exercise</td>
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<tr>
<td>or KIN 648</td>
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<tr>
<td>700-level elective</td>
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**NUTR Capstone**

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through NUTR 720 Community Nutrition or NUTR 755 Treatment of Adult Obesity, a created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity).

**Degree Plan**

**SAMPLE Course Sequence for Nutrition and Wellness**

### Fourth Year

**Fall**

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<thead>
<tr>
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<td>Practical Applications in Medical Nutrition Therapy</td>
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**Spring**

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<tr>
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<td>Community Nutrition</td>
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<td>Critical Issues in Nutrition</td>
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<td>Discovery Course</td>
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<td>Elective (any course)</td>
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**Total Credits** 128-132
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<tr>
<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>SOC 400 or PSYC 401</td>
<td>Introductory Sociology or Introduction to Psychology</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
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</tr>
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<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
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<td>HMP 401</td>
<td>United States Health Care Systems</td>
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<tr>
<td>Discovery course</td>
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<td><strong>Fall</strong></td>
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<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
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<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<tr>
<td>BIOL 528</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
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<tr>
<td>Inquiry course</td>
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<td><strong>Credits</strong></td>
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<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUTR 506</td>
<td>Nutrition and Wellness</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
<td>5</td>
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<td>OT 513</td>
<td>Stressed Out: The Science and Nature of Human Stress</td>
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<td>Elective (WI)</td>
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<td><strong>Third Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
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</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
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<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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<td></td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502 or ENGL 503</td>
<td>Professional and Technical Writing or Persuasive Writing</td>
<td>4</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
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</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
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<td><strong>Fourth Year</strong></td>
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<td></td>
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<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>NUTR 755</td>
<td>Treatment of Adult Obesity</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 758</td>
<td>Practicum in Weight Management</td>
<td>2</td>
</tr>
<tr>
<td>KIN 620 or KIN 648</td>
<td>Physiology of Exercise or Current Issues in Teaching Health</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

**Nutrition Major: Nutritional Sciences Option (B.S.)**

http://colsa.unh.edu/anfs/nutrition/nutritional-sciences-option

**Description**

Students choosing the Nutritional Sciences option take: (i) four Foundation courses; (ii) eight Science Core courses; (iii) four Nutrition Core courses; and (iv) six Nutritional Science Option courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University academic requirements must be completed, including those for the Discovery Program (p. 26) and the University Writing Requirement (p. 29).

**Requirements**

A minimum grade of C- or above is required in all NUTR courses required by the major.

**Foundation Courses**

- BMS 507 Human Anatomy and Physiology I 4
- BMS 508 Human Anatomy and Physiology II 4
- SOC 400 Introductory Sociology 1
- or PSYC 401 Introduction to Psychology 4
- Choose ONE statistics course: 2
  - BIOL 528 Applied Biostatistics I 4
  - PSYC 402 Statistics in Psychology 4
  - SOC 502 Statistics 4

1 Either SOC 400 or PSYC 401 fulfills the Social Science Discovery requirement
2 The statistics course fulfills the Quantitative Reasoning Discovery requirement

**Science Core Courses**

- BIOL 411 Introductory Biology: Molecular and Cellular 3 4
- BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology 4
- BMCB 658 & BMCB 659 General Biochemistry and General Biochemistry Lab 5
- BMS 503 General Microbiology & BMS 504 and General Microbiology Laboratory 5
CHEM 403 General Chemistry I  
CHEM 404 General Chemistry II  
CHEM 545 Organic Chemistry  
& CHEM 546 and Organic Chemistry Laboratory  
GEN 604 Principles of Genetics  

BIO 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and Discovery Inquiry requirement  
CHEM 403 fulfills the Physical Science Discovery requirement

Nutrition Core Courses

NUTR 400 Nutrition in Health and Well Being  
NUTR 401 Professional Perspectives on Nutrition  
NUTR 476 Nutritional Assessment  
NUTR 650 Life Cycle Nutrition

Nutritional Science Option Courses

MATH 424B Calculus for Life Sciences  
NUTR 750 Nutritional Biochemistry  
NUTR 751 Nutritional Biochemistry of Micronutrients

Major Elective Courses

Two nutrition Electives and a third Elective outside the major are chosen in consultation with the student’s adviser, based on the student’s career interests. Choose 2 NUTR courses

NUTR 405 Food and Society  
NUTR 504 Managerial Skills in Dietetics  
NUTR 506 Nutrition and Wellness  
NUTR 525 Food and Culture in Italy  
NUTR 530 Critical Analysis in Food Studies  
NUTR 535 History of Food in Italy  
NUTR 546 Nutrition in Exercise and Sports  
NUTR 550 Food Science: Principle and Practice  
NUTR 560 Introduction to Research in Nutrition  
NUTR 595 Mediterranean Diet and Culture  
NUTR 610 Nutrition Education and Counseling  
NUTR 625 From Farm to the Italian Table  
NUTR 720 Community Nutrition  
NUTR 730 From Seed to Sea: Examining Sustainable Food Systems  
NUTR 733 Inv Diet Supplements & Herbs  
NUTR 740 Nutrition for Children with Special Needs  
NUTR 755 Treatment of Adult Obesity  
& NUTR 758 and Practicum in Weight Management  
NUTR 760 Research Experience Nutrition I  
& NUTR 761 and Research Experience Nutrition II  
NUTR 765 Geriatric Nutrition  
NUTR 773 Clinical Nutrition  
NUTR 775 Practical Applications in Medical Nutrition Therapy  
NUTR 780 Critical Issues in Nutrition

Elective Outside the Major at 600- or 700-Level (4 credits)

Nutritional Science Capstone Experience

One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course (NUTR 720 Community Nutrition or NUTR 751 Nutritional Biochemistry of Micronutrients), created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity).

Degree Plan

SAMPLE Course Sequence for Nutritional Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
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</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
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<tr>
<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td><strong>Discovery Course</strong></td>
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<tr>
<td><strong>Select one of the following:</strong></td>
<td></td>
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</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 502</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
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</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 401</td>
<td>or Introduction to Psychology</td>
<td></td>
</tr>
<tr>
<td><strong>Elective (any course)</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td><strong>Nutrition Elective</strong></td>
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<td>1-4</td>
</tr>
<tr>
<td><strong>Discovery Course</strong></td>
<td></td>
<td>4</td>
</tr>
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</table>
**Nutrition Minor**

http://colsa.unh.edu/anfs/nutrition/nutrition-minor

**Description**

The nutrition minor is particularly suited to students interested in pursuing professional careers related to human health and wellness. The minor consists of a minimum of 20 credits, no more than 8 of which can also be used to fulfill major requirements. A C average (2.00) is required in courses that the minor department approves; a grade of C-minus or better is required in all courses to be counted toward the minor. Courses taken on a Pass/Fail basis may not be used for a minor.

Students declare the nutrition minor by submitting the Intent to Minor in Nutrition (https://colsa.unh.edu/sites/colsa.unh.edu/files/departments/nutrition/docs/Intent%20to%20Minor%20in%20Nutrition%20Form%20Only%20June%202010.pdf) form to the Nutrition minor advisor, preferably prior to the start of their junior year. Submission of the Intent to Minor form is required to gain registration preference in certain courses if space is available and by discretion of the instructor. To complete the minor, students submit a Certification of Completion of Minor (http://www.unh.edu/registrar/forms/minorform.pdf) form during their final semester at UNH.

**Requirements**

**Required Course:**

NUTR 400 Nutrition in Health and Well Being 4

**Additional Courses:**

Students may tailor the minor in Nutrition to personal interests or professional aspirations. Note that many courses have prerequisites and/or require special permission.

Choose a minimum of 16-credits from the list below. At least 4 credits must be at the 600- or 700-level

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 405</td>
<td>Food and Society</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 504</td>
<td>Managerial Skills in Dietetics</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 506</td>
<td>Nutrition and Wellness</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 525</td>
<td>Food and Culture in Italy</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 530</td>
<td>Critical Analysis in Food Studies</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 535</td>
<td>History of Food in Italy</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 595</td>
<td>Mediterranean Diet and Culture</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 625</td>
<td>From Farm to the Italian Table</td>
<td></td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 740</td>
<td>Nutrition for Children with Special Needs</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 751</td>
<td>Nutritional Biochemistry of Micronutrients</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 755</td>
<td>Treatment of Adult Obesity</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 758</td>
<td>Practicum in Weight Management</td>
<td>2</td>
</tr>
<tr>
<td>NUTR 765</td>
<td>Geriatric Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 773</td>
<td>Clinical Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
</tbody>
</table>

**Plant Biology**

**Programs**

- Plant Biology Minor (p. 251)

**Plant Biology Minor**

http://colsa.unh.edu/dbs/biology/plant-biology-minor

**Description**

The Minor in Plant Biology is designed to provide a broad introduction to plant biology and why plants are important to humans, while providing a framework for understanding plant diversity, function, and behavior. Two electives allow the opportunity to choose a specialized area of plant biology that is of interest. Five courses are required for the minor, of which no more than two can overlap with major requirements.

**Requirements**

The requirements for the plant biology minor are:
Choose one of the following two 400-level courses that deal with plant value to humans:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 408</td>
<td>Plants and Civilization</td>
</tr>
<tr>
<td>SAFS 421</td>
<td>Introductory Horticulture</td>
</tr>
</tbody>
</table>

**Required course:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 409</td>
<td>Introductory Botany</td>
</tr>
</tbody>
</table>

Choose one of the following 500-level courses that deal with plant biodiversity:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 525</td>
<td>Introduction to Aquatic Botany</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
</tr>
</tbody>
</table>

Any two other plant-based courses at the 500 level or higher, including 795/796 (must be taken for 4 credits).  

The minimum acceptable grade in these courses is a C-; the average grade for these courses must be a C or better.

For advice on course selection, students should see the chairperson of the Department of Biological Sciences, (603) 862-3205.

**Sustainable Agriculture and Food Systems (SAFS)**

The sustainable agriculture and food systems (SAFS) program offers a flexible curriculum to students seeking integrated knowledge and experiences in modern agricultural and food systems to prepare for varied careers in these fields. It draws upon diverse course offerings across the College of Life Sciences and Agriculture and the Thompson School of Applied Sciences, as well as from other colleges at UNH.

Students in this program will obtain knowledge in a variety of topics including sustainable agricultural practices, the science and management of working landscapes, locally produced foods, value-added agricultural products, and the promotion of healthy eating through sustainable food production and food policies. SAFS graduates will be prepared to pursue careers in a wide range of fields including the production of food, fiber, and agricultural services; management and marketing of agricultural operations; management of working lands, landscapes and ecosystems; agriculture/food/nutrition/natural resources-related research; policy-making; and other current and emerging professions.

The program offers both a bachelor of science (B.S.) degree and a bachelor of arts (B.A.) degree. The B.A. degree offers more flexibility to take courses from a variety of disciplines or pursuing a dual degree, second major, or minor. The B.S. degree best serves those seeking a strong foundation in scientific and technical knowledge and/or who envision pursuing an advanced degree.

http://colsa.unh.edu/anfs/safs

**Faculty**

http://colsa.unh.edu/faculty/all

**Sustainable Agriculture and Food Systems Major (B.A.)**

http://colsa.unh.edu/anfs/safs/sustainable-agriculture-and-food-systems-ba

**Description**

The Bachelor of Arts (B.A.) degree in Sustainable Agriculture and Food Systems is designed for students interested in obtaining a well-rounded education in this field. As compared with the B.S. degree, the B.A. degree offers more flexibility to take courses from a variety of disciplines or to pursue a dual degree, second major or minor.

**Requirements**

The SAFS B.A. program structure includes FOUR major components: foundation courses, courses in a student-designed emphasis area, program elective courses, and a capstone.

**Foundation** courses include 36 credits, which satisfy 5 of the University Discovery requirements. You must earn a minimum grade of C- in these courses.

**Student-Designed Emphasis** courses include 20 credits that make up a cohesive emphasis or focus area. Courses may be selected from the List of Approved Program Electives, but do not need to be on that list. An appropriate group of courses transferred from a completed 2-year program such as TSAS could serve as an emphasis area. Each student will define their emphasis area in consultation with their advisor and submit it to the SAFS program committee for approval prior to the start of their 6th semester.

**Program Elective** courses include 20 credits, chosen from the List of Approved Program Elective courses.

A Capstone experience is a University requirement. Capstone experiences may include formal coursework, pre-approved honors theses or mentored research projects or other special activities that address appropriate and relevant aspects of the capstone experience. This must take place during the senior year.

Of the Student-Designed Emphasis and Program Elective courses, at least 16 credits (not counting the capstone) must be earned at the 600-700 level. Further, at least 4 credits must qualify as Experiential.

**Foundation Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 421</td>
<td>Animal Agriculture Today</td>
</tr>
<tr>
<td>or AAS 431</td>
<td>Introduction to Animal Science</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
</tr>
<tr>
<td>or EREC 525</td>
<td>Statistical Methods and Applications</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
</tr>
<tr>
<td>or CHEM 40: General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
</tr>
</tbody>
</table>

http://colsa.unh.edu/anfs/safs

**Programs**

- Sustainable Agriculture and Food Systems Major (B.A.) (p. 252)
- Sustainable Agriculture and Food Systems Major (B.S.) (p. 254)
or ECON 402 Principles of Economics (Micro)

or NUTR 400 Nutrition in Health and Well Being

or NUTR 730 From Seed to Sea: Examining Sustainable Food Systems

SAFS 405 Sustainable Agriculture and Food Production

SAFS 421 Introductory Horticulture

SAFS 502 Agroecology

Student-Designed Emphasis Area 2, 3

Select 20 credits from the approved electives list.

Program Electives 2, 3

Select 20 credits from the approved electives list.

Senior Capstone 4

Select one from the following:

SAFS 733 Advanced Topics in Sustainable Agriculture

SAFS 679 Food Production Field Experience I & SAFS 680 and Food Production Field Experience II

SAFS 795 Investigations

SAFS 799 Honors Senior Thesis

ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM)

ECOG 701 EcoGastronomy Capstone (EcoGastronomy majors)

1 Students are required to earn 36 credits of foundation courses, which will provide them with fundamental knowledge in disciplines relevant to agricultural production and management. Most of these courses are offered by departments in the College of Life Sciences and Agriculture.

2 Of the emphasis and program elective courses, at least 20 credits (not counting the capstone) must be earned at the 600 or 700 level. Four credits must qualify as experiential (indicated on the list of approved electives).

3 Students select a cohesive group of courses from the approved electives list; additional relevant courses may be considered. Students will define their emphasis area and submit it to the SAFS program advisory committee for approval prior to the start of their seventh semester or fourth year.

4 Capstone experiences may include formal coursework, pre-approved honors theses or mentored research projects, or other special student activities accepted by the SAFS program.

University Requirements

In addition to meeting the SAFS major requirements, students must satisfy all University requirements including those that pertain to the minimum number of credits, grade-point average, writing-intensive courses, the Discovery Program, and foreign language (only for B.A. students).

Approved Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AAS 402</td>
<td>Introduction to Livestock and Poultry Management</td>
<td>2</td>
</tr>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
<td>2</td>
</tr>
<tr>
<td>AAS 423</td>
<td>Dairy Selection</td>
<td>2</td>
</tr>
<tr>
<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
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<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland</td>
<td>3</td>
</tr>
<tr>
<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
<td>2</td>
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<tr>
<td>AAS 535</td>
<td>Animal Nutrition</td>
<td>3</td>
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<tr>
<td>AAS 540</td>
<td>Animal Breeding</td>
<td>3</td>
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<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
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<tr>
<td>ANSC 510</td>
<td>Integration of Culture and Agriculture in Ireland: Past, Present, and Future</td>
<td>2</td>
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<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
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<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
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<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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<tr>
<td>ANSC 650</td>
<td>Dairy Industry Travel Course</td>
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<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
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<tr>
<td>ANSC 708</td>
<td>Ruminant Nutritional Physiology</td>
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<td>ANSC 710</td>
<td>Dairy Nutrition</td>
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<tr>
<td>ANSC 715</td>
<td>Physiology of Lactation</td>
<td>4</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<tr>
<td>ANSC 727</td>
<td>Advanced Dairy Management I</td>
<td>4</td>
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<tr>
<td>ANSC 728</td>
<td>Advanced Dairy Management II</td>
<td>4</td>
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<tr>
<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
<td>4</td>
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<tr>
<td>ZOOL 772</td>
<td>Fisheries Biology</td>
<td>3</td>
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<tr>
<td>ZOOL 773</td>
<td>Physiology of Fish</td>
<td>4</td>
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Business/Technical Practices/Policy Courses

<table>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABM 404A &amp; ABM 404B</td>
<td>Introduction to Business I and Introduction to Business II</td>
<td>4</td>
</tr>
<tr>
<td>ABM 407</td>
<td>Applied Marketing</td>
<td>4</td>
</tr>
<tr>
<td>ABM 506</td>
<td>Human Resource Management</td>
<td>4</td>
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<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
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<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td>4</td>
</tr>
<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
<td>4</td>
</tr>
<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
<td>4</td>
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Environment Courses

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHE 410</td>
<td>Energy and Environment</td>
<td>4</td>
</tr>
<tr>
<td>CEP 415</td>
<td>Community Development Perspectives</td>
<td>4</td>
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<tr>
<td>GEOG 670</td>
<td>Climate and Society</td>
<td>4</td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4</td>
</tr>
<tr>
<td>NR 621</td>
<td>Field Description of Soils</td>
<td>3</td>
</tr>
<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values</td>
<td>4</td>
</tr>
<tr>
<td>NR 706</td>
<td>Soil Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 735</td>
<td>Land Conservation Principles and Practices</td>
<td>4</td>
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</tbody>
</table>

University of New Hampshire
NR 760  Geographic Information Systems in Natural Resources  4
NR 761  Environmental Soil Chemistry  4
NR 765  Community Ecology  4
NR 785  Systems Thinking for Sustainable Solutions  4
NR 795  Investigations (Topic: Soil Fertility and the Environment, 4cr)  1-4
SAFS 729  Agricultural Waste Management  4

**Experiential Courses**
SAFS 733  Advanced Topics in Sustainable Agriculture  4
SAFS 795  Investigations  1-4
SAFS 799  Honors Senior Thesis  1-4
ANSC 795  Investigations  1-4

**Food/Nutrition Courses**
CAN 407  Hospitality Sanitation and Safety  1
CAN 422  Cuisine and Culture  4
CAN 528  Culinary Nutrition  2
ECOG 401  Introduction to Ecogastronomy  4
HMGT 403  Introduction to Food Management  4
HMGT 570  International Food and Culture  4
BMS 503  General Microbiology  3
NUTR 400  Nutrition in Health and Well Being  4
NUTR 550  Food Science: Principle and Practice  4
NUTR 720  Community Nutrition  4
NUTR 730  From Seed to Sea: Examining Sustainable Food Systems  4

**Forest Courses**
FORT 564  Arboriculture  3
FORT 576  Forest Products  4
FORT 577  Forest Harvesting Systems  4
FORT 579  Forest Fire Control and Use  2
NR 425  Field Dendrology  4
NR 506  Forest Entomology  4
NR 527  Forest Ecology  4
NR 542  Forestland Measurement and Mapping  1
NR 602  Natural Resources and Environmental Policy  4
NR 643  Economics of Forestry  4
NR 729  Silviculture  4
NR 749  Forest Inventory and Modeling  4
NR 782  Forest Health in a Changing World  4
NR 783  Forest Communities of New Hampshire  4

**Plant Courses**
BIOL 408  Plants and Civilization  4
BIOL 409  Introductory Botany  4
BIOL 510  Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom  4
BIOL 566  Systematic Botany  4
BIOL 701  Plant Physiology  5
BIOL 720  Plant-Animal Interactions  4
BIOL 752  Mycology  4
GEN 774  Techniques in Plant Genetic Engineering and Biotechnology  4

HT 404  Plant Propagation  4
HT 554  Sustainable Irrigation and Rain Harvesting  3
HT 460  Sustainable Plant Management  4
SAFS 410  A Taste of the Tropics  4
SAFS 415  Introduction to Brewing Art and Science  4
SAFS 510  Agriculture and Development in the Neotropics  4
SAFS 601  Fruit Crop Production  4
SAFS 632  Controlled Environment Agriculture: A Systems Approach  4
SAFS 651  Plant Pathology  4
SAFS 679  Food Production Field Experience I  4
SAFS 680  Food Production Field Experience II  4
SAFS 689  Greenhouse Management and Operation  4
SAFS 760  Insect Pest Management  4

**Sustainable Agriculture and Food Systems Major (B.S.)**
http://colsa.unh.edu/anfs/safs/sustainable-agriculture-and-food-systems-bs

**Description**
The Bachelors of Science (B.S.) degree in Sustainable Agriculture and Food Systems is designed to combine a strong foundation in the biological sciences with a broad base of knowledge and experiences related to modern agricultural and food systems. As compared with the Bachelor of Arts (B.A.) degree, the B.S. places additional emphasis on foundational science courses.

**Requirements**
The SAFS B.S. program structure includes FIVE major components: foundation courses, cores science courses, courses in a student-designed emphasis area, program elective courses, and a capstone.

**Foundation** courses include 36 credits, which satisfy 5 of the University Discovery requirements. You must earn a minimum grade of C- in these courses.

**Course Science Courses** (12 credits) chosen from the List of Approved Core Science Courses.

**Student-Designed Emphasis** courses include 20 credits that make up a cohesive emphasis or focus area. Courses may be selected from the List of Approved Program Electives, but do not need to be on that list. An appropriate group of courses transferred from a completed 2-year program such as TSAS could serve as an emphasis area. Each student will define their emphasis area in consultation with their advisor and submit it to the SAFS program committee for approval prior to the start of their 6th semester.

**Program Elective** courses include 20 credits, chosen from the List of Approved Program Elective courses.

A **Capstone** experience is a University requirement. Capstone experiences may include formal coursework, pre-approved honors theses or mentored research projects or other special activities that address appropriate and
relevant aspects of the capstone experience. This must take place during the senior year.

Of the Student-Designed Emphasis and Program Elective courses, at least 16 credits (not counting the capstone) must be earned at the 600-700 level. Further, at least 4 credits must qualify as Experiential.

Foundation Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
</tr>
<tr>
<td>or CHEM 403</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
</tr>
<tr>
<td>NUTR 405</td>
<td>Food and Society</td>
</tr>
<tr>
<td>or NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
</tr>
<tr>
<td>or NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
</tr>
<tr>
<td>ANSC 421</td>
<td>Animal Agriculture Today</td>
</tr>
<tr>
<td>or AAS 431</td>
<td>Introduction to Animal Science</td>
</tr>
<tr>
<td>SAFS 421</td>
<td>Introductory Horticulture</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
</tr>
<tr>
<td>NR 501</td>
<td>Studio Soils</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
</tr>
<tr>
<td>or EREC 525</td>
<td>Statistical Methods and Applications</td>
</tr>
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</table>

Core Science Courses

Choose 12 credits from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics II</td>
</tr>
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<td>PHYS 402</td>
<td>Introduction to Physics II</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
</tr>
<tr>
<td>GEN 606</td>
<td>Genetics Lab</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
</tr>
<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
</tr>
<tr>
<td>ANSC 512</td>
<td>Anatomy and Physiology</td>
</tr>
<tr>
<td>ANSC 650</td>
<td>Animal Rights and Societal Issues</td>
</tr>
<tr>
<td>ANSC 662</td>
<td>Genetics of Domestic Animals</td>
</tr>
<tr>
<td>ANSC 650</td>
<td>Dairy Industry Travel Course</td>
</tr>
<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
</tr>
<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
</tr>
<tr>
<td>ANSC 708</td>
<td>Ruminant Nutritional Physiology</td>
</tr>
<tr>
<td>ANSC 710</td>
<td>Dairy Nutrition</td>
</tr>
<tr>
<td>ANSC 715</td>
<td>Physiology of Lactation</td>
</tr>
<tr>
<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
</tr>
<tr>
<td>ANSC 727</td>
<td>Advanced Dairy Management I</td>
</tr>
<tr>
<td>ANSC 728</td>
<td>Advanced Dairy Management II</td>
</tr>
<tr>
<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
</tr>
</tbody>
</table>

Approved Electives

Select at least four credits in a course approved and supervised by the SAFS Program

| Total Credits | 144 |

1 Students are required to earn 36 credits of foundation courses, which will provide them with fundamental knowledge in disciplines relevant to agricultural production and management. Most of these courses are offered by departments in the College of Life Sciences and Agriculture.

2 Of the core science, emphasis, and program elective courses, at least 20 credits (not counting the capstone) must be earned at the 600 or 700 level. Four credits must qualify as experiential (indicated on the list of program electives).

3 Students select a cohesive group of courses from the approved electives list; additional relevant courses may be considered. Students will define their emphasis area and submit it to the SAFS program advisory committee for approval prior to the start of their seventh semester or fourth year.

4 Capstone experiences may include formal coursework, pre-approved honors theses or mentored research projects, or other special student activities accepted by the SAFS program.
ZOOL 710 Ichthyology 4  
ZOOL 727 Fisheries Biology 3  
ZOOL 773 Physiology of Fish 4  

**Business/Technical Practices/Policy Courses**

ABM 404A & ABM 404B Introduction to Business I and Introduction to Business II 4  
ABM 407 Applied Marketing 4  
ABM 506 Human Resource Management 4  
AAS 546 Animal Business Applications 4  
EREC 601 Agribusiness Economics and Management 4  
EREC 680 Agricultural and Food Policy 4  
EREC 760 Ecological-Economic Modeling for Decision Making 4  

**Environment Courses**

BIOL 541 General Ecology 4  
CHE 410 Energy and Environment 4  
CEP 415 Community Development Perspectives 4  
GEOG 670 Climate and Society 4  
NR 435 Contemporary Conservation Issues and Environmental Awareness 4  
NR 504 Freshwater Resources 4  
NR 621 Field Description of Soils 3  
NR 650 Principles of Conservation Biology 4  
NR 701 Ecological Sustainability and Values 4  
NR 706 Soil Ecology 4  
NR 735 Land Conservation Principles and Practices 4  
NR 760 Geographic Information Systems in Natural Resources 4  
NR 761 Environmental Soil Chemistry 4  
NR 765 Community Ecology 4  
NR 785 Systems Thinking for Sustainable Solutions 4  
NR 795 Investigations (Topic: Soil Fertility and the Environment, 4cr) 1-4  
SAFS 729 Agricultural Waste Management 4  

**Experiential Courses**

SAFS 733 Advanced Topics in Sustainable Agriculture 4  
SAFS 795 Investigations 1-4  
SAFS 799 Honors Senior Thesis 1-4  
ANSC 795 Investigations 1-4  
NUTR 795 Investigations 1-4  

**Food/Nutrition Courses**

CAN 407 Hospitality Sanitation and Safety 1  
CAN 422 Cuisine and Culture 4  
CAN 528 Culinary Nutrition 2  
ECOG 401 Introduction to Ecogastronomy 4  
HMGT 403 Introduction to Food Management 4  
HMGT 570 International Food and Culture 4  
BMS 503 General Microbiology 3  
NUTR 400 Nutrition in Health and Well Being 4  
NUTR 550 Food Science: Principle and Practice 4  
NUTR 720 Community Nutrition 4  
NUTR 730 From Seed to Sea: Examining Sustainable Food Systems 4  

**Forest Courses**

FORT 564 Arboriculture 3  
FORT 576 Forest Products 4  
FORT 577 Forest Harvesting Systems 4  
FORT 579 Forest Fire Control and Use 2  
NR 425 Field Dendrology 4  
NR 506 Forest Entomology 4  
NR 527 Forest Ecology 4  
NR 542 Forestland Measurement and Mapping 1  
NR 602 Natural Resources and Environmental Policy 4  
NR 643 Economics of Forestry 4  
NR 729 Silviculture 4  
NR 749 Forest Inventory and Modeling 4  
NR 782 Forest Health in a Changing World 4  
NR 783 Forest Communities of New Hampshire 4  

**Plant Courses**

BIOL 408 Plants and Civilization 4  
BIOL 409 Introductory Botany 4  
BIOL 510 Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom 4  
BIOL 566 Systematic Botany 4  
BIOL 701 Plant Physiology 5  
BIOL 720 Plant-Animal Interactions 4  
BIOL 752 Mycology 4  
GEN 774 Techniques in Plant Genetic Engineering and Biotechnology 4  
HT 404 Plant Propagation 4  
HT 554 Sustainable Irrigation and Rain Harvesting 3  
HT 460 Sustainable Plant Management 4  
SAFS 410 A Taste of the Tropics 4  
SAFS 415 Introduction to Brewing Art and Science 4  
SAFS 510 Agriculture and Development in the Neotropics 4  
SAFS 601 Fruit Crop Production 4  
SAFS 632 Controlled Environment Agriculture: A Systems Approach 4  
SAFS 651 Plant Pathology 4  
SAFS 679 Food Production Field Experience I 4  
SAFS 680 Food Production Field Experience II 4  
SAFS 689 Greenhouse Management and Operation 4  
SAFS 760 Insect Pest Management 4  

**Water Resources Management**

**Programs**

- Water Resources Management Minor (p. 256)

**Water Resources Management Minor**

http://colsa.unh.edu/interdisciplinary-minors/water-resources-management-minor
Description

Students in biology, environmental conservation studies, forestry, plant biology, wildlife and conservation biology, environmental engineering, environmental and resource economics, community and environmental planning, and related fields should consider a minor in water resources management. There is a strong demand among consulting firms, state and federal agencies, and not-for-profit organizations for persons with knowledge and experience relevant to water resource management. The minor consists of 20 credits (totaling five courses) with grades of C- or better, and no pass/fail courses. No more than 8 credits used to satisfy major requirements may be used for the minor.

Requirements

**Required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4</td>
</tr>
<tr>
<td>or NR 703</td>
<td>Watershed Water Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
<td>4</td>
</tr>
</tbody>
</table>

**Select one field-oriented course:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 716</td>
<td>Wetland Delineation</td>
</tr>
<tr>
<td>#719</td>
<td>Wetlands Restoration and Mitigation</td>
</tr>
<tr>
<td>MEFB 747</td>
<td>Aquatic Plants in Restoration/Management</td>
</tr>
</tbody>
</table>

**Elective Courses - choose two from the list below for a minimum of 8 additional credits:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
</tr>
<tr>
<td>MEFB 722</td>
<td>Marine Phycology</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>NR 751</td>
<td>Aquatic Ecosystems</td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
</tr>
<tr>
<td>NR 501</td>
<td>Studio Soils</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
</tr>
<tr>
<td>NR 621</td>
<td>Field Description of Soils</td>
</tr>
<tr>
<td>NR 706</td>
<td>Soil Ecology</td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology</td>
</tr>
</tbody>
</table>

Total Credits 20

For additional information, contact the Department of Natural Resources and the Environment, (603) 862-1022.

Wetland Ecology

Programs

- Wetland Ecology Minor (p. 257)

Wetland Ecology Minor

http://colsa.unh.edu/interdisciplinary-minors/wetland-ecology-minor

Description

Students in biology, environmental conservation studies, forestry, plant biology, environmental sciences, wildlife and conservation biology, and related majors should consider obtaining a minor in wetland ecology. There is a strong demand among consulting firms, private conservation groups, and state and federal agencies for employees with knowledge and experience relevant to wetland resource management. The minor consists of 20 credits (totaling five courses) with grades of C- or better, and no pass/fail courses. No more than 8 credits used to satisfy major requirements may be used for the minor.

Requirements

**Required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>4</td>
</tr>
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<td>or NR 703</td>
<td>Watershed Water Quality Management</td>
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</tr>
<tr>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
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</tr>
</tbody>
</table>

**Select one field-oriented course:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 716</td>
<td>Wetland Delineation</td>
</tr>
<tr>
<td>#719</td>
<td>Wetlands Restoration and Mitigation</td>
</tr>
<tr>
<td>MEFB 747</td>
<td>Aquatic Plants in Restoration/Management</td>
</tr>
</tbody>
</table>

**Elective Courses - choose two from the list below for a minimum of 8 additional credits:**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Systematic Botany</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
</tr>
<tr>
<td>MEFB 722</td>
<td>Marine Phycology</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>NR 751</td>
<td>Aquatic Ecosystems</td>
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<td>Field Dendrology</td>
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<td>NR 706</td>
<td>Soil Ecology</td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology</td>
</tr>
</tbody>
</table>

Total Credits 12

For additional information, contact the Department of Natural Resources and the Environment, (603) 862-1022.

Wildlife and Conservation Biology

Programs

- Wildlife and Conservation Biology Major (B.S.) (p. 258)
- Wildlife and Conservation Biology Minor (p. 259)

Faculty

http://colsa.unh.edu/faculty/all
Wildlife and Conservation Biology
Major (B.S.)

http://colsa.unh.edu/nren/wcb/wildlife-and-conservation-biology-bs

Description

The wildlife and conservation biology program is for students interested in conservation, ecology, and management of wildlife (animals and plants) and their habitats. Coursework provides a solid foundation in biological sciences, chemistry, math, and the natural history and identification of species native to New England. Students are also introduced to the role of public policy in managing natural resources. While enrolled in the program, students are encouraged to participate in ongoing field and laboratory research being conducted by faculty and graduate students, in addition to obtaining relevant work experience during summers. Upon completion of the degree, students are prepared for employment by state and federal agencies, and non-governmental organizations working as biologists, conservation law officers, and educators. The four-year program also provides a solid foundation for graduate school.

Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 420</td>
<td>Finite Mathematics</td>
<td></td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
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<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td></td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 541</td>
<td>General Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>NR 417</td>
<td>Sophomore Seminar: Wildlife and Conservation Biology</td>
<td>2</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 655</td>
<td>Vertebrate Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td></td>
</tr>
<tr>
<td>MEFB 510</td>
<td>Field Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
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<tr>
<td>Total Credits</td>
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<td>93-94</td>
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Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 420</td>
<td>Finite Mathematics</td>
<td></td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
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<td>Biological Chemistry</td>
<td>5</td>
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<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
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</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
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</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td></td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 541</td>
<td>General Ecology</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 655</td>
<td>Vertebrate Biology</td>
<td>4</td>
</tr>
</tbody>
</table>
Wildlife and Conservation Biology Minor


Description

Students interested in a minor in Wildlife and Conservation Biology must complete a minimum of 5 courses and 20 credits. Up to eight credits can be used to satisfy both major and minor requirements. A maximum of two EcoQuest courses may be used to satisfy requirements. Appropriate course substitutes from other study-abroad programs may also be used with permission.

Requirements

Category 1  
NR 650 Principles of Conservation Biology
or NR 433 Wildlife Ecology  

Category 2  
Select one of the following:  
NR 425 Field Dendrology
NR 506 Forest Entomology
NR 655 Vertebrate Biology
NR 712 Mammalogy
ZOOL 542 Ornithology
ZOOL 628 Marine Invertebrate Evolution and Ecology
ZOOL 710 Ichthyology
ZOOL 745 Biology and Diversity of Insects

Category 3  
Remaining 12 credits may be chosen from the following:  
NR 615 Wildlife Habitats
NR 625 Physiological Ecology
NR 640 Wildlife Population Ecology
NR 642 Introduction to Biogeography
or NR 603 Landscape Ecology
NR 650 Principles of Conservation Biology
NR 664 Conservation Genetics
NR 711 Wetland Ecology and Management
NR 734 Tropical Ecology
NR 740 Inventory and Monitoring of Ecological Communities
NR 750 Sustaining Biological Diversity
NR 765 Community Ecology
NR 795 Investigations
ZOOL 613 Animal Behavior
or ZOOL 733 Behavioral Ecology

Total Credits  
20

1 NR 661 is considered an appropriate equivalent.
2 Enrollments are capped and admission is not guaranteed to those pursuing a minor.
3 NR 660 is considered an appropriate equivalent.
4 NR 663 is considered an appropriate equivalent.
5 NR 795 requires working with an individual WCB faculty member on a special problem/issue.

Zoology (ZOOL)

The zoology majors (B.S. and B.A.) build on the common background of the biology core curriculum (two semesters of introductory biology, ecology, and genetics), with an additional six (B.A.) or seven (B.S.) courses that include morphology; physiology; three choices between courses in development, evolution, animal behavior and animal survey (ornithology, mammalogy, marine invertebrates); and one (B.A.) or two (B.S.) electives in a biological science. The B.A. also has a foreign language requirement. Zoology majors are required to achieve a 2.0 average and a minimum of C- in each biological science course. The zoology majors also require passing grades in chemistry (two semesters for the B.A. and four for the B.S.), physics (one semester for the B.A. and two for the B.S.), and mathematics (calculus or biostatistics for the B.A. and both courses for the B.S.). Students will have opportunities in these majors to specialize in areas of their own interest, such as completing a minor in animal behavior.
The University's location and facilities provide unique opportunities for the study of aquatic and terrestrial animals due to its access to the seacoast and the lakes region of New Hampshire, the White Mountains National Forest, and the presence of two coastal marine laboratories, as well as estuarine and freshwater facilities. There is a strong teaching and research emphasis on ecological and physiological processes in aquatic animals and ecosystems. Major strengths of the program are the hands-on approach to teaching and emphasis on involving undergraduates in research.

http://colsa.unh.edu/dbs/zoology

Programs

- Zoology Major (B.A.) (p. 260)
- Zoology Major (B.S.) (p. 260)
- Zoology Minor (p. 261)

Faculty

http://colsa.unh.edu/faculty/all

Zoology Major (B.A.)

http://colsa.unh.edu/dbs/zoology/zoology-ba

Description

Built upon the common background of the biology core curriculum, the Bachelor of Arts (B.A.) in Zoology is designed for students to create an interdisciplinary or dual major, particularly if they want to pursue public relations, teaching, or other careers in combination with a liberal arts background. Students have more flexibility when choosing courses from the biology core and may enter this program as freshmen or transfer in from other liberal arts or science programs. Students must fulfill a foreign language requirement in lieu of one advanced elective.

New England Regional Student Program

The bachelor's degree in zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Under this program, students from the state of Massachusetts pay the UNH in-state tuition rate plus 75 percent.

General Science Certification

See Department of Education

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
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<td>Applied Biostatistics I</td>
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<tr>
<td>or MATH 424B</td>
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<td>BIOL 541</td>
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<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
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<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
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<tr>
<td>ZOOL 400</td>
<td>Professional Perspectives in Zoology</td>
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<tr>
<td>ZOOL 518</td>
<td>Vertebrate Morphology</td>
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<tr>
<td>or ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
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Zoology Electives

Zoology Elective Courses (Choose 2) 8-9

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ZOOL 529</td>
<td>Developmental Biology</td>
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<td>ZOOL 613</td>
<td>Animal Behavior</td>
</tr>
<tr>
<td>ZOOL 690</td>
<td>Evolution</td>
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</table>

Animal Survey Courses (Choose 1) 4-5

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MEBF 527</td>
<td>Aquatic Animal Diversity</td>
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<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
</tr>
<tr>
<td>ZOOL 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<tr>
<td>ZOOL 710</td>
<td>Ichthyology</td>
</tr>
<tr>
<td>ZOOL 745</td>
<td>Biology and Diversity of Insects</td>
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<tr>
<td>NR 712</td>
<td>Mammalogy</td>
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Biological Science Elective

Select one course 2

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ZOOL 529</td>
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<td>ZOOL 613</td>
<td>Animal Behavior</td>
</tr>
<tr>
<td>ZOOL 690</td>
<td>Evolution</td>
</tr>
</tbody>
</table>

Capstone 1

1 Students must complete a Capstone during their senior year. Students should consult with their advisor to determine coursework that may satisfy this requirement.

2 Biological Sciences Electives (Biology, Zoology, BMCB, Genetics, and Natural Resources) can be used to satisfy elective requirements.

Zoology Major (B.S.)

http://colsa.unh.edu/dbs/zoology/zoology-bs

Description

The Bachelor of Science (B.S.) in Zoology builds from the common background of the biology core curriculum, with ample time for third- and fourth-year students concentrating in specialized disciplines such as marine and freshwater biology, behavior, cell and developmental biology, ecology, evolution, fishery, physiology, and neurobiology and gives students the foundation from which they can specialize in various zoology disciplines. Undergraduate students are encouraged to conduct field or lab-based research which helps determine advanced education disciplines for graduate studies. Many students ultimately work in the agricultural, pharmaceutical, and biotechnology industries, government, environmental agencies or education where they conduct advanced research and/or teaching.

New England Regional Student Program

The bachelor's degree in zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Under this program, students from the state of Massachusetts pay the UNH in-state tuition rate plus 75 percent.
**Requirements**

**Major Requirements**

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<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
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<td>&amp; BMCB 659 &amp; General Biochemistry Lab</td>
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<tr>
<td>CHEM 403</td>
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<td>CHEM 404</td>
<td>General Chemistry II</td>
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<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546 &amp; Organic Chemistry Laboratory</td>
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</tr>
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<td></td>
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<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; ZOOL 626 &amp; Animal Physiology Laboratory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Zoology Electives**

- **Zoology Elective Courses (Choose 2)** 8-9
  - ZOOL 529 Developmental Biology
  - ZOOL 613 Animal Behavior
  - ZOOL 690 Evolution

- **Animal Survey Courses (Choose 1)** 4-5
  - MEFB 527 Aquatic Animal Diversity
  - ZOOL 542 Ornithology
  - ZOOL 628 Marine Invertebrate Evolution and Ecology
  - ZOOL 710 Ichthyology
  - ZOOL 745 Biology and Diversity of Insects
  - NR 712 Mammalogy

**Biological Science Electives**

Select two courses 1

**Capstone** 2

1. Biological Sciences Electives (Biology, Zoology, BMS, BMCB, Genetics, and Natural Resources) can be used to satisfy elective requirements.

2. Students must complete a Capstone during their senior year. Students should consult with their advisor to determine coursework that may satisfy this requirement.

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**Zoology Minor**

http://colsa.unh.edu/dbs/zoology/zoology-minor

**Description**

The Zoology Minor is designed to provide a general introduction to animals and their ecology, while requiring in-depth knowledge of the diversity of at least one group, a course dealing with animal structure, behavior, or physiology, and an animal-focused course at the 500 or higher level of the student’s choice.

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**Requirements**

The Zoology minor requires five courses.

**Required:**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
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</tbody>
</table>

**Choose one Animal Survey Course:** 4-5

- MEFB 527 Aquatic Animal Diversity
- NR 712 Mammalogy
- ZOOL 542 Ornithology
- ZOOL 628 Marine Invertebrate Evolution and Ecology
- ZOOL 710 Ichthyology
- ZOOL 745 Biology and Diversity of Insects

**Choose one of the following:** 4-5

- ZOOL 518 Vertebrate Morphology
- ZOOL 529 Developmental Biology
- ZOOL 613 Animal Behavior
- ZOOL 628 Marine Invertebrate Evolution and Ecology
- ZOOL 690 Evolution

**Chose one additional animal-focused course at the 600 level or higher chosen from the courses above** 4-5

College of Life Sciences and Agriculture students: two courses in the major may be used toward the minor, as long as selected from the courses listed above.
Peter T. Paul College of Business and Economics

Deborah Merrill-Sands, Dean
Neil B. Niman, Associate Dean of Academic Programs
Victoria A. Parker, Associate Dean of Graduate Education and Faculty Administration

The Peter T. Paul College of Business and Economics (Paul College) empowers students to be mindful, dynamic leaders through rigorous academics and experiential-learning opportunities led by industry experts and researchers—creating an engaged academic and professional community. Paul College prepares students for careers in Business, Economics, and Hospitality Management. Each program has its unique disciplinary traditions and the simultaneous commitment to broad educational excellence in critical thought, communication, analytic skills, digital literacy, and ethical reasoning.

Paul College’s undergraduate curricula combine a breadth of liberal education with specifics of professional education in business administration, economics, and hospitality management. In tandem with their studies at Paul College, undergraduates enrolled in Paul College programs take part of their coursework in other colleges in the University in order to fulfill the Discovery Program requirements. Beyond those requirements, students are encouraged to elect additional courses in the arts, social sciences, humanities, mathematics, and sciences. Thus, students who complete the Paul College programs in business administration, economics, and hospitality management develop an impressive portfolio of marketable skills and knowledge base that may be applied to a variety of fields.

Accreditation

Peter T. Paul College of Business and Economics is accredited by the Association to Advance Collegiate Schools of Business (AACSB) for the degree programs of business administration and hospitality management.

Degrees

- Bachelor of Arts (B.A.) in Economics
- Bachelor of Science (B.S) in Business Administration, Analytical Economics, or Hospitality Management

For information concerning advanced degrees, see the Graduate Catalog.

Degree Requirements

Paul College degree candidates must satisfy all of the University Discovery Program requirements for graduation as well as the particular requirements of their individual major programs. Modifications tend to occur in major(option) programs during the four-year period of a student’s undergraduate career; Students are expected to conform to these changes. In addition, candidates must complete a math course (MATH 420 Finite Mathematics, MATH 424A Calculus for Social Sciences, or equivalent) and an ethics course (PHIL 430 Ethics and Society or equivalent). Economics majors must also satisfy specific requirements associated with the bachelor of arts degree (see bachelor of arts degree requirements).

In order to graduate, students must achieve a grade-point average of at least 2.3 (2.0 for the B.A. in economics) in the major courses and a minimum grade of C- (for ADMN 403 Computing Essentials for Business, students must obtain credit) in each major course. Course listings are provided by program, or in the case of business administration by department:

- Accounting and Finance (ACFI)
- Business Administration (ADMN)
- Decision Sciences (DS)
- EcoGastronomy (ECOG)
- Economics (ECON)
- Hospitality Management (HMGT)
- Management (MGT)
- Marketing (MKTG)

Prior to attaining junior rank, students will be considered “provisional Paul” students. A minimum overall GPA of 2.3 at UNH must be maintained by all Paul students in order to remain in the College. If the minimum overall GPA drops below 2.3 during the provisional period, the student will be placed on Paul College probation for one (1) semester. Failure to achieve a minimum overall GPA of 2.3 after the probationary semester will require the student to change to a major outside Paul College.

Paul College courses may not be taken on a pass/fail basis by a student majoring in business administration, economics, or hospitality management. Any Paul College major required course (including ADMN 403 Computing Essentials for Business) in which a grade below C- is obtained must be repeated. No more than two Paul College courses may be repeated and each course may be repeated at most one time.

Students transferring into Paul College from other universities must have business, economics, and hospitality management courses reviewed and approved by the faculty through the Paul College Undergraduate Programs Office to be considered for major requirements. Transfer credit is normally granted only for 400- and 500-level courses, and normally only when the transferring institution is AACSB-accredited.

Paul College Programs

FIRE (First-year Innovation and Research Experience)

FIRE is an integrated, team-based, and game-like experience, developed for first-year students. Launched in the 2015-2016 academic year and under the direction of the Undergraduate Programs and Advising Office, this program was designed to expand upon the principles and mission of the Peer Advising program by engaging first-year students in developing habits and strategies for success. Students complete a one-credit, credit/fail course each semester (PAUL 405 Freshman Academic Experience I/PAUL 406 Freshman Academic Experience II), guided by peer mentors (selected upper-class students) and alumni. Students collaborate and compete, both individually and in teams, through academic challenges, research, and game scenarios culminating in participation at the Undergraduate Research Conference (URC)

More information can be found on the FIRE [link](https://paulcollege.unh.edu/academics/undergraduate-programs/undergraduate-advising/peer-advising-resource-students) webpage.

Independent Study/Internship

Juniors or seniors in high academic standing in the Paul College may elect the internship or independent study course for variable credit. For either course, the student must secure a faculty sponsor in the area of interest and submit a written proposal prior to the start of the
quarter in which the project is to be undertaken. Independent study normally involves research, while internships are usually undertaken with cooperation of an off-campus organization and involve a non-routine but practical application of skills and concepts acquired in a student’s program.

Independent studies and internships require considerable self-direction and self-monitoring on the part of the student, who must be in high academic standing. Careful prior review of requirements with the undergraduate adviser and faculty sponsor is necessary. Students may earn no more than 16 credits combined in internships, independent studies, field experience, and supervised student teaching experience.

The Washington internship, a semester of supervised work experience in Washington, D.C., is open to any major.

International Programs

International education is a high priority of Paul College with many Education Abroad opportunities available. Through semester abroad and short-term programs, students have the ability to immerse themselves in a variety of cultural environments to better prepare for a career in a globalized business industry. Paul College students may engage in a diverse array of opportunities:

- Study abroad in countries including, but not limited to: Australia, China, Hungary, Ireland, Italy, Korea, Portugal, and Spain
- Faculty-led programs to destinations such as Ascoli Piceno, Italy; Budapest, Hungary; the Caribbean; Dominican Republic; and Dijon, France.
- International internships
- Research grant programs
- Volunteer or non-profit work

Students are encouraged to begin planning their international experiences early on in their academic careers by visiting the Paul College Undergraduate Programs and Advising Office. In most cases, students are able to take a semester abroad without losing any time towards graduation. Paul College students are highly encouraged to study abroad at schools accredited by the AACSB (Association to Advance Collegiate Schools of Business) and/or EQUIS (European Quality Improvement System). More information about international experiences can be found on the Paul College website (http://paulcollege.unh.edu/academics/undergraduate-programs/undergraduate-advising/study-abroad) as well as by programs offered through the Center for International Education and Global Engagement (http://www.unh.edu/global).

Paul College Honors Program

The Paul College Honors Program is designed to provide high achieving students with an enhanced academic experience. Students in the University Honors Program or current students in Paul College have the opportunity to apply to the program at the beginning of the second semester sophomore year. The application process is competitive and based upon grade point average, extra-curricular experiences, and student interests.

The Program consists of the following elements:

Designation and Designation Workshop (PAUL 790 Honors/The Workshop)—Students pick a course to designate as honors and work with the professor to create a special honors project related to the course. The Designation Workshop brings all honors students together to share, build upon, and ultimately present their designation work.

Consulting Project (PAUL 792 Honors/The Consulting Project)—Designed to broaden perspective and build a bridge to the real world, the Honors Experience matches students with small businesses across New Hampshire. With the help of the Small Business Development Center, we will identify real-world projects and give students a chance to apply their learning.

Research Seminar (PAUL 794 Honors/The Research Process)—The Research Seminar is dedicated to preparing students to write their honors thesis. The thesis process is broken into steps, and students complete a thesis proposal. Students will attend and discuss faculty research presented at the Paul Scholars series.

Thesis—The culminating experience of Paul Honors is the thesis. Students apply what they have learned and undertake their own research with the help of a faculty mentor.

Five-Year Programs

Four-One Program: B.S.-M.B.A.

After completion of the bachelor’s degree program, students may apply to the Paul College masters of business administration full-time program. This innovative curriculum is designed specifically to accelerate your progress through this highly-ranked AACSB-accredited MBA program. Details are provided in the Programs of Study sections of this catalog and the Graduate Catalog.

Four-One Program: B.S.-M.S.A.

The American Institute of Certified Public Accountants (AICPA), the national association of professional accountants, mandated that five years of university education be required for national certified public accountant (CPA) certification as of the year 2000. Most states have approved similar requirements for licensing/certification. The Paul College offers a five-year program designed for students who desire a professional accounting career. The program leads to the joint awarding of a bachelor of science in business administration and a master of science in accounting degree. Application for admission to this highly selective program is made in the senior year. Details are provided in the Programs of Study sections of this catalog and the Graduate Catalog.

Paul College—Minors and Courses for Non-majors

Minors

Paul College faculty has developed a group of courses for non-majors, which, when combined with certain other courses, can constitute a minor in business administration, economics, entrepreneurship, hospitality management, or leadership. A list of minor requirements is available at the Paul College Undergraduate Programs and Advising Office, Suite 101, Paul College.

Non-majors

Paul College also serves the needs of undergraduates elsewhere in the University, within the limits of its resources, for whom selected courses in business administration, economics, or hospitality management are desirable complements to their primary course of study. To the extent that space is available after majors have enrolled, a limited number of Paul College courses are open to non-majors who have the prerequisite preparation. A maximum of 32 credits in courses offered by the Peter
The business administration’s core curriculum constitutes the requirements for a degree.

Core Curriculum

The business administration program provides students with the fundamentals of business education as well as specialized options to propel them on their career paths. The curriculum consists of fifteen core courses as well as option/major courses, which imparts students with expertise in one or two areas of business. At the same time, Paul College students achieve a well-rounded education by selecting courses in the liberal arts and the sciences from other colleges and schools in the University, including to complete University Discovery requirements. The Peter T. Paul College’s program in business administration is accredited by the Association to Advance Collegiate Schools of Business (AACSB) and is separate from the business program at the UNH-Manchester campus.

Core Curriculum

The business administration’s core curriculum constitutes the fundamental theories, principles, concepts, and skill sets necessary for students to thrive in the professional business world. Each required core course equips students with the knowledge and skills utilized in key areas of business, while building upon their social, competitive, and analytical intelligence. The business administration program also augments its core curriculum with math, ethics, and economics. Core courses are generally completed in the first five semesters of enrollment at Paul College, with the exception of ADMN 703 (capstone course):

- MATH 420 Finite Mathematics, or MATH 424A Calculus for Social Sciences
- PHIL 430 Ethics and Society
- ECON 401 Principles of Economics (Macro)
- ECON 402 Principles of Economics (Micro)
- ADMN 400 Introduction to Business
- ADMN 410 Management Information Systems
- ADMN 420 Business Statistics
- ADMN 502 Financial Accounting
- ADMN 503 Managerial Accounting
- ADMN 570 Introduction to Financial Management
- ADMN 575 Behavior in Organizations
- ADMN 580 Quantitative Decision Making
- ADMN 585 Marketing
- ADMN 703 Strategic Management: Decision Making (Capstone course, satisfies capstone requirement for the University Discovery Program)

Options in the Business Administration Program

As students advance, they declare an option within the business administration program. Declaration of an option is occurs during their second semester sophomore year, thus focusing on a particular area of business during their last three semesters. The sophomore option declaration date is set by the Undergraduate Programs and Advising Office and usually by February of the sophomore year. Students are encouraged to discuss their interests with several faculty members and an academic adviser in this decision-making process. Options comprise a minimum of four courses, but requirements do vary by option and are determined by the nature of the career field. Current business administration options are:

- Accounting
- Entrepreneurial Studies
- Finance
- Information Systems and Business Analytics
- International Business and Economics
- Management
- Marketing
- Student-Designed

Due to the dynamic nature of the business world, the portfolio of options offered may change from time to time. Students are expected to stay attuned to these changes through Paul College Undergraduate Programs and Advising Office. A change of option/major may only be made once per semester.

https://paulcollege.unh.edu/node/440
Programs

- Business Administration Major: Accounting Option (B.S.) (p. 265)
- Business Administration Major: Entrepreneurial Studies Option (B.S.) (p. 265)
- Business Administration Major: Finance Option (B.S.) (p. 266)
- Business Administration Major: Information Systems and Business Analytics Option (B.S.) (p. 267)
- Business Administration Major: International Business and Economics Option (B.S.) (p. 268)
- Business Administration Major: Management Option (B.S.) (p. 268)
- Business Administration Major: Marketing Option (B.S.) (p. 269)
- Business Administration Major: Student Designed Option (B.S.) (p. 270)
- Business Administration Minor (p. 270)

Faculty

http://paulcollege.unh.edu/faculty-and-staff

Business Administration Major: Accounting Option (B.S.)

https://paulcollege.unh.edu/node/440

Description

The Option in Accounting prepares students for careers in accounting and the qualifications to obtain certifications, such as certified public accountant (CPA), certified management accountant (CMA), and certified internal auditor (CIA).

Further, this option provides students with opportunities in a variety of fields, including internal audit, external audit, tax preparation and planning, and consulting. Demand for accountants is consistently strong. Students may also take advantage of the four-one (5 year) program to earn a M.S. in accounting at Paul College. Obtaining a master's degree is a necessary requirement for taking the CPA exam in most states, including New Hampshire, Massachusetts, and Maine.

Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
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<td>ADMN 410</td>
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<td>ADMN 502</td>
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<td>ACFI 723</td>
<td>Advanced Managerial Accounting Concepts and Applications</td>
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<td>ACFI 724</td>
<td>Auditing</td>
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<td>ACFI 726</td>
<td>Introduction to Federal Income Tax</td>
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<tr>
<td>MGT 647</td>
<td>Business Law I</td>
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</table>

Required courses: Select one of the following:

- ACFI 725 Financial Statement Analysis
- ACFI 750 Internships in Accounting
- ACFI 752 Independent Studies in Accounting
- ACFI 799 Honors Thesis/Project in Accounting

Total Credits: 28

Business Administration Major: Entrepreneurial Studies Option (B.S.)

https://paulcollege.unh.edu/node/440

Description

The Option in Entrepreneurial Studies is designed for students who intend to start a business, work for a new venture, or become involved in a new venture creation within an established organization. The option fosters an entrepreneurial culture throughout the program and the priority is real-world learning in the innovative environment of entrepreneurial ventures.
The focus is on innovation and creativity with the goal of exposing students to all the facets of running an innovative business. The program includes active student participation, a seminar format, and several guest speakers. Each student participates in a senior project and an internship at an entrepreneurial company.

**Requirements**

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

**Option in Entrepreneurial Studies**

**Required**

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<tr>
<td>MKTG 763</td>
<td>Marketing Analytics</td>
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<tr>
<td>or MKTG 764</td>
<td>New Product Development</td>
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<tr>
<td>DS 741</td>
<td>Private Equity/Venture Capital</td>
<td>4</td>
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<tr>
<td>DS/MGT 742</td>
<td>Internship in Entrepreneurial and Management Practice</td>
<td>4</td>
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</tbody>
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**Business Administration Major: Finance Option (B.S.)**

https://paulcollege.unh.edu/node/440

**Description**

The Option in Finance provides students with the knowledge and analytical skills necessary to make informed financial decisions for themselves and their organizations. Business students interested in numbers, quantitative analysis, problem solving, utilizing creativity, and practical applications will appreciate this option. Opportunities exist in a variety of fields, including commercial and investment banking, insurance, corporate finance, money management, venture capital, risk management, and real estate.

The job outlook for finance students is strong, and starting and mid-career salaries are typically among the highest of all majors at a university. Many premier jobs in business, such as hedge fund manager, investment banker, and CFO, are in finance.

The goal of the finance option is to provide students with general exposure to the field while allowing them to specialize in one of three tracks: analytics and quantitative finance, financial analyst, and real estate. Tracks are not required; please inquire with the finance option coordinator for details.

**Requirements**

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.
ECON 402 Principles of Economics (Micro) 4
MATH 420 Finite Mathematics 4
or MATH 424A Calculus for Social Sciences
PHIL 430 Ethics and Society 4
PAUL 405 Freshman Academic Experience I 1
PAUL 406 Freshman Academic Experience II 1

1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.

Depending on the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

### Option in Finance

**Required**

ACFI 701 Financial Policy 4
ACFI 702 Investments Analysis 4

**Select two of the following:**

ACFI 703 International Financial Management
ACFI 704 Derivative Securities and Markets
ACFI 705 Financial Institutions
ACFI 706 Financial Modeling and Analytics
ACFI 707 Equity Analysis and Firm Valuation
ACFI 708 Real Estate Finance
ACFI 709 Mortgage Banking and Fixed Income Securities

Finance topic courses (ACFI 720, ACFI 720W) or other approved 700-level finance courses.

Total Credits 16

**Business Administration core requirements:**

ADMN 400 Introduction to Business 4
ADMN 403 Computing Essentials for Business 1
ADMN 410 Management Information Systems 4
ADMN 420 Business Statistics 4
ADMN 502 Financial Accounting 4
ADMN 503 Managerial Accounting 4
ADMN 570 Introduction to Financial Management 4
ADMN 575 Behavior in Organizations 4
ADMN 580 Quantitative Decision Making 4
ADMN 585 Marketing 4
ADMN 703 Strategic Management: Decision Making 1 4
ECON 401 Principles of Economics (Macro) 4
ECON 402 Principles of Economics (Micro) 4
MATH 420 Finite Mathematics 4
or MATH 424A Calculus for Social Sciences
PHIL 430 Ethics and Society 4
PAUL 405 Freshman Academic Experience I 1
PAUL 406 Freshman Academic Experience II 1

1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.

Depending on the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

### Option in Information Systems and Business Analytics

**Required**

DS 773 Database Management and Systems Analysis 4
DS 775 Corporate Project Experience 4

**Select three courses from an emphasis:**

Information Systems Emphasis
Business Analytics Emphasis

Total Credits 20

### Information Systems Emphasis

**Required courses:**

DS 562 Business Applications Development 4
or CS 405 Introduction to Applications Programming with Visual Basic
DS 774 E-Business 4

**Select one of the following:**

DS 766 Business Analytics and Spreadsheet Modeling
DS 768 Forecasting Analytics
DS 798 Topics (with approval)
Business Administration Major: International Business and Economics Option (B.S.)
https://paulcollege.unh.edu/node/440

Description

The Option in International Business and Economics offers an interdisciplinary course of study, providing strong business training for students pursuing careers at organizations with an international focus, particularly in multinational corporations, international banks, and government agencies. It achieves this by combining general business training with in-depth knowledge in economics, finance, and management. Students are strongly encouraged to round out their education with either an internship at an international organization or by studying abroad for one semester.

Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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<tr>
<td>ECON 645</td>
<td>International Economics</td>
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</tbody>
</table>

Select three of the following:

- ACFI 703 International Financial Management
- MGT 755 International Management
- MKTG 760 International Marketing
- ECON 611 Intermediate Macroeconomic Analysis
- ECON 746 International Finance

A pre-approved course in International Business

Select one of the following:

- One of the remaining courses from list above
- 4-credit graded internship at an international organization
- One-semester study abroad experience that involves at least one approved international business or economics course and that results in at least 12 academic credits being transferred back to UNH

Total Credits 20

1 Students should consult with their academic adviser and/or the faculty option coordinator in their selection of these courses according to their interests.

Business Administration Major: Management Option (B.S.)
https://paulcollege.unh.edu/node/440

Description

The Option in Management provides students with opportunities to develop a substantial foundation in the principles of managing the human, organizational, technical, and financial resources of organizations
to enhance strategic competitiveness. Courses emphasize critical thinking, problem-solving, planning, interpersonal skills related to ethical leadership in the global economy, managing innovation and technology, organizational change and sustainability, and international and cross-cultural issues in organizations.

The option emphasizes the generalist’s mindset in concert with a specialist’s functional understanding of the firm. Future career paths include an array of management, supervisory, entrepreneurial, human resources, and other positions in for-profit and non-profit organizations. The option is also recommended for students considering graduate education in management or law.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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**Business Administration Major: Marketing Option (B.S.)**

https://paulcollege.unh.edu/node/440

### Description

The Option in Marketing focuses on how to develop, establish, and maintain products and services of high value for customers as well as how to deliver and communicate them, from both digital and traditional perspectives. The option addresses key linkages critical to effective customer and brand management, from understanding customer needs and problems to delivering appropriate solutions and services. It further examines decision choices facing managers concerning market selection, entry timing, positional advantage to be pursued, targeting, and executional approaches.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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<td>MGT 614</td>
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Undergraduate Academic Catalog 2017-2018

ADMN 703 Strategic Management: Decision Making 4
ECON 401 Principles of Economics (Macro) 4
ECON 402 Principles of Economics (Micro) 4
MATH 420 Finite Mathematics 4
or MATH 424A Calculus for Social Sciences 4
PHIL 430 Ethics and Society 4
PAUL 405 Freshman Academic Experience I 1
PAUL 406 Freshman Academic Experience II 1

1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

Option in Marketing

Required courses:
MKTG 752 Marketing Research 4
MKTG 753 Consumer/Buyer Behavior 4
MKTG 762 Marketing Workshop 4
MKTG 763 Marketing Analytics 4
At least two additional 700-level marketing (MKTG) courses 8
Total Credits 24

1 Offerings will vary from semester to semester.

For additional courses, students are encouraged to meet with department faculty or with the Academic Advising Office for help in choosing a career track and additional courses.

Business Administration Major: Student Designed Option (B.S.)
https://paulcollege.unh.edu/node/440

Description

A Student-Designed Option in Business Administration is available for those students whose interests are not fully satisfied by any of the other currently available options in business administration. Students desiring a self-designed option must submit the application to the faculty coordinator. After the faculty coordinator's approval, the proposal must receive approval from the Paul College dean's office.

Students applying for this option will normally be expected to have a grade point average of at least 3.0.

Requirements

Student-Designated Option

The student-designed option in business administration shall consist of at least five Paul College courses, at least three of which shall be from the business administration departments (currently accounting and finance, decision sciences, management, and marketing).

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have different requirements, which are provided below. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

Business Administration Minor

https://paulcollege.unh.edu/academics/undergraduate-programs/minors/minor-business-administration

Description

The Minor in Business Administration offers students majoring in other disciplines the opportunity to develop a well-rounded business background. Students complete coursework in core business areas such as accounting, marketing, management, as well as economics. The minor enables students to enter their selected industries with skills and experience that distinguish them as professionals.

Requirements

Business Administration Minor

Required courses:
ECON 402 Principles of Economics (Micro) 4
ACFI 501 Survey of Accounting 4
**Ecogastronomy (ECOG)**

The Peter T. Paul College of Business and Economics and the College of Life Sciences and Agriculture offer undergraduate students the opportunity to pursue a dual major in EcoGastronomy. The dual major requires completion of the EcoGastronomy program and any other major.

The EcoGastronomy program prepares students for professions within our rapidly evolving food community—from farm to fork to nutrition and health outcomes—where ever-greater integration of agriculture, food, and nutrition requires a broad perspective and a specific blend of skills and knowledge. The dual major in EcoGastronomy is international by providing a context for studying “gastronomy” in Ascoli-Piceno, Italy.

**International Experience**

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. Students will study in Ascoli Piceno, Italy, (fall semester) or at the Burgundy School of Business in Dijon, France (spring semester).

Dual majors will complete a series of upper-level core courses such as history of cuisine and gastronomy, history of food, aesthetics, food law, food technology processes, cross-cultural comparisons, and language.

**Portfolio**

Students will be required to submit a portfolio annually to the director, and a cumulative portfolio to the instructor of their capstone course for final assessment.

The courses in the dual major program are multidisciplinary, taught by faculty from different departments in the University. They are designed to integrate UNH strengths in sustainable agriculture, hospitality management, and nutrition to offer a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields. The program is experiential by requiring students to work in the field growing food, in the kitchen preparing food, and developing the skills associated with both. They will also experience the local food cultures and get firsthand experience on the issues of food security locally, regionally, and globally.

Students who wish to declare a dual major in EcoGastronomy must have a cumulative grade-point average of 2.5; have declared, or be prepared to declare, a disciplinary major; and complete the Introduction to EcoGastronomy course (ECOG 401 Introduction to Ecogastronomy) with a grade of C or better.

ECOG 401 Introduction to Ecogastronomy is prerequisite for study abroad, ECOG 685 EcoGastronomy Study Abroad. All required classes and the elective are a pre/corequisite for the senior EcoGastronomy capstone course, ECOG 701 EcoGastronomy Capstone. Exceptions are possible with a late declaration of the dual major. All foreign experiences must be pre-approved by the EcoGastronomy director.

The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for EcoGastronomy must be completed with a grade C or better.

For information, contact the dual major in EcoGastronomy, PCBE 370Z, (603) 862-3327, ecog.info@unh.edu.

http://www.unh.edu/ecogastronomy

### Programs

- Ecogastronomy Dual Major (p. 271)

### Faculty

http://www.unh.edu/ecogastronomy/faculty

### Ecogastronomy Dual Major

http://www.unh.edu/ecogastronomy/curriculum

### Description

The Dual Major in EcoGastronomy integrates UNH strengths in sustainable agriculture, hospitality management, and nutrition. EcoGastronomy offers a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields.

The EcoGastronomy Dual Major is a collaboration with the University of New Hampshire’s College of Life Sciences and Agriculture, Peter T. Paul College of Business and Economics, and the Sustainability Institute.

### Requirements

#### EcoGastronomy Dual Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
</tbody>
</table>
NUTR 400 Nutrition in Health and Well Being 4
ECOG 685 EcoGastronomy Study Abroad 20
ECOG 701 EcoGastronomy Capstone 1 2-4

Select one elective from the following courses: 4

ANSC 602 Animal Rights and Societal Issues
ANSC 694 Summer Cooperative for Real Education in Agricultural Management
ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM)
ERECE 680 Agricultural and Food Policy
HIST 618 American Environmental History
HMG 771 International Wine and Beverage
HMG 570 International Food and Culture
MGT 732 Exploration in Entrepreneurial Management
NR 602 Natural Resources and Environmental Policy
NR 620 Farm to Table: A Case Study in the Northern Beauce Region of France
NR 701 Ecological Sustainability and Values
NR 720 International Environmental Politics and Policies for the 21st Century
NR 784 Sustainable Living - Global Perspectives
NR 785 Systems Thinking for Sustainable Solutions
NR 797 Special Topics
NUTR 720 Community Nutrition
NUTR 730 From Seed to Sea: Examining Sustainable Food Systems
SAFS 679 Food Production Field Experience I
SOC 665 Environmental Sociology
TOUR 705 Ecotourism: Managing for the Environment
ZOOL 610 Principles of Aquaculture & ZOOL 611 and Principles of Aquaculture Lab
ZOOL 772 Fisheries Biology

Total Credits 42-44

1 Satisfies the capstone requirement of the Discovery Program for the EcoGastronomy major.

Economics (ECON)

Economics is the study of how societies organize themselves to produce goods and services and to distribute those products among the members of society. In the modern world, a combination of market forces, public policies, and social customs perform these basic economic tasks. Economists use concepts, models, and data to analyze efficiency of resource use, fairness of economic outcomes, and development of global and national economies. The economics programs are designed to introduce students to the tools of economic analysis and to show students how they can use those tools to analyze and better understand real-world situations.

Undergraduate training in economics is an excellent background for a variety of careers, including banking and financial services, journalism, international business, public service, the diplomatic corps, entrepreneurial ventures, and government administration. An undergraduate major in economics is also excellent preparation for those interested in graduate work in law, business administration, and international relations.

The department offers the choice of a B.A. degree in economics or a B.S. degree in analytical economics. The B.A. degree is designed to offer students maximum flexibility in designing a program of study. Students are encouraged to take a wide variety of courses, double major, and take advantage of study abroad programs. The B.S. degree differs from the B.A. degree in that it requires more quantitative and data analysis courses but does not require a foreign language. It provides more structure and direction than the B.A. degree and is more professionally focused. Please see Economics programs for further information.

Courses in economics are open to nonmajors on a space-available basis. An economics minor is also available, as students majoring in other programs have found that certain economics courses are useful supplements to their own majors and a help in gaining employment.

Students earning either the B.A. or the B.S. degree in economics may not use any of the following to satisfy Discovery Program requirements:

ECON 401 Principles of Economics (Macro) 4
ECON 402 Principles of Economics (Micro) 4
ERECE 411 Environmental and Resource Economics Perspectives 4
ECN 411 Introduction to Macroeconomic Principles 4
ECN 412 Introduction to Microeconomic Principles 4

https://paulcollege.unh.edu/departments/economics

Programs

- Analytical Economics Major (B.S.) (p. 272)
- Economics Major (B.A.) (p. 273)
- Economics Major: Global Trade and Finance Option (B.A.) (p. 274)
- Economics Major: Money and Financial Markets Option (B.A.) (p. 274)
- Economics Major: Public Policy and Sustainability Option (B.A.) (p. 275)
- Economics Minor (p. 276)

Faculty

http://paulcollege.unh.edu/faculty-and-staff

Analytical Economics Major (B.S.)

https://paulcollege.unh.edu/academics/undergraduate-programs/bachelor-science-economics

Description

B.S. in Analytical Economics emphasizes the predictive and prescriptive modeling skills that are in high demand in today's labor market. Prescriptive modeling is quantitative and strategic decision analysis geared toward corporate decisions. Predictive modeling emphasizes data analysis skills used to develop the information needed to make these decisions.
Economics Major (B.A.)

https://paulcollege.unh.edu/academics/undergraduate-programs/bachelor-arts-economics

Description

Bachelor of Arts in Economics is designed to offer students the maximum flexibility in tailoring a program of study and provides a powerful platform for launching careers in almost all walks of life. Students are encouraged to take a wide variety of courses, double major, and take advantage of study abroad programs.

B.A. economics majors may select to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics: Money and Financial Markets, Global Trade and Finance, or Public Policy and Sustainability.

B.A. economics majors must complete eight (8) courses in economics, plus PAUL 405/406, ADMN 403, ADMN 410, a math course (MATH 420, MATH 424A, or equivalent), and an ethics course (PHIL 430 or equivalent). Coursework in accounting is recommended but not required.

Requirements

B.A. economics majors must complete eight courses in economics plus ADMN 420 Business Statistics with a grade of at least C- (1.67) in each course and an average grade of 2.0 or better in the major courses.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
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</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 430</td>
<td>Ethics and Society</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 410</td>
<td>Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 420</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 565</td>
<td>Predictive Modeling: Data Driven Economic Analysis</td>
<td>4</td>
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<tr>
<td>ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
<td>4</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 727</td>
<td>Advanced Econometrics</td>
<td>2</td>
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<tr>
<td>ECON 775</td>
<td>Applied Research Skills for Economists</td>
<td>3</td>
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</tbody>
</table>

At least two (2) Economics electives

Total Credits 59

1 Major credit toward ECON 606 Intermediate Microeconomics with Calculus and/or ECON 611 Intermediate Macroeconomic Analysis will be awarded to transfer students only if equivalent courses have been taken at the junior level or above. Transfer students must take at least five of their economics courses at UNH. All economics-related courses taken at other institutions must be approved by the economics department in order for them to count toward the major.

2 Or other Department approved quantitative course

3 ECON 775 Applied Research Skills for Economists is the capstone course for the B.S. major and satisfies the capstone requirement of the University Discovery Program.

Students may petition to substitute one business administration course for an economics elective if the course is at the 600 level or above and if a grade of C- or better is earned. Students may earn no more than 16 credits in internships, independent studies, field experience, and supervised student teaching experience. All economics majors must satisfy the bachelor of arts or bachelor of science degree requirements, and all Discovery Program requirements. Students satisfy the Inquiry requirement of the Discovery Program before the end of their sophomore year by completing an Inquiry or Inquiry-attribute course within the Paul College, or another course offered by another college at the University.

Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy...
the requirements of one of the three options defined by the Department of Economics.

**Economics Major: Global Trade and Finance Option (B.A.)**

https://paulcollege.unh.edu/academics/undergraduate-programs/bachelor-arts-economics

**Description**

The Option in Global Trade and Finance (B.A. degree) studies the global trade and financial systems and their importance for understanding macroeconomics and business activity, foreign direct investments and other international capital flows, globalization, economic growth and development, international financial markets, and currency fluctuations and risk.

Students will learn about the role of the World Trade Organization (WTO), the International Monetary Fund (IMF), and other institutions undergirding the global economy. Students will develop institutional knowledge and analytical skills to study some of the most hotly debated issues of our day, including free-trade policies such as the North American Free Trade Agreement (NAFTA) and WTO, global financial crises, Basel III and other financial reforms, European monetary union, and international policy coordination.

The option is designed for students interested in careers at international organizations such as the IMF, WTO, World Bank, and Organization for Economic Cooperation and Development (OECD). This option also prepares students for careers in the financial services sector, including commercial and investment banking, financial trading, security analysis, portfolio management, and financial advising, and in the government sector, especially at the Federal Reserve System, U.S. Trade Administration, and U.S. State Department.

**Requirements**

**Economics Major (B.A.)**

B.A. economics majors must complete eight courses in economics plus ADMN 420 Business Statistics with a grade of at least C- (1.67) in each course and an average grade of 2.0 or better in the major courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
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<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 430</td>
<td>Ethics and Society (or equivalent ethics course)</td>
<td>4</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ADMN 420</td>
<td>Business Statistics</td>
<td>4</td>
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<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
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</table>

**Junior and Senior Years**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 774</td>
<td>Senior Economics Seminar</td>
<td>4</td>
</tr>
<tr>
<td>Select three(3) additional ECON electives</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 46

1  ECON 774 Senior Economics Seminar is the capstone course for the B.A. major and satisfies the capstone requirement of the University Discovery Program.

2  Specific electives for the BA Options must be chosen from an approved list of courses.

Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics.

**Global Trade and Finance Option Requirements**

(Note: Some courses may have prerequisites that are not part of the option.)

**Required courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 645</td>
<td>International Economics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 746</td>
<td>International Finance</td>
<td>4</td>
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</table>

**Select one of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 625</td>
<td>Economic History of the United States</td>
<td>4</td>
</tr>
<tr>
<td>ECON 635</td>
<td>Money and Banking</td>
<td></td>
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<tr>
<td>ECON 655</td>
<td>Innovation in the Global Economy</td>
<td></td>
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<tr>
<td>ECON 668</td>
<td>Economic Development</td>
<td></td>
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<tr>
<td>ECON 698</td>
<td>Topics (Micro-Finance)</td>
<td></td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td></td>
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<tr>
<td>ECON 736</td>
<td>Seminar in Monetary Theory and Policy</td>
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<tr>
<td>ECON 747</td>
<td>Multinational Enterprises</td>
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<tr>
<td>ECON 768</td>
<td>Seminar in Economic Development</td>
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<tr>
<td>ACFI 703</td>
<td>International Financial Management</td>
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<tr>
<td>POLT 546</td>
<td>Wealth and Politics in Asia</td>
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<td>POLT 561</td>
<td>Introduction to International Political Economy</td>
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<td>POLT 780</td>
<td>International Environmental Politics, Policy, and Law</td>
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<td>GEOG 582</td>
<td>Global Trade and Local Development</td>
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<tr>
<td>Other 600-level or 700-level course, must be approved by ECON department</td>
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</tr>
</tbody>
</table>

**Total Credits** 12

1  Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree.

**Economics Major: Money and Financial Markets Option (B.A.)**

https://paulcollege.unh.edu/academics/undergraduate-programs/bachelor-arts-economics
Description

The Option in Money and Financial Markets (B.A. degree) explores the complex and interdependent nature of money and financial markets. Students will develop institutional knowledge and analytical skills to understand the role of the financial system in society, fluctuations and risk in asset markets, including those for bonds, stocks, and currency, and how financial derivatives, such as futures, options, and swaps contracts, can be used to hedge risk. Students will also study the conduct and implications of monetary policy, exploring the merits of quantitative easing, macroprudential policy aimed at reducing systemic risk, and other key issues involving the role of the state in the financial system.

The option is designed for students wanting careers in the financial services sector, including commercial and investment banking, financial trading, security analysis, portfolio management, and financial advising, and in the government sector, especially at the Federal Reserve System, Securities and Exchange Commission (SEC), and the U.S. departments of Treasury, Commerce, and State.

Requirements

Economics Major (B.A.)

B.A. economics majors must complete eight courses in economics plus ADMN 420 Business Statistics with a grade of at least C- (1.67) in each course and an average grade of 2.0 or better in the major courses.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tr>
<td>Freshman Year</td>
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<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
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<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
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<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
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<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
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<td>or MATH 424A</td>
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<tr>
<td>PHIL 430</td>
<td>Ethics and Society (or equivalent ethics course)</td>
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<tr>
<td>Sophomore Year</td>
<td></td>
<td></td>
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<tr>
<td>ADMN 420</td>
<td>Business Statistics</td>
<td>4</td>
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<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
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<td>or ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
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<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
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</tr>
<tr>
<td>Junior and Senior Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 774</td>
<td>Senior Economics Seminar</td>
<td>4</td>
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<tr>
<td>Select three(3) additional ECON electives</td>
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<tr>
<td>Total Credits</td>
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</table>

1 Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree.

Money and Financial Markets Option Requirements

(Note: Some courses may have prerequisites that are not part of the option.)

Required courses:

<table>
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<tr>
<th>Code</th>
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<tr>
<td>ECON 746</td>
<td>International Finance</td>
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<td>International Economics</td>
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<td>ECON 726</td>
<td>Introduction to Econometrics</td>
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</tr>
<tr>
<td>ECON 736</td>
<td>Seminar in Monetary Theory and Policy</td>
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<tr>
<td>ACFI 702</td>
<td>Investments Analysis</td>
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<tr>
<td>ACFI 703</td>
<td>International Financial Management</td>
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<tr>
<td>ACFI 705</td>
<td>Financial Institutions</td>
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<tr>
<td>ADMN 570</td>
<td>Introduction to Financial Management</td>
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</table>

Other 600-level or 700-level course, must be approved by ECON Dept.

Total Credits 12

1 Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree.

Economics Major: Public Policy and Sustainability Option (B.A.)

https://paulcollege.unh.edu/academics/undergraduate-programs/bachelor-arts-economics

Description

The Option in Public Policy and Sustainability (B.A. degree) examines the factors that influence economic, social, and environmental outcomes, such as unemployment, poverty, economic inequality, health disparities, technological innovation, and pollution. Students will develop the institutional knowledge and theoretical perspective to understand the impact that decisions of individuals, firms, communities, and governments have on such outcomes. Students will analyze the impact of specific government policies and potential reforms, theoretically and empirically.

This option is designed for students seeking careers in policy analysis and research positions at government agencies; think tanks such as RAND Corporation, Urban Institute, and Mathematica Policy Research; consulting firms such as Abt Associates; and non-governmental organizations.

Requirements

Economics Major (B.A.)

B.A. economics majors must complete eight courses in economics plus ADMN 420 Business Statistics with a grade of at least C- (1.67) in each course and an average grade of 2.0 or better in the major courses.

Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics.
Code | Title | Credits
--- | --- | ---
**Freshman Year**
ECON 401 | Principles of Economics (Macro) | 4
ECON 402 | Principles of Economics (Micro) | 4
PAUL 405 | Freshman Academic Experience I | 1
PAUL 406 | Freshman Academic Experience II | 1
MATH 420 | Finite Mathematics | 4
or MATH 424A | Calculus for Social Sciences | 4
PHIL 430 | Ethics and Society (or equivalent ethics course) | 4

**Sophomore Year**
ADMIN 420 | Business Statistics | 4
ECON 605 | Intermediate Microeconomic Analysis | 4
or ECON 606 | Intermediate Microeconomics with Calculus | 4
ECON 611 | Intermediate Macroeconomic Analysis | 4

**Junior and Senior Years**
ECON 774 | Senior Economics Seminar | 4
Select three(3) additional ECON electives | 12
Total Credits | 46

1. ECON 774 Senior Economics Seminar is the capstone course for the B.A. major and satisfies the capstone requirement of the University Discovery Program.
2. Specific electives for the BA Options must be chosen from an approved list of courses.

Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics.

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### Public Policy and Sustainability Option Requirements

(Note: Some courses may have prerequisites that are not part of the option.)

**Required courses:**
- ECON 656 | Labor Economics | 4
- EREC 572 | Introduction to Natural Resource Economics | 4
- ECON 642 | Health Economics | 4
- ECON 698 | Topics (Micro-Finance) | 4
- ECON 706 | Economics of Climate Change | 4
- ECON 726 | Introduction to Econometrics | 4
- EREC 572 | Introduction to Natural Resource Economics | 4
- EREC 606 | Land Economics Perspectives: Uses, Policies, and Taxes | 4
- EREC 627 | Community Economics | 4
- EREC 680 | Agricultural and Food Policy | 4
- EREC 708 | Environmental Economics | 4
- EREC 756 | Rural and Regional Economic Development | 4
- GEOG 582 | Global Trade and Local Development | 4
- HMP 746 | Health Policy | 4

**Select one of the following:**
- ECON 625 | Economic History of the United States | 4
- ECON 642 | Health Economics | 4
- ECON 698 | Topics (Micro-Finance) | 4
- ECON 706 | Economics of Climate Change | 4
- ECON 726 | Introduction to Econometrics | 4
- EREC 572 | Introduction to Natural Resource Economics | 4
- EREC 606 | Land Economics Perspectives: Uses, Policies, and Taxes | 4
- EREC 627 | Community Economics | 4
- EREC 680 | Agricultural and Food Policy | 4
- EREC 708 | Environmental Economics | 4
- EREC 756 | Rural and Regional Economic Development | 4
- GEOG 582 | Global Trade and Local Development | 4
- HMP 746 | Health Policy | 4

**One of the following courses:**
- ECON 605 | Intermediate Microeconomic Analysis | 4
- ECON 611 | Intermediate Macroeconomic Analysis | 4
- ECON 635 | Money and Banking | 4

**Two electives from the following list:**
- ECON 656 | Predictive Modeling: Data Driven Economic Analysis | 4
- ECON 605 | Intermediate Microeconomic Analysis | 4
- ECON 611 | Intermediate Macroeconomic Analysis | 4
- ECON 635 | Money and Banking | 4
- ECON 645 | International Economics | 4
- ECON 651 | Governmental Regulation of Business | 4
- ECON 653 | Law and Economics | 4
- ECON 654 | Industrial Economics and Business Innovation | 4
- ECON 698 | Topics | 4

---

### Economics Minor

https://paulcollege.unh.edu/academics/undergraduate-programs/minors/minor-economics

**Description**

Economics is a social science that studies how people coordinate their wants and desires, given the decision-making mechanisms, social customs, and political realities of the society. The key words in economics are coordination and incentives.

For business students, a minor in economics provides an understanding of the foundational issues in business such as agency concerns, for liberal arts majors a minor can provide a tool kit for understanding and critically evaluating public policy issues. Economics is an excellent background for many careers including banking and financial services, consulting, public service, NGOs, entrepreneurial ventures and government. It is also excellent preparation for further study in law, business, and international relations.

**Requirements**

A minor in economics consisting of five courses is available. At least three of these courses must be taken at UNH. For more on the minor and options within the major, consult the Paul College Undergraduate Programs Office.

**Required courses:**
- ECON 401 | Principles of Economics (Macro) | 4
- ECON 402 | Principles of Economics (Micro) | 4

**One of the following courses:**
- ECON 605 | Intermediate Microeconomic Analysis | 4
- ECON 611 | Intermediate Macroeconomic Analysis | 4
- ECON 635 | Money and Banking | 4

**Two electives from the following list:**
- ECON 656 | Predictive Modeling: Data Driven Economic Analysis | 4
- ECON 605 | Intermediate Microeconomic Analysis | 4
- ECON 611 | Intermediate Macroeconomic Analysis | 4
- ECON 635 | Money and Banking | 4
- ECON 645 | International Economics | 4
- ECON 651 | Governmental Regulation of Business | 4
- ECON 653 | Law and Economics | 4
- ECON 654 | Industrial Economics and Business Innovation | 4
- ECON 698 | Topics | 4
Entrepreneurship

Entrepreneurship Minor

https://paulcollege.unh.edu/undergraduate-programs/minors/minor-entrepreneurship

Description

The Minor in Entrepreneurship in the Peter T. Paul College of Business and Economics is for non-business majors. The minor provides non-business students with concepts, tools and techniques to become creative thinkers, conceptualize and articulate problem statements, construct innovative solutions, and explore opportunities.

The minor consists of three required courses offered by Paul and two courses from a selective list offered by the other UNH Colleges. The three Paul courses are designed to follow a proscribed sequence that take the student through the entrepreneurial process.

Requirements

Entrepreneurship Minor

Required Entrepreneurship sequence courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT 598</td>
<td>Topics (Thinking like an Entrepreneur)</td>
</tr>
<tr>
<td>MKTG 598</td>
<td>Topics in Marketing (Understanding Your Customer)</td>
</tr>
<tr>
<td>DS 598</td>
<td>Topics in Decision Sciences (Realizing the Entrepreneurial Dream)</td>
</tr>
</tbody>
</table>

Two courses from UNH Colleges (possible selections):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 699</td>
<td>Museum Studies</td>
</tr>
<tr>
<td>HUMA 651</td>
<td>Humanities and Science: The Nature of Scientific Creativity</td>
</tr>
</tbody>
</table>

HIST 522 | Science in the Modern World |
HMP 721 | Managing Health Care Organizations |
HMP 722 | Health Care Management II |
RMP 775 | Entrepreneurial and Commercial Recreation |
TECH 750 | Intellectual Asset Management for Engineers and Scientists |

*For other course options, please see your Academic Advisor or contact the Faculty Director of the minor

Please note:

- The remaining two courses can be from Paul College or the student’s home college, depending on suitability and availability of the courses as well as a student’s interest to specialize in a specific area within the Minor, and subject to approval by the Faculty Director (https://paulcollege.unh.edu/undergraduate-programs/minors/minor-entrepreneurship) in charge of the Minor.
- Some of the listed courses are “special topics” (or equivalent). Please make sure that the course has the same title (not simply the same number) as the listed course in order for it to count for the minor.
- The Entrepreneurship Minor also follows UNH policy for minors

Hospitality Management (HMGT)

The program in hospitality management is an integral part of the offerings of the Peter T. Paul College. It is one of only a few programs worldwide accredited by the Association to Advance Collegiate Schools of Business (AACSB). The hospitality management program at UNH provides a world-class education, personal attention and support, and real-world and international experience, setting students apart from the competition and ensuring they are well prepared for a successful and meaningful career.

The hospitality management program develops graduates to be senior executives 15 to 20 years from graduation. This is accomplished through personal attention and support, a balanced foundation where students design one-third of their curriculum, training on cutting-edge industry-specific software and technology, career development, mentoring and placement, and the network connection of seasoned alumni in top industry positions. Graduates have accepted management positions in lodging and resorts, food service beverage, event planning and design, software companies, tourism, travel and recreation, among the many potential opportunities.

An important aspect of the program is the required professional development, which includes practical work experiences, career development, mentoring, and placement, preparing students to be more competitive in the job market and for a successful and rewarding career. Employers look for individuals with relevant industry experience, and this is provided through the required 800 hours of an approved work experience, including a 400-hour professional internship.

The hospitality management program offers a wide range of international education options to study abroad. We have partnered with business schools in countries such as Spain, Australia, Croatia, United Kingdom, and Italy.

https://paulcollege.unh.edu/hospitality-management
Programs

- Hospitality Management Major (B.S.) (p. 278)
- Hospitality Management Minor (p. 279)

Faculty

http://paulcollege.unh.edu/faculty-and-staff

Hospitality Management Major (B.S.)

https://paulcollege.unh.edu/hospitality-management

Description

Hospitality Management is more than an area of study; it’s a way of life. At the second-oldest four-year degree program in the country you will study and work using state-of-the-art technology and facilities, receiving relevant industry certifications.

The hospitality management program curriculum comprises foundation courses in hospitality management, business administration courses, and a number of University Discovery Program courses. A wide range of elective courses complement the foundation courses. To graduate, students must obtain a 2.3 grade-point average in all major required courses and a minimum grade of C- in each major course. A student must have a minimum of 800-hours of on-the-job, paid work experience in the hospitality industry; 400 hours must be earned through a structured paid internship. Students may earn up to 6 total credits in internships, independent studies, field experience, and supervised student teaching experiences.

CAREER SPECIALIZATIONS

Students can use their electives to enhance their marketability through carefully designed specializations. Students interested in a specialization should notify the faculty coordinator, or Donna Stickney at donna.stickney@unh.edu, by completing a Specialization Registration and Evaluation Form.

Specializations do not appear on diplomas or transcripts, but students who complete a specialization will receive a certificate from the Hospitality Management Program and can enhance their resume. Specialization requirements are below.

- Food and Beverage Management
  The Food and Beverage Management specialization will provide students with the necessary competencies to pursue careers in restaurants, hotel and resorts, etc.

- Lodging and Resort Management
  The lodging and resort management specialization will provide students with the necessary competencies to pursue careers in lodging, casinos, resorts, clubs, cruise lines, etc.

- Event Management
  The event management specialization will provide students with the necessary competencies to pursue careers in Meeting Planning Management, Convention Sale and Service Management, Meetings and Conventions, etc.

- Marketing and Sales Management
  The marketing and sales specialization will provide students with the necessary competencies to pursue careers in hospitality market research, sales management, services marketing, etc.

- Real Estate Finance and Management
  The real estate specialization will provide the foundation skills and necessary competencies to pursue careers in hospitality asset management.

Requirements

A typical plan of study is as follows, showing the requirements of the program. Students complete 16-18 credits per semester, which includes major requirements, electives for the major, Discovery Program requirements, and free electives offered across the college and university.

Required courses (outside of HMGT):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 430</td>
<td>Ethics and Society</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 420</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 502</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 575</td>
<td>Behavior in Organizations</td>
<td>4</td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
</tbody>
</table>

HMGT required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMGT 401</td>
<td>Introduction to the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 404</td>
<td>Professional Development I</td>
<td>1</td>
</tr>
<tr>
<td>HMGT 405</td>
<td>Introduction to Food and Service Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 504</td>
<td>Professional Development II</td>
<td>2</td>
</tr>
<tr>
<td>HMGT 554</td>
<td>Lodging Operations Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 600</td>
<td>Hospitality Marketing Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 604</td>
<td>Professional Development III</td>
<td>2</td>
</tr>
<tr>
<td>HMGT 618</td>
<td>Uniform Systems for the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 625</td>
<td>Hospitality and Employment Law</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 635</td>
<td>Hospitality Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 655</td>
<td>Hospitality Finance and Development</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 661</td>
<td>Event Design, Planning, and Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 667</td>
<td>Adv Food/Bev Operations Mgt</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 703</td>
<td>Strategic Management in the Hospitality Industry</td>
<td>4</td>
</tr>
</tbody>
</table>

Three Hospitality Management Electives

12

Note: In addition to the foundation courses above, three elective courses in hospitality management are required for completion of the hospitality management curriculum. Using HMGT and free electives, students may opt to pursue one of the following HMGT specializations:

- Food and Beverage Management (faculty coordinator Professor Daniel Remar, Daniel.Remar@unh.edu)
- Lodging and Resort Management (faculty coordinator Professor Anupama Sukhu, Anupama.Sukhu@unh.edu)
- Event Management (faculty coordinator Professor Carl Lindblade, Carl.Lindblade@unh.edu)
• Marketing and Sales Management (faculty coordinator Professor Daniel Innis, dan.innis@unh.edu)
• Real Estate Finance and Management (faculty coordinator Professor E. Hachemi Aliouche Hachemi.Aliouche@unh.edu)

**Hospitality Management Minor**

https://paulcollege.unh.edu/academics/undergraduate-programs/minors/minor-hospitality-management

**Description**

*Hospitality Management Minor* is offered as a professional educational opportunity for students as an entre to the world’s largest industry, hospitality and tourism. Students pursuing the minor will have opportunities to interview with major hospitality companies for staff and management training positions. In addition, students will be better able to secure meaningful working experiences in the industry during their college career as they progress towards the minor.

The minor is comprised of five required courses. The courses have been selected to ensure all students have a well-rounded learning experience that will strengthen their ability to succeed.

**Requirements**

**Hospitality Management Minor**

A minor in hospitality management comprises five courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMGT 401</td>
<td>Introduction to the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 405</td>
<td>Introduction to Food and Service Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 554</td>
<td>Lodging Operations Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 635</td>
<td>Hospitality Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 502</td>
<td>Financial Accounting (non-business majors can take ACFI 501)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 20

Please note:

• Capacity in most of these courses may be limited.
• ACFI 501 is for the minor only; it does not carry credit toward Paul College majors
• No transfer courses may be used toward the minor
• The HMGT minor also follows UNH policy on minors

**Leadership**

• Leadership Minor (p. 279)

**Leadership Minor**

https://paulcollege.unh.edu/undergraduate-programs/minors/minor-leadership

**Description**

The Minor in Leadership at Paul College was designed for students motivated by a deep sense of passion and purpose. This program energizes them to mobilize resources which enable people to successfully fulfill their roles and responsibilities in their organizations. The Leadership minor course of study will help you to develop your leadership identity and skills such as effective communicating, inspiring and developing people, and awakening everyone's passion for great accomplishments.

The Leadership program combines coursework from management and social sciences, along with an experiential learning requirement in leadership. The minor also allows students to pursue their leadership passions through the selection of two elective courses.

**Requirements**

The Minor in Leadership consists of specified courses: two(2) required management courses, one(1) behavior/society course, two(2) elective courses, one(1) leadership experience. Requirements and specified course options to satisfy the minor are listed below.

**Leadership Minor**

Two required Management courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT 580</td>
<td>Introduction to Organizational Behavior</td>
</tr>
<tr>
<td>or ADMN 577</td>
<td>Behavior in Organizations</td>
</tr>
<tr>
<td>MGT 598</td>
<td>Topics (Developing Leaders for the 21st Century)</td>
</tr>
<tr>
<td>or MGT 713</td>
<td>Leadership Assessment and Development</td>
</tr>
</tbody>
</table>

One of the following Behavior/Society courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 550</td>
<td>Comparative Government and Society</td>
</tr>
<tr>
<td>PSYC 552</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>SOC 540</td>
<td>Contemporary Social Problems</td>
</tr>
<tr>
<td>WS 505:</td>
<td>Survey/Leadership for Social Change</td>
</tr>
</tbody>
</table>

Two electives from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP 415</td>
<td>Community Development Perspectives</td>
</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
</tr>
<tr>
<td>CMN 598</td>
<td>Special Topics in Interpersonal Studies</td>
</tr>
<tr>
<td>(Collaborative Leadership)</td>
<td></td>
</tr>
<tr>
<td>KIN 565</td>
<td>Principles of Coaching</td>
</tr>
<tr>
<td>LLC 535A</td>
<td>Professional Culture in European Union - Case Study: Germany</td>
</tr>
<tr>
<td>LLC 535B</td>
<td>Professional Culture in Latin America - Case Study: Mexico and Brazil</td>
</tr>
<tr>
<td>LLC 535C</td>
<td>Porf Cult Asia Case Stdy China</td>
</tr>
<tr>
<td>MGT 598</td>
<td>Topics (Negotiations)</td>
</tr>
<tr>
<td>MGT 598</td>
<td>Topics (Human Resource Management)</td>
</tr>
<tr>
<td>MGT 598</td>
<td>Topics (Women in Leadership)</td>
</tr>
<tr>
<td>MGT 614</td>
<td>Organizational Leadership and Structure</td>
</tr>
<tr>
<td>PHIL 410</td>
<td>Happiness, Well-Being, and a Good Life</td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
</tr>
<tr>
<td>PSYC 553</td>
<td>Personality</td>
</tr>
<tr>
<td>RMP 663</td>
<td>Recreation and Event Management</td>
</tr>
<tr>
<td>RMP 730</td>
<td>Camp Administration and Leadership</td>
</tr>
<tr>
<td>SOC 645</td>
<td>Class, Status and Power</td>
</tr>
<tr>
<td>WS 405</td>
<td>Gender, Power and Privilege</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics (Leadership for Social Change II)</td>
</tr>
</tbody>
</table>

Or, additional Behavior/Society Course from above

Additional courses by petition
One required Leadership Experience from the following:

- Leadership Camp
- ADMN 598 Topics (Leadership in Practice)
- JUST 410 Sexual Harassment and Rape Prevention (SHARPP) Peer Advocacy
- INCO 505B Social Innovator’s Toolbox
- INCO 795 Washington Center Course
- Resident Assistant
- PAUL 696 Supervised Student Teaching Experience (Peer Advisor)

Alternative leadership experience by petition

1 UNH Leadership camp in January or PAUL Leadership Camp during Spring Break

Please note:

- You are responsible for checking pre-requisites for all courses listed
- All transfer courses must be evaluated for equivalency
- No more than 2 transfer courses may be applied to the minor
- Capacity in courses may be limited
- Several of the listed courses are “special topics” (or equivalent). Please make sure that the course has the same title (not simply the same number) as the listed course in order for it to count for the minor.
- The Leadership Minor also follows UNH policy for minors
Special University Programs

- Fellowship Office (p. 281)
- Global Student Success Program (formerly Navitas) (p. 281)
- Hamel Center for Undergraduate Research (p. 281)
- Honors Program (p. 281)
- Prelaw (p. 282)
- Premedical/Prehealth Care Professional Study (p. 283)
- Reserve Officer Training Corps Programs (ROTC) (p. 283)
- Study Abroad Programs (p. 284)
- Study Away U.S.A. (p. 292)
- Sustainability (p. 293)

Fellowship Office

The UNH Office of National Fellowships provides information, counseling, and editorial support to highly motivated and high-achieving students applying for national and international fellowships and scholarships. The office also assists faculty members who serve as mentors and recommends, and arranges for members of the faculty to take part in interviews and serve on screening committees.

In recruiting, advising, and supporting students who excel in various areas, the office collaborates campus-wide with other offices and departments of the University, including the Office of Multicultural Student Affairs, the McNair program, the Honors Program, the Center for International Education, and the Hamel Center for Undergraduate Research, in support of the University’s Academic Plan.

The services of the Fellowships Office are available to undergraduates, graduate students, and alumni of the University. The Office of National Fellowships holds membership in the National Association of Fellowships Advisors. For more information, contact Jeanne Sokolowski, director, Office of National Fellowships Office, Nesmith, (603) 862-0733; e-mail: Jeanne.Sokolowski@unh.edu.

Global Student Success Program (formerly Navitas)

The Undergraduate Global Student Success Program (GSSP) is equivalent to the first year of a bachelor’s degree program and provides international students with an academic and cultural bridge from their high school experience to studying at the University of New Hampshire. No SAT or ACT scores are needed to apply.

Students who complete the GSSP earn a minimum of 28 credits, and upon successful completion of the program, the student will move directly into the second year of their undergraduate degree program at the University of New Hampshire.

Undergraduate GSSP course offerings include Business and Economics, Engineering and Physical Sciences and Liberal Arts. Students have to obtain a 3.0 GPA in Business and Economics and Engineering, and a 2.5 GPA in Liberal Arts to progress onto Year 2 of the bachelors program.

Interested international students can view admission criteria and apply online at unhglobal.com (http://unhglobal.com)

Should you have any further questions, please contact the UNH GSSP staff directly: Admissions@unhglobal.com.

Hamel Center for Undergraduate Research

www.unh.edu/undergrad-research/ (http://www.unh.edu/undergrad-research)

In keeping with this research University’s mission to create and disseminate knowledge, UNH’s Hamel Center for Undergraduate Research offers undergraduates—working in collaboration with UNH faculty mentors—both funding and administrative support for individually designed academic projects ranging from laboratory research to humanist scholarship and fine and performing arts creations. Once projects are completed, student researchers may receive further support from the Hamel Center for presentations at national and international conferences and for online publication in UNH’s undergraduate research journal, Inquiry.

Initially known as UROP (the Undergraduate Research Opportunities Program), the Hamel Center for Undergraduate Research currently offers year-round research opportunities both in the U.S. and abroad via competitive grant applications. Research Experience and Apprenticeship Program (REAP) grants offer Honors students the opportunity to apprentice with a UNH faculty mentor for ten weeks of full-time research in the summer after their first year; Undergraduate Research Awards (URAs) are available each semester, including January term (research time commitment is flexible); Summer Undergraduate Research Fellowships (SURFs) for the U.S. offer support for ten weeks of full-time research in the summer following sophomore or junior year; and the SURF Abroad and the International Research Opportunities Program (IROP) offer support for rising seniors to conduct nine weeks of full-time summer research abroad. Also, by registering for INCO 590 Student Research Experience or INCO 790 Advanced Research Experience, students at any level can work directly with faculty members while receiving academic credit and support for research expenses.

Hamel Center research opportunities are available to students across all UNH colleges and disciplines.

Grants from the Hamel Center for Undergraduate Research open doors on real-world disciplinary practice, graduate school, post-baccalaureate fellowships, and professional careers; undergraduate research develops first-hand knowledge of the world and one’s place in it. For information about all awards, programs, and the Inquiry journal, contact the Hamel Center for Undergraduate Research at, 209 Hood House, (603) 862-4323, or visit the website at www.unh.edu/undergrad-research. The Hamel Center is moving in Academic Year 2017-18! Call or check the website for the Center’s current campus location.

Honors Program

www.unh.edu/honors-program (http://www.unh.edu/honors-program)

The University Honors Program (UHP), established by the Academic Senate in 1983, recognizes the achievements and capabilities of outstanding students. The program enriches undergraduate education by offering a personal, intensive approach to learning through small classes of 25 or fewer students and individualized collaborations with faculty.

There are various categories of Honors recognition awarded at graduation. University Honors students complete a four-year curriculum, as described below. Honors in Major graduates complete a two-
students who are majoring in arts and humanities may complete three approved high-impact experiences as well as an undergraduate thesis. 

Interdisciplinary Honors recognizes students who seek academic experiences that extend beyond their course curricula. At least one experience must be interdisciplinary. An interdisciplinary experience is defined as one that requires the use of two or more disciplines in order to produce a specifically interdisciplinary product or understanding.

In other words, the interdisciplinary experience allows for new ideas, questions, products, or solutions that would be unlikely to emerge within a single discipline. Examples of such experiences can be found on the UHP website.

Approved high-impact experiences that count toward Interdisciplinary Honors include:

- Study abroad in a UNH managed, exchange, or approved program of at least 8 weeks
- Completing the application process for a major national fellowship
- An IROP, SURF, or other approved research experience
- Named co-authorship on a publication in a peer-reviewed journal
- A presentation at a regional or national academic conference
- An IMPACT project (interdisciplinary, faculty-led efforts to solve community problems)
- A Social Innovation Summer Internship
- Study away at the Washington Center or Semester in the City
- Other approved high-impact experience (by petition)

Students should consult with Honors Program advisers before the beginning of Junior year to decide which track they will pursue.

**GPA minimum**

Honors Program members entering before the Fall of 2017 must maintain a GPA of 3.0 in the Freshman year and 3.4 thereafter. Members entering in or after the Fall of 2017 must maintain a GPA of 3.2 in the Freshman year and 3.5 thereafter. Students who do not reach the required GPA by the end of the academic year will be notified and offered an opportunity to petition to remain in the program. Students must meet the required GPA in order to graduate with University Honors.

For more information, contact the University Honors Program at honors.program@unh.edu or (603) 862-3928, or visit the UHP website at www.unh.edu/honors-program (http://www.unh.edu/honors-program).

**Prelaw**

Many graduates of UNH attend law school. The faculty and staff advisers of the Prelaw Advising Committee work closely with students and alumni to identify interests and explore opportunities within legal education. The committee helps students undertake the best possible preparation for legal education while also bringing the excitement of law to UNH students. The committee achieves this goal through careful consideration of the American Bar Association’s (ABA) statement on preparation for legal education (found on the web at http://www.abanet.org/legaled/prelaw/prep.html).

In that statement, the ABA explains why no single major or course is required or recommended for students wishing to explore or prepare for legal study. The ABA does, however, describe certain skills and values that are essential to success in law school and to life as a lawyer. These include analytic and problem solving skills, critical reading abilities, writing skills, oral communication and listening abilities, general research
skills, task organization and management skills, and the values of serving others and promoting justice.

Prelaw Advising implements the ABA statement by working with student interests and strengths to select UNH courses, internships, leadership opportunities, and experiences that will develop those skills and values. Programmatically, the committee offers individual appointments, sponsors visits to local law schools, and organizes discussions with law school students, admission and financial aid representatives, and with members of the legal community. The committee also provides advising support for LSAT preparation, law school search, writing personal statements, and the application and selection processes.

Interested students should register with the committee by contacting the Prelaw Advising Office, 106 Hood House, at (603) 862-2064. Additional information is available at www.unh.edu/prelaw-advising/ (http://www.unh.edu/prelaw-advising).

Premedical/Prehealth Care Professional Study

The Pre-Professional Health Programs Advising Office in Hood House provides advising for all students preparing for postgraduate careers in medicine, dentistry, optometry, chiropractic, podiatry, physical therapy, pharmacy, naturopathic medicine, and physician assistant programs. There is no pre-health major at UNH. Health professional graduate programs do not evaluate based on undergraduate major. Interested UNH students should register with the Pre-Professional Health Programs Advising Office online to be added to an email list and be kept informed of important events, opportunities, and deadlines regarding preparation for application.

Identifying as a pre-health student at UNH consists of the following:

1. **Taking the prerequisite courses for admission.** A list of the specific prerequisite courses for each intended health profession can be found on the UNH Pre-Health website.

2. **Gaining volunteer and healthcare experience.** Applicants to health professional programs will be expected to demonstrate a sustained involvement in volunteer and community service. It is also expected that applicants have shadowed healthcare providers. Many students volunteer in various healthcare settings and some students seek out licensure and certificates to provide hands-on patient care. These experiences often include working as an EMT, LNA/CNA, or phlebotomist.

3. **Preparing for entrance exams.** Students applying to medical school are required to take the MCAT exam. Students applying to dental programs are required to take the DAT, and applicants to optometry programs take the OAT. The MCAT, DAT, and OAT are standardized, comprehensive exams that test students’ knowledge of biological and physical sciences as well as verbal reasoning and writing skills. Exams are usually once the student has completed prerequisite coursework. Students applying for physician assistant and physical therapy programs may be required to take the GRE, a more general exam similar to the SAT in structure and content.

Application Process

The Pre-Professional Health Programs Advising Office works with the Pre-Professional Health Advisory Committee, a group of 10-12 UNH faculty members and local healthcare providers, to provide students with comprehensive, confidential evaluation services at the time of application. An application information meeting is held each fall to outline the application process and establish timetables and deadlines. Students should note that the medical and dental school application process begins a full two years before matriculation; e.g., in the fall of a student’s junior year if they wish acceptance following graduation. However, a delay of a year or more between graduation and admission is neither unusual nor detrimental, and in many cases, students can use this time to improve their credentials by taking additional courses and/or gaining exposure to the profession.

It is important that students understand that in order to gain admission to a health professional program they must not only satisfy the prerequisite requirements, they must satisfy these requirements at a high level of achievement. The Pre-Professional Health Programs Advising Office can provide students with information on competitive GPA and entrance exam scores for each of the postgraduate health professional programs.

The Pre-Professional Health Programs Advising Office is located in Hood House and can be contacted by phone at (603) 862-7740 or by email at Premed.Advising@unh.edu. The office also has a website at http://www.unh.edu/uac/premed-advising/advising.

Reserve Officer Training Corps Programs (ROTC)

Students attending the University of New Hampshire may enroll in the Air Force Reserve Officer Training Corps (AFROTC) or in the Army Reserve Officer Training Corps (AROTC) at the University.

The Army ROTC and Air Force ROTC offer programs leading to a commission as a second lieutenant in their respective services. Students in either ROTC program may pursue any University curriculum that leads to a baccalaureate or higher degree.

Two- and four-year programs are available. The four-year program is open to freshmen, sophomores, and transfer students. The two-year program is open to students who have at least two academic years remaining in their college/university degree program. In addition to on-campus course requirements, students must attend an officer-preparatory training session for a part of one summer.

ROTC scholarships are offered on a competitive basis by both the Army ROTC and Air Force ROTC. Entering freshmen may compete for four-year scholarships during their last year of high school. Additionally, incoming students may compete for scholarships while already in college if they meet specific ROTC requirements. Scholarships may pay up to full tuition, mandatory fees, and required textbooks for college courses. Incoming students with either a four-year or three-year ROTC scholarship may receive a full or partial room and board grant for the entire time they are on an ROTC scholarship. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Non-scholarship students in the last two years of the ROTC program also receive the tax-free monthly subsistence allowance.

Both ROTC programs have administrative and medical requirements, which must be met to qualify for a scholarship and a commission.

More specific information about ROTC programs may be obtained by contacting Army ROTC at (603) 862-1078 or Air Force ROTC at (603) 862-1480.
Study Abroad Programs

http://www.unh.edu/global/education-abroad

The University offers opportunities for full-time degree candidates meeting eligibility criteria to pursue a wide variety of education abroad experiences, including study, intern, service and research in many countries around the world. UNH-managed and exchange study programs are described in this section. Students may study abroad in other locations through UNH-approved programs by using the intercollegiate option (INCO). All students who study abroad pay a study abroad administration fee and an international travel insurance fee. For more information, contact the Center for International Education and Global Engagement, (603) 862-2398 or visit http://www.unh.edu/global/education-abroad or the department identified in the UNH-managed program descriptions.

Study Abroad Eligibility

Students enrolled in UNH baccalaureate degree programs may participate in approved study abroad programs provided they meet the following eligibility criteria at the time of application: must be in good standing with the student conduct system at the time of application and throughout the study abroad program; must have earned at least 32 credit hours, at least 12 of which must have been earned at the University of New Hampshire at the baccalaureate level; must have a minimum 2.5 cumulative grade point average at the time of application to and at the time of departure for the study abroad program. Study abroad programs provided by UNH or other approved institutions may have higher minimum GPA requirements; must have a declared major.

Transfer students, including transfer students from the Thompson School of Applied Science (TSAS), are not eligible to study abroad during the first semester of their baccalaureate program at UNH.

Students enrolled in the degree programs of the Thompson School of Applied Science may participate in approved study abroad programs appropriate for two-year degree candidates. TSAS students must meet the following eligibility criteria: must have earned 32 credits, at least 12 of which must have been earned at the University of New Hampshire at the associate degree level; must have a minimum 2.5 cumulative grade point average at the time of application to and at the time of departure for the study abroad program. Study abroad programs provided by UNH or other approved institutions may have higher minimum GPA requirements.

Belize

UNHM BSCI 620 (M1) - GLOBAL SCIENCE EXPLORATION

This 4-credits course includes a spring break trip to Belize investigating living organisms in their natural habitat. Students will participate in pre-trip seminars on the country, local flora, fauna and habitats they will visit. Students will design a project to integrate their personal interests and objections with in-country investigation. Post-trip seminar will focus on preparation of project and its presentation. Prereq: BIOL 413 and 414, or BIOL 411 and 412. Permission required. For more information contact the faculty director, Patricia Halpin, Patricia.Halpin@unh.edu.

The UNH Archaeological Field School in Belize

Offered in the summer, the UNH Archaeological Field School in Belize is a four-week program where students excavate ancient Maya sites and are trained in archaeological field and lab techniques. Students register for ANTH 675 Archaeol Field School Belize and earn 8 credit hours. Assisted by program staff, each student chooses a topic of original field research to focus on (e.g., analyses of a particular artifact class, architecture, excavation, or survey results from the project). The program is directed by Eleanor Harrison-Buck, assistant professor of anthropology, who has worked on archaeological projects in Belize and Guatemala since 1992. The program is administered by the COLA Center for Study Abroad. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/belize-field (http://www.cola.unh.edu/belize-field).

Archaeological Survey and Mapping in Belize

A January-term course, Archaeological Survey and Mapping in Belize (ANTH 674 Archaeological Survey and Mapping in Belize, 4 credits), offers students hands-on training in survey and mapping techniques, as well as digital cartography using ArcGIS mapping software. This program is also administered by the COLA Center for Study Abroad and directed by Eleanor Harrison-Buck. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/belize-mapping (http://www.cola.unh.edu/belize-mapping).

Brazil

University of Sao Paulo Ribeirao Exchange Program

Focused studies in all aspects of music with immersion in Portuguese language and Brazilian culture. This exchange with University of Sao Paulo Ribeirao Preto grew out of collaborations between UNH’s and USP-RP’s Departments of Music, and offers small group interaction with professors and Brazilian students, and participation in extra-curricular activities, including Filarmonica, Jazz Band, Grupuri (percussion group), and several choirs. This is an ideal exchange for independent students wanting to travel abroad and continue work on their music major. Ribeirao Preto is a city in the northeastern region of the state of Sao Paulo, Brazil, nicknamed Brazilian California because of its wealth, agribusiness, and high-tech economy, and year-round sunny weather. Ribeirao Preto is a city of immigrants (in large part Italian) known for its coffee and sugar cane farms, basketball, outstanding theater venues, and, of course, its university. The University of Sao Paulo Ribeirao Preto (USP-RP) is a modern campus of 10,000 students located two miles from the city center. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Canada

National Student Exchange

Students may spend one or two semesters at one of ten campuses in Canada, through the National Student Exchange (NSE) program. While having the opportunity to learn in a Canadian environment, participants maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. The exchange is open to students from all UNH majors. Participants must provide proof of proficiency in French for Francophile campuses in Quebec. Interested students should contact Paula DiNardo, National Student Exchange Office, 106 Hood House, (603) 862-3485, or visit www.unh.edu/nse (http://www.unh.edu/nse).

China

Chengdu Spring Program

Semester study of Chinese language and culture at Chengdu University. Upper-level students in the Chinese language program as well students
with little to no background in the Chinese language are able to spend a full semester in China learning Chinese language and culture first-hand. Chengdu has a population of 14 million! It is one of the most advanced metropolises in China's southwest. Students immersed in such a city for a semester will not only improve their language skills but will also gain insights beyond what they could learn in classrooms in the U.S. They will have a chance to see the challenges and opportunities facing Chengdu and to compare and contrast China policies and practices with those in U.S. The program is administered through the COLA Center for Study Abroad, and the faculty director is Yige Wang. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/china.

**Chengdu Summer Program**

This summer short-study program (just under three weeks long) includes travel and intensive Chinese language study at both the beginner and advanced levels at Chengdu University in China. The city of Chengdu is the economic hub for China's southwest. It is also the hometown for the giant Pandas. Forbes Magazine recently ranked the city of Chengdu as the No.1 city with the greatest potential. Students also visit the cities of Beijing and Xian. The program typically runs in late May and early June. It is open to all students; however, space is limited. The program is administered through the COLA Center for Study Abroad, and the faculty director is Yige Wang. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/china-summer.

**Chengdu University Exchange Program**

Chengdu University in Chengdu, Sichuan Province, China, is UNH's partner in the Confucius Institute, a non-profit educational institution housed in the College of Liberal Arts that offers a full curriculum in Chinese language and culture. Out of this partnership grew an undergraduate exchange program in which UNH students have the opportunity to study Chinese language and culture in an immersive setting by directly enrolling at Chengdu University. Located in the Shiling Historical and Cultural Scenic Area, the large, gated campus is beautifully landscaped with gardens, ponds, and tree-lined passages with easy access to downtown Chengdu. For more information, contact the Center for International Education and Global Engagement, (603) 862-2398, e-mail international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**City University Hong Kong Exchange Program**

Study abroad in Hong Kong, a vibrant former British colony in southeastern China, famous for its bustling port, tower-studded skyline, and lively food scene. CityU Hong Kong offers professional education that prepares its students for the challenges and exciting opportunities opening up in Hong Kong, the Asia-Pacific region, and throughout the world in business, science and engineering, energy and environment, law, creative media and social sciences. Through its extensive links with relevant industries, CityU provides real-life opportunities for students to work with and learn from professionals in the workplace. CityU is AACSB approved and thus attractive to business majors. Other fields of excellence include political science, engineering, applied social sciences, public policy, and media and communications. Summer study is available. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**Shanghai International Studies University**

Shanghai is the largest city in China and a major economic, financial, trade, and cultural metropolis. SISU is a prestigious institution that offers multinational and multicultural disciplines to train and prepare future global professionals for a wide range of international expertise. Courses available in Chinese language and culture, Business and Global Studies. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**Costa Rica**

**Costa Rica Summer Program (San Joaquin de Flores)**

This six-week summer immersion program offers a variety of courses in language and culture taught by the Instituto San Joaquin de Flores. The program combines two Spanish courses, cultural field trips, and weekend trips. Classes meet daily Monday through Friday. Students live with Costa Rican families. Upon the completion of the program, students earn the equivalent of up to 8 credit hours. The program is administered by the COLA Center for Study Abroad, and the faculty director is Lina Lee. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/costa-rica.

**SAFS 510 Agriculture and Development in the Neotropics**

This course is designed as a three-week immersion into tropical agriculture and Costa Rican ecology and culture. Agriculture plays a pivotal role in Costa Rica's history and in shaping current events. Production of horticultural and agronomic crops occurs on a variety of scales ranging from large export-based systems, to mid-sized operations for domestic sales, and sustenance-based home gardens. Examples of all systems will be visited and discussions will focus on their overall sustainability. Sustainability is a broad concept and requires consideration of socio-cultural, environmental, and economic factors. Agriculture and agricultural products infuse the culture as seen by large participation in farmers markets and appreciation for a wide variety of fruits and vegetables prepared in myriad ways. An appreciation for nature also infuses the culture and is embodied by the country's extensive system of national parks and protected reserves along with the national philosophy of "Pura Vida." At the same time, there exists a delicate balance between agricultural development and preservation of biodiversity. Through visits to Costa Rica's major bioregions, the course explores their major agricultural activities and how those activities interface with local ecological systems, cultures, and economies.

**Dominican Republic**

**Perspectives on the Business Environment in the Dominican Republic (MKTG 598 Topics in Marketing/MKTG 798 Topics)**

Offered in January term, MKTG 598 Topics in Marketing/MKTG 798 Topics, Perspectives on the Business Environment in the Dominican Republic, is a 4-credit course open to all UNH students. Students will participate in a 13-day visit to Santo Domingo in the Dominican Republic, one of the commercial hubs of the Caribbean. The course will include two pretrip classes held in the fall, in which the students will learn about the business culture of the country, as well as a brief introduction to its history and current demographics. The group will travel to Santo Domingo where four hours of each weekday (32 contact hours) will be devoted to meeting with business owners and managers from a variety of
industries who will discuss business practices. Upon return to Durham, a final three-hour class will be held in the spring semester to wrap up, assess the learning outcomes, and conclude the experience. Contact Audrey Ashton-Savage, the instructor for this course, at Audrey.Ashton-Savage@unh.edu.


This course examines issues of culture, poverty, social development, and social justice in the Dominican Republic through direct service learning work and preparatory and reflective class sessions and discussions. Students will have the opportunity to examine development issues that have plagued the island nation for years and current efforts to address these concerns. During spring break, students and a UNH faculty member embark on a service learning adventure to work in the bateyes of the Dominican Republic. Past projects have included the building of schools, clinics, community centers, and residential houses. Additionally, students will be working in local schools, orphanages, and child welfare centers. Afternoons and evenings will be spent learning about social services in the DR from community leaders and activists, participating in cross-cultural activities with community members, learning about Dominican life and history, and reflecting upon the days’ activities. Students will visit other local Haitian immigrant communities (bateyes), spend an evening in Santo Domingo, spend a night with a local family, and much more.

England

Cambridge Program

For six weeks each summer, students from across the United States have the opportunity to participate in the UNH Cambridge Summer Program held at Cambridge University in England. Program participants choose from courses in literature, writing, history, and humanities, taught by faculty from Cambridge University and UNH. Students live and study at Gonville and Caius College, one of the oldest colleges at Cambridge University, and travel on excursions throughout the UK. The program is open to students who have successfully completed at least one year of college. Participation fulfills UNH’s Discovery Program requirement in World Cultures. Select courses also satisfy Humanities and Historical Perspectives Discovery Program Requirements. The program is administered by the COLA Center for Study Abroad, and the faculty director is Dennis Britton. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/london (http://www.cola.unh.edu/london).

London Program

The London Program offers students the chance to spend either the fall or spring semester at Regent’s University in the heart of London, choosing from courses in British studies, the arts, humanities, social sciences, business, and a wide range of other basic subjects. Taught by British and American faculty members, many of the courses are specifically concerned with British studies or have a special British emphasis. The program allows students to spend a semester or year in London while still making normal progress toward their U.S. degrees. The program is administered by the COLA Center for Study Abroad, and the faculty director is Sue Hertz. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/london (http://www.cola.unh.edu/london).

France

Dijon Program

The Dijon Program offers students the chance to spend their junior year or a spring semester in Dijon, France. Students enroll directly in the Universite de Bourgogne (University of Burgundy), where they will take courses alongside French students, or at the CIEF (Centre International d’Etudes Francaises), which hosts students from around the world. Students generally live with French families in the heart of this historic city. Credit for all work completed successfully, up to 16 credits, will be automatically transferred to UNH. The program is open to those French majors who have completed:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 631 &amp; FREN 632</td>
<td>Advanced French Conversation and Composition I &amp; II</td>
</tr>
<tr>
<td>FREN 651</td>
<td>Readings in French Literature (or equivalent)</td>
</tr>
<tr>
<td>or FREN 652</td>
<td>Readings in French Literature</td>
</tr>
</tbody>
</table>

Total Credits 12

and to French minors who have completed:
The program is administered by the COLA Center for Study Abroad, and the faculty director is Nadine Bérenguier. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/dijon (http://www.cola.unh.edu/dijon).

**Dijon Summer Program**

The Dijon Summer Program provides the opportunity to spend four or eight weeks in Dijon, France, taking the equivalent of one or two of the following courses at the Centre International d’Études Francaises (CIEF):

- **FREN 631** Advanced French Conversation and Composition I (4 credits)
- **FREN 637** Advanced French Conversation and Composition II (4 credits)
- **FREN 651** Readings in French Literature (4 credits)
- **FREN 652** Readings in French Literature (4 credits)

After eight weeks, students will study the links between French literature, culture, and civilization courses at the CIEF at the Université de Bourgogne in Dijon, France. The program is administered by the COLA Center for Study Abroad, and the faculty director is Nadine Bérenguier. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/dijon (http://www.cola.unh.edu/dijon).

**EcoGastronomy International Experience, SPRING Semester in DIJON, FRANCE**

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. The table is set by the COLA Center for Study Abroad, and the faculty director is Nadine Bérenguier. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/dijon (http://www.cola.unh.edu/dijon).

**German-Speaking Countries**

Students may study for a semester or a full year through any approved American study abroad program or, in special cases, by applying directly to universities in Germany, Austria, or Switzerland. Many programs require a minimum grade-point average of 3.0 and a B average in the major. Programs vary greatly in academic focus, size, language of instruction, living arrangements, services, and extra-curricular programming provided, and cost. Study abroad goals and requirements should be discussed with a German adviser as early as freshman year.

Program and application materials may be obtained through the Center for International Education in Hood House. For credit in the German major or minor, the program must be conducted in German. After consultation with the major adviser and the study abroad adviser to establish possible UNH course equivalents and fulfillment of major and/or Discovery Program requirements, students submit a planning form indicating the planned course of study abroad. To ensure proper credit transfer, especially if seeking to transfer credits directly from a university abroad without benefit of an American program, students should keep syllabi, course descriptions, and all written work. Students planning study at a university in Germany, Austria, or Switzerland should note major differences in academic calendar (winter semester October-February, summer session April-July), which may be shortened by the American-sponsor university to accommodate U.S. academic calendars.

**Berlin Program**

The Berlin Program offers students the chance to spend five weeks in Berlin, Germany. Students earn 4 or 8 credits through GERM 586 Study in Berlin, designed to give students an immersion experience in the German language and culture. Students will receive eighty hours of intensive language instruction at the appropriate level (elementary, intermediate, or advanced) at the BSI Private Language School in central Berlin. No prior German language study is required. On designated weekday afternoons, students will gather for cultural excursions and discussions with the on-site UNH faculty member. Students enrolling for 4 credits can receive the UNH German Program language course equivalent of one semester of language study. Students enrolling for 8 credits will receive the UNH German Program language course equivalent of one semester of language study as well as engage in additional UNH faculty-guided cultural study, fulfilling GERM 525 Introduction to German Culture and Civilization (Discovery World Cultures) or other pre-approved courses. Students may fulfill the bachelor of arts language requirement by taking the equivalent of Intermediate German at the BSI Language School or by taking the equivalent of the first semester of Elementary German with the program and then independently continuing language instruction at the BSI for one month beyond the program study period, for a total of 8 weeks. Required pretravel meetings at UNH will prepare students for the Berlin experience. In line with UNH’s goals to educate students to become global citizens, this immersion experience will give students insight into what it means to experience a different culture and language. The program is administered by the COLA Center for Study Abroad, and the faculty director is Charles Vannette. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/berlin (http://www.cola.unh.edu/berlin).

**Intensive Language Courses through the Goethe Institut**

Students needing to advance rapidly in proficiency beginning at any level and at any time of year may enroll at a Goethe Institut center in Germany for courses ranging from eight to 16 weeks and receive UNH equivalent credit depending on level of exam passed upon completion of course. UNH’s faculty contact is Charles Vannette, (603) 862-0063, or the Center for International Education, (603) 862-2398, or study.abroad@unh.edu.

**German Internship**

Students who have completed GERM 504 Intermediate German II or equivalent may apply for a 4-8 credit internship placement in a German-speaking firm or organization. The internship does not alone fulfill the study abroad requirement for the major, but may count toward the minor and may be coupled with academic course work through UNH or any
study abroad program to fulfill the major study abroad requirement. The faculty contact person is Mary Rhiel, (603) 862-0063.

**Ghana**

**Ghana Program**

The Ghana Program is a spring semester program at the University of Ghana, one of West Africa’s most prestigious universities. With more than 30,000 students at its campus in Legon, a suburb of Accra, Ghana’s capital city, the University of Ghana offers students a broad range of exciting educational and cultural opportunities. Politically stable, safe, and with English as its official language, Ghana provides an excellent vantage point for experiencing sub-Saharan Africa and for a rich and deep study-abroad experience. All courses are taught by University of Ghana faculty in English, and courses are available in a very wide range of fields. The program is administered by the COLA Center for Study Abroad, and the faculty director is Burt Feintuch. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/ghana.

**Global Health in Ghana (N794)**

Offered during January term, N794, Special Topics: Global Health in Ghana, is a 2-credit course that provides for an immersive, active learning experience in the Ghanaian health care system focusing on the challenges of rural care in the context of a rapidly developing country. This short-term study abroad course aims to immerse students in the culture and health care system of Ghana, offering an experiential learning opportunity to meet the course objectives. Contact Gene Harkless, chair of Nursing, at gene.harkless@unh.edu.

**Global E3 Engineering Exchange Program**

Global E3 allows engineering students to enjoy a fulfilling study abroad experience at one of 31 international member institutions. Through participation in the program, Global E3 graduates gain the necessary foreign language ability, cross-cultural skills, and professional experience to excel in the multinational/multicultural business environment of the 21st century. Global E3 students pay tuition at their home institution, and enjoy the benefits of attending an overseas one. Students can study abroad for the fall semester, spring semester, or the entire school year. At some member universities, Global E3 students are able to take on a supplemental internship after their study abroad experience. Member institutions include some of the best universities in Argentina, Australia, Austria, China, Denmark, France, Germany, Indonesia, Italy, Japan, Malaysia, The Netherlands, Singapore, South Korea, Spain, Sweden, and United Kingdom. For more information, contact Caitlin Baldwin, Academic Counselor, caitlin.baldwin@unh.edu, Phone: 603-862-1783.

**Greece**

**UNH in GREECE SUMMER PROGRAM**

The UNH-in-Greece Program is open to any undergraduate at UNH who is interested in the long history of civilization in Greece, from the classical period to the present day. Athens is famous as the most important city-state in ancient times and as the site of some of the world’s most famous and influential architecture and art, but it is also the vibrant capital of modern Greece (The Hellenic Republic), and that combination of antiquity and modernity, as well as the city’s position between West and East, makes it an extraordinary location for on-site, experiential learning. Students earn a total of 10 credits from courses taught by both UNH and Hellenic American University faculty. The program is administered by the COLA Center for Study Abroad, and the faculty director is Stephen Trzaskoma. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/ghana.

**Grenada**

**Tropical Coastal Plant Ecology in Grenada, West Indies (MEFB 616 Tropical Coastal Plant Ecology)**

Offered during January term, this 4-credit course is for students with an interest and background in botany, coastal ecology and restoration, and conservation. Prerequisites include BIOL 411 Introductory Biology: Molecular and Cellular/BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology. This field-based course taught in Grenada, West Indies, will provide an introduction to the physical, chemical, and biological processes that form and sustain tropical coastal plant communities with an emphasis on mangroves and seagrasses. Plant adaptations to various environmental stresses will be examined over a range of habitats. As a dynamic ecosystem affected by both natural and anthropogenic disturbances from hurricanes to large-scale development, major environmental impacts and pressures will be examined first hand, and conservation and management actions will be discussed. A variety of on-going, community-based coastal habitat restoration and ecological monitoring sites will be visited throughout the island. Student participation in management actions will be encouraged through interaction with local students, volunteers, and representatives from governmental environmental agencies and several non-governmental organizations. Contact Gregg Moore in the Department of Biological Sciences at gregg.moore@unh.edu for more information.

**Hungary**

**Justice Studies Budapest Program**

The Justice Studies Budapest Program, offered in the fall, is designed to introduce students to a broader appreciation of the cross-cultural perspective in justice studies. Each fall, twelve UNH students spend the semester in residence at the Corvinus University of Budapest in Hungary. Hungary offers students an opportunity to witness first-hand the evolution of a criminal justice system within a context of significant cultural, political, economic, and social change with a member of the justice studies faculty. Situated along the Danube in one of central Europe’s oldest cities, Corvinus offers a unique educational experience to students interested in the study of criminology, law and society, and the administration of justice. Under the supervision of a UNH faculty member also in residence, students carry a four-course load, two of which are taught by the UNH faculty member. The program satisfies Humanities, Historical Perspectives, and World Cultures Discovery Program Requirements. All courses are taught in English.

Eligible students must hold sophomore standing, have completed either SOC 515 Introductory Criminology or POLT 507 Politics of Crime and Justice, and one other course in the justice studies curriculum. Participating students will meet several times during the spring semester prior to the study abroad semester to prepare for the program. The program is administered by the COLA Center for Study Abroad, and the faculty director is Sue Siggelakis. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/budapest-justice (http://www.cola.unh.edu/budapest-justice).

**Humanities Spring Budapest Program**

The Humanities Budapest Program, offered in the spring, is available to any undergraduate at UNH interested in living and studying in the historically rich city of Budapest. The program is designed to provide
undergraduates with an intensive study abroad experience focusing on the humanities, and modern Hungarian and Central European history and culture. Students will earn 16 credits in courses taught by Hungarian and University of New Hampshire faculty, and through field trips to cultural sites in and around Budapest as well as other Central European cities. The program satisfies Humanities, Historical Perspectives, Fine and Performing Arts, and World Cultures Discovery Program Requirements.

Students will be introduced to Hungary's rich history and culture and to some of the most significant developments of the 20th and early 21st centuries, including the rise and fall of Soviet domination of Central Europe, revolution and democratizing in Hungary, and the significance of Hungary's membership in the European Union. All courses are taught in English. The program is administered by the COLA Center and the faculty director is Stephen Trzaskoma. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/budapest-humanities (http://www.cola.unh.edu/budapest-humanities).

PAUL in Budapest

The Peter T. Paul College of Business and Economics (PAUL) has partnered with the Corvinus University of Budapest to offer students a unique opportunity to live and study in Budapest. This partnership allows PAUL students to take courses at Corvinus in the fall semester that directly transfer into the core of the business administration or economics degrees and into most business options. This ensures that students can study abroad and graduate on time. Moreover, Budapest is developing into a commercial and financial center for many U.S. companies; its importance for the U.S. economy is growing rapidly.

Students travel to Budapest in the third week of August. A PAUL faculty member meets students in Budapest and sets them up in apartments in the city that are close to the University. The school works to make the transition to life in a foreign culture as simple and easy as possible. Additionally, the program offers three major excursions to differing parts of Hungary and to Krakow, Poland, and the Auschwitz concentration camps. For more information about this program, please contact Professor Bruce Elmslie at bruce.elmslie@unh.edu.

Ireland

ANSC 510 Integration of Culture and Agriculture in Ireland: Past, Present, and Future

What was the worst natural disaster in 19th century Europe? What characterizes Ireland's agriculture in the 21st century? In this interdisciplinary course, students examine the cultural, historical, political, economic, and religious influences on Ireland’s agriculture. The crowning experience of the course, a 10-day study abroad in late May, provides students with a window to the world as they experience the culture, agriculture, and topography of Ireland. Students will immerse themselves in local Irish history and culture as they tour working agricultural farms and significant landmarks. For more information, contact Patty Bedker at patty.bedker@unh.edu.

Study Abroad in Athletic Training

This UNH study abroad program is open to athletic training majors who are interested in expanding and enhancing their athletic training education while also gaining an appreciation of a different culture. Students will be taking courses in the bachelor of science (honours) in sports rehabilitation and athletic therapy program at the Institute of Technology at Carlow. The increased emphasis on manual therapy application and skill by therapists in Ireland will provide the visiting UNH student with a unique opportunity to develop abilities far-beyond what they may learn in the U.S. Students may earn up to 16 credits applicable to their UNH graduation requirements. Students pay their normal UNH tuition (in-state or out-of-state as appropriate) as the tuition to study in Ireland.

The Institute of Technology at Carlow has a student body of approximately 4,000 and an academic staff of 200. The mission of the Institute is to combine a stress-free location with top-level instructors and facilities that are a leading edge in a number of key disciplines both nationally and internationally. The Institute is just five-minutes' walk from the center of town. Located on the banks of the River Barrow, Carlow town is a bustling market center serving a large rural area. Multiple trains and buses travel between Carlow and Dublin daily.

Interested students should contact Daniel Sedory, Dan.Sedory@unh.edu, (603) 862-1831.

Study Abroad: Comparative Social Welfare Systems,
SW 785 Study Abroad: Comparative Social Welfare Systems/SW 885 Study Abroad

Students studying abroad on SW 785 Study Abroad: Comparative Social Welfare Systems/SW 885 Study Abroad, examine the historical development of social welfare in another country, including an analysis of the underlying values and attitudes that direct practice and policy decisions. This 4-credit class includes agency site visits, lectures, themed readings, and visits to important cultural sites. Prerequisites are SW 424 Introduction to Social Work and SW 525 Social Welfare Policy: History of Social and Economic Justice. Previous programs have visited Ireland, England, Scotland, and Latvia.

Italy

UNH-in-Italy Program

Semester & Summer Programs. In partnership with the UNH Department of Agriculture, Nutrition & Food Systems, the UNH-in-Italy Program offers students the opportunity to experience living abroad in the medieval city of Ascoli Piceno, for either a four-course, 13-week semester or a two-course, 5-week summer session. The curriculum focuses on the links between food culture, sustainably-focused agriculture, and the policies and issues impacting the food system. Experiential activities, field trips, and group excursions encourage students to immerse themselves in the unique educational opportunity. Students live in apartments in the historic center of the city and take UNH courses taught in English. The program is open to all UNH students and fulfills the International Experience requirement of the EcoGastronomy Dual major. For more information, please contact Jesse Stabile Morrell at jesse.morrell@unh.edu.

EcoGastronomy International Experience, FALL Semester in ASCOLI PICENO, ITALY

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. The table is set fall semester in Ascoli Piceno, Italy, where students will study the links between food cultures, sustainably-focused agriculture, and the policies and issues impacting the food system. EcoGastronomy study abroad programs are open to all UNH students.

Rome J-Term Program

The Rome Program provides the opportunity to take a January term course in Rome, Italy. Students earn 4 credits through CLAS 510 Building Rome. Experience the history, architecture, and art history of the ancient Romans the way they did—in Rome itself! Six days of study in the eternal
city followed by two days in Pompeii and other sites will give students a sense of the majesty and miracle that was the ancient Roman Empire. A five-day online component prepares students for the on-site portion so that they will be ready to soak in the monuments of the past. This course fulfills the Discovery category for Fine and Performing Arts. The program is administered by the COLA Center for Study Abroad, and the faculty director is Scott Smith. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/rome (http://www.cola.unh.edu/rome).

Japan
Saitama University Exchange Program
Accelerated Japanese language learning on Saitama University’s park-like campus, just outside Tokyo. With its moderate size (9,000 students), generous scholarship opportunities, dynamic student life and recreation facilities, Saitama is an ideal fit for UNH students interested in Japanese language and culture. The university also has a wide variety of courses taught in English, which draws students from around the world. Saitama is known as the “Oasis of Tokyo”—a historic city whose forests were planted centuries ago by peace-loving Samurais who nurtured the land instead of living by the sword. Saitama is the famous backdrop for Japanese animated films. Located in the Okubo neighborhood of Saitama City, the university’s tree-lined campus is an enjoyable place to study. From campus, you can view the skyscrapers of Saitama’s city center, the majestic peak of Mt. Fuji and the Chichibu Mountains, and you can easily take the train to Tokyo to enjoy the amazing cultural offerings of this world-class city, less than an hour away. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Waseda University Exchange Program
Study abroad at one of Japan’s “Ivy League” universities while paying UNH tuition. Spend a semester or academic year studying in central Tokyo, with over 50,000 students, including 5,000 international students from more than 100 countries. UNH students can enroll in a wide range of courses in English in the liberal arts, business, social sciences, political science and economics, and of course, Japanese language and culture. Waseda has a unique volunteer center, which combines lectures with hands-on activities in the field. They offer a wide range of projects in which students take a leading role. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Nepal
Special Topics: Global Health in Nepal (N794)
Independent Study: Global Health in Nepal (N894)
This 2-credit course provides for an immersive, active learning experience in the Nepali health care system. The course will examine the health status of individuals, families, and communities through the lens of culture and the social determinants of health, in addition to the Western medical model. The course objectives include: understanding the major causes of morbidity and mortality in Nepal; critically examining the health care system in Nepal for its strengths and weaknesses in addressing the major causes of morbidity and mortality; analyzing the influence that culture and the social determinants of health have on the health status of individuals, families, and communities in Nepal; interacting with health care workers in Nepal to understand their clinical challenges and successes. This short-term study away course aims to immerse students in the culture and health care system of Nepal, offering an experiential learning opportunity to meet the course objectives.

The Netherlands
Utrecht University Exchange Program
The Center for International Education and Global Engagement administers an exchange program with Utrecht University, open to undergraduate and graduate students in all fields. Utrecht University is one of the top research universities in Europe, with the largest undergraduate population and the largest research budget in the Netherlands. The size, status, and international population of the university ensure that courses in all areas of study are offered in English; these include the humanities, social and behavioral studies, law, economics, governance, and geosciences. Contact the Center for International Education and Global Engagement, (603) 862-2398, e-mail international.exchange@unh.edu, or visit http://www.unh.edu/global/outgoing-international-exchange-students.

University College Utrecht Exchange Program
An honors exchange is available at the University College Utrecht (UCU), which is an international Liberal Arts and Sciences Honors College of Utrecht University. UCU's mission is to offer ambitious students an academic environment aimed at transforming their broad academic and social interests and their international orientation into academic excellence, intellectual independence, and world citizenship. Students have access to all academic, social, and recreational facilities that Utrecht University has to offer.

UCU specializes in undergraduate education. Students choose from courses in humanities, science, and social sciences, and they are educated in the spirit of liberal arts. Among the special characteristics are the college's small classes and individual attention.

Located in an especially lovely section of central Holland, Utrecht is the fourth largest city in the Netherlands. It has a classically old-Dutch city center with 17th century buildings, a medieval church, several high-quality museums, and terraced canals that encircle the old city. A university town since the medieval period, Utrecht has long enjoyed a vibrant student culture. Utrecht is easily navigable by foot, bicycle, and bus; the center of the Dutch rail system, it enjoys easy access to other cities in the Netherlands and Europe (Amsterdam is 35 minutes away; Paris three hours; London a day trip by plane). Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

New Zealand
UNH-EcoQuest, New Zealand
In partnership with the UNH Department of Natural Resources and the Environment, the EcoQuest Education Foundation offers an intensive program of applied field studies in ecology, resource management, and environmental policy. New Zealand offers an ideal context for multidisciplinary, field-oriented studies, with its rich cultural traditions, diverse ecosystems, expansive natural areas, and history of innovative approaches to resource management. EcoQuest students engage hands-on in New Zealand's restoration ecology and sustainable resource management initiatives. Semester participants have the opportunity to carry out directed research projects while working closely with a faculty mentor and in association with New Zealand research partners. The rural seaside campus is located about an hour’s drive southeast of Auckland.
Students travel throughout New Zealand’s North and South Islands to learn more about the unique ecosystems and local culture.

Students may choose either a four-course, 15-week fall or spring term for 16 credit hours, or a two-course, five-week summer session for eight credit hours. The UNH-EcoQuest Academic Program Coordinator is Kimberly Babbitt. Contact Donna Dowal, EcoQuest Director of Admissions, at (603) 862-2036 or ecoquest@unh.edu for more information.

**Portugal**

**Classical Dressage Experience in Portugal (ANSC 520 Classical Dressage Experience in Portugal)**

A faculty-led short-term program, students take ANSC 520 Classical Dressage Experience in Portugal, a 2-credit class with a weekly seminar preparing students for one week in Portugal where they receive classical dressage training at L’Escola de Equitacao de Alcainca during spring break or at the end of spring semester after exams. For more information go to http://www.equine.unh.edu/ANSC520.

**Russia**

**Russia Program**

This is a four-week summer program in Russian language, culture, mythology, and propaganda in Moscow, St. Petersburg, and on the Trans-Siberian Railway. Studying in the current and former capitals of Russia and the largest city in Europe gives students a profound image of the country, its language, and culture, as well as an overview of recent and ancient history. It is an opportunity for an intensive dose of authentic Russian culture. Prior to departure, students will work on Blackboard with readings and films. In Moscow and St. Petersburg, there will be field trip classes and special lectures. Upon return, students will complete their work on Blackboard and on a project. Students will earn 2 credits through RUSS 425 Introduction to Russia: Contemporary Society and Culture (Discovery World Cultures) and RUSS 525 Russia: Mythology and Propaganda (Discovery Historical Perspectives). The program is administered by the COLA Center for Study Abroad, and the faculty director is Arna Bronstein. For more information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/russia (http://www.cola.unh.edu/russia).

**Scotland**

**Heriot-Watt University Exchange Program**

College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. Heriot-Watt is one of the UK’s leading universities for business and industry and has a reputation for innovative education, enterprise, and leading-edge research in science, business, engineering, and design. Often referred to as Scotland’s international University, a third of on-campus students in Scotland come from outside the UK, there are campuses in Dubai and Malaysia, and 50 international academic learning partners in 30 countries. The current program is designed for civil and environmental engineering majors. Contact the Center for International Education and Global Engagement, (603) 862-2398, e-mail international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**South Korea**

**Pusan National University Hong Kong Exchange Program**

Study abroad in Busan, South Korea’s beautiful second city, known for its beaches, mountains, and temples. Pusan National University is one of Korea’s leading research universities and provides a full curriculum of 600 courses offered in English for UNH students of most majors. Pusan is particularly well known for business, STEM fields, and global studies, as well as its campus life and extra-curricular opportunities. Summer study is available. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**Spain**

**Granada Program**

The Granada Program is a spring semester program in Granada, Spain. The program is designed for those who have completed SPAN 631 Advanced Conversation and Composition I or its equivalent and have a B average in Spanish, but may be open to intermediate-level students by petition. Many of the courses taught by professors from the University of Granada fulfill requirements for the Spanish major and minor and UNH Discovery Program requirements. Students generally live with host families and take courses at the Centro de Lenguas Modernas at the Universidad de Granada. The program is administered by the COLA Center for Study Abroad, and the faculty director is Lina Lee. For further information, contact cola.studyabroad@unh.edu, (603) 862-3962, 116 Murkland Hall, or visit cola.unh.edu/granada (http://www.cola.unh.edu/granada).

**Universidad Carlos III de Madrid Exchange Program**

Study abroad in Madrid, Spain’s historic and artistic capital that never sleeps. Universidad Carlos III de Madrid, named after a former king of Spain, offers a dynamic campus of 18,000 students and the largest offering of courses taught in English in Spain. Courses are available in the areas of engineering, business (AACSB accreditation in process), finance, accounting, economics, and political science. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

**U.S. Territories (Puerto Rico, U.S. Virgin Islands, and Guam)**

**NATIONAL STUDENT EXCHANGE**

Students may spend one or two semesters at one of 12 campuses in the U.S. Territories of Puerto Rico, U.S. Virgin Islands, and Guam through the National Student Exchange (NSE) program. Participants maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. The exchange is open to students from all UNH majors. Participants must provide proof of proficiency in Spanish for all campuses in Puerto Rico. For more information contact, Paula DiNardo, National Student Exchange Office, 106 Hood House, (603) 862-3485, or visit www.unh.edu/nse (http://www.unh.edu/nse).
Cruise Ship Management (HMGT 698 Topics)

Offered in January term, this 4-credit course explores through text and on-board experience key areas of cruise ship management: food and beverage, HR, finance, yield management, front office, housekeeping, safety, security, sanitation, and interoperating. Students will participate in a 12-14 day cruise that sails round trip from New York City, after brief class time in Durham during the fall semester. HMGT 698 Topics counts as an elective for majors and minors in hospitality management or any UNH student in proper standing. Students need to commit by the end of September with a deposit to satisfy Cruise Line requirements. For more information, contact Carl E. Lindblade, affiliate professor, Department of Hospitality Management at Carl.Lindblade@unh.edu.

Wales

Cardiff University Exchange Program

Study abroad at one of the UK’s “Ivy League” universities while paying UNH tuition. Founded in 1883, Cardiff University is recognized as one of the leading research and teaching universities in the UK and a member of the Russell Group, the UK’s “Ivy League” of world-class universities. Spend a semester or academic year studying at Cardiff and benefit from learning with professors who are pioneers in their fields. Over 27,000 students have been drawn to Cardiff University, coming from Wales, the rest of the UK and more than 100 countries. UNH students can enroll in a wide range of courses and are guaranteed housing in student halls of residence, living among British and other international students. The University boasts over one hundred clubs, sporting teams, and societies. Cardiff University is located in the center of the capital of Wales, an exciting and diverse city and the heart of Welsh history, culture, street life, and politics. There is something for everyone in the Welsh capital, with the excitement of the small city campus located just minutes from the beautiful coastlines, hills, walking trails, and green countryside for which Wales is famous. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

http://www.unh.edu/cie

Study Away U.S.A.

National Student Exchange Program

The University offers many opportunities for exchange study with other institutions within the U.S. The National Student Exchange (NSE) program provides an educational experience in a different environment, within North America. It is hoped that students will develop new ways of viewing the country and expand their knowledge of our complex society.

Through the National Student Exchange, UNH students can study at one of more than 160 colleges and universities throughout the United States, U.S. territories (Guam, Puerto Rico, and U.S. Virgin Islands), and Canada. Several historically black colleges and universities are exchange members, and several are members of the Hispanic Association of Colleges and Universities. For a full list of participating campuses, visit www.nse.org (http://www.nse.org). In addition, a one-semester or full-year exchange program is available with the University of California, Santa Cruz.

To qualify for exchange study, students must be full-time undergraduate degree candidates in good standing, with a declared major, at least a 2.5 grade-point average, have earned at least 32 credits (16 of which must be from UNH at the baccalaureate level), have declared a major, receive permission from their college dean and academic adviser, and receive permission from the UNH NSE coordinator.

Students in exchange programs are expected to return to UNH to complete their studies. Participation in an exchange program does not disrupt the continuity of a student’s educational process. Exchange program participants continue to maintain their status as UNH students, even while temporarily located at another university. Students do not have to withdraw from UNH and later be readmitted. Maintaining UNH student status also facilitates reentry into classes, on-campus housing, and many other dimensions of University life.

Interested students should contact the Study Away USA office in Hood House, (603) 862-3485, National.Student.Exchange@unh.edu (national.student.exchange@unh.edu), or visit www.unh.edu/nse. (http://www.unh.edu/nse)

New Hampshire Consortium (NHCUC) Student Exchange Program

Under the Student Exchange Program of the New Hampshire College and University Council (NHCUC), UNH students may be eligible to enroll for one course per semester, one semester of courses, or a full year of coursework at a member school on a space-available basis. The NHCUC exchange allows matriculated undergraduates to use educational resources that are not available at the home campus and are considered appropriate for their degree programs. This exchange will be used only when academic reasons or other special circumstances warrant it. Approval of the UNH academic adviser and college dean is required, and students must meet all UNH Study Away eligibility standards. Schools in the NHCUC consortium include Colby-Sawyer College, Franklin Pierce University, New England College, New Hampshire Institute of Art, Southern New Hampshire University, Rivier College, Saint Anselm College, UNH Durham, UNH Manchester, Keene State College, and Plymouth State University. Students will remain as degree candidates and continue to pay normal UNH tuition and fees, but must make their own room and board arrangements if they plan to spend a full semester at another consortium school. For more information and application forms, students should contact the Study Away USA office, Hood House, (603) 862-3485.

New England Land-Grant Exchange Program

In order to provide students at the New England land-grant universities with expanded access to unique programs and faculty expertise, the institutions have agreed to encourage student exchanges of one, but not more than two, semesters. To qualify, students must identify a course or combination of courses related to their area of academic interest and not available on their home campus, be degree candidates in good standing with at least a 2.5 grade-point average, be at least first-year students, and receive permission from the appropriate university exchange authorities at both the home and host institutions. Interested students should contact the Study Away USA office, Hood House, (603) 862-3485.

Semester in the City

Through a joint partnership between the Carsey School of Public Policy and the Center for Social Innovation and Enterprise, UNH offers eligible undergraduate students the opportunity to spend a semester in Boston in a rigorous 30+ hour per week internship with a leading social
change organization (nonprofit, business, or public sector). Students are matched with internships in community development, social justice, health, education, environment, and other areas dedicated to the public good. This 16-credit study away program includes an intensive evening course that examines the theory and practice of various social change approaches, and a series of Friday seminars and reflective workshops, thereby equipping a new generation of leaders who understand both direct and systemic approaches to social and environmental change. Participants pay their UNH tuition, and pay housing costs to the host organization if they utilize their housing.

In order to apply, students must meet all UNH Study Away Eligibility Requirements including but not limited to being full-time undergraduate degree candidates in good standing with at least a 2.5 grade-point average. Interested students should contact the Study Away USA office, Hood House, (603) 862-3485, or visit www.unh.edu/semesterinthecity. (http://www.unh.edu/social-innovation/semesterinthecity)

The Washington Center for Internships & Academic Seminars

Since 1976, UNH has affiliated with The Washington Center (TWC), to offer a rigorous full-time internship and academic opportunity in Washington, D.C. Students enroll in 16-credits in fall or spring semester, or 12-credits in summer. Students intern four days per week, enroll in one upper-level evening course and attend a full day professional development seminar on Friday. There are countless internship and networking opportunities for all majors, including in the law, government, media, public policy, international affairs, the environment, health care, law enforcement, and much more. Participants pay their UNH tuition, and pay housing costs to the host organization if they utilize their housing.

In order to apply, students must meet all UNH Study Away Eligibility Requirements including but not limited to being full-time undergraduate degree candidates in good standing with at least a 2.5 grade-point average (above 2.75 is strongly preferred). Interested students should contact the Study Away USA office, Hood House, (603) 862-3485, or visit www.unh.edu/semesterinthecity. (http://www.unh.edu/social-innovation/semesterinthecity)

Sustainability

The field of sustainability explores the ways in which we maximize both environmental and social well-being while solving complex challenges. Solving real-life problems require the skills and perspectives of people from multiple disciplines and backgrounds. A sustainability dual major provides the skills and knowledge needed to understand these systems, identify relevant environmental and social issues, and become agents of change in a complex world.

Students from any UNH college or major can pair the sustainability dual major with the first major. From local to global, you'll learn to analyze, evaluate, critique, and create new ideas and models around sustainability. As a cross-disciplinary field of study and practice, you'll make connections across issues of science and ethics, policy and technology, and culture and history to better understand and take action on pressing issues of our time.

You will learn to:

- Describe and recognize the ecological and social foundations of sustainability
- Examine specific grand challenges of sustainability, such as climate change, agriculture, and energy
- Analyze sustainability case studies at local, regional, and global scales
- Engage with the challenges of sustainability at the UNH campus and surrounding region
- Work in interdisciplinary teams
- Apply a systems perspective towards analyzing sustainability problems
- Explore the role of values and ethics in sustainability
- Learn how to work with partners in defining problems, producing and analyzing data, and developing solutions
- Complete a capstone project in sustainability
- Hone leadership skills and prepare for a career in the expanding sustainability field

http://sustainableunh.unh.edu

Programs

- Sustainability Dual Major (p. 293)

Faculty

https://sustainableunh.unh.edu/sdm

Sustainability Dual Major

Description

https://sustainableunh.unh.edu/sdm

Students from any UNH college or major can pair the sustainability dual major with the first major. From local to global, you'll learn to analyze, evaluate, critique, and create new ideas and models around sustainability. As a cross-disciplinary field of study and practice, you'll make connections across issues of science and ethics, policy and technology, and culture and history to better understand and take action on pressing issues of our time.

Requirements

Requirements

SUST consists of 32 credits, including core and elective courses, and a capstone experience.

Complete the following SUST courses (in order):

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUST 401</td>
<td>Surveying Sustainability</td>
<td>4</td>
</tr>
<tr>
<td>SUST 501</td>
<td>Sustainability Perspectives and Methods</td>
<td>4</td>
</tr>
<tr>
<td>SUST 750</td>
<td>Sustainability Capstone</td>
<td>4</td>
</tr>
<tr>
<td>Select 20 credits of elective courses 1</td>
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<td>20</td>
</tr>
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</table>

Total Credits 32

1 All SUST majors will take at least one (1) elective course from the natural & biological sciences list and at least one (1) elective course from the social science and humanities list.
## Approved Electives

### Natural Biological Systems

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
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<td>BIOL 541</td>
<td>General Ecology</td>
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<tr>
<td>CEE 706</td>
<td>Environmental Life Cycle Assessment</td>
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<td>CEE 719</td>
<td>Green Building Design</td>
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<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
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<tr>
<td>ESCI 405</td>
<td>Global Environmental Change</td>
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<tr>
<td>GEOG 572</td>
<td>Geography of the Natural Environment</td>
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<tr>
<td>MEFB 515</td>
<td>Marine Environmental Science and Conservation</td>
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<tr>
<td>MEFB 702</td>
<td>Sustainable Marine Fisheries</td>
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<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<tr>
<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
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</tr>
<tr>
<td>NR 507</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
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</tr>
<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>4</td>
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<tr>
<td>NR 703</td>
<td>Watershed Water Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
<td>4</td>
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<tr>
<td>NUTR 595</td>
<td>Mediterranean Diet and Culture</td>
<td>4</td>
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<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td>4</td>
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<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 410</td>
<td>A Taste of the Tropics</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 510</td>
<td>Agriculture and Development in the Neotropics</td>
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### Social Systems & Humanities

<table>
<thead>
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<th>Course</th>
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<th>Credits</th>
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<tr>
<td>ADMN 444</td>
<td>Business for People, Planet, and Profits</td>
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<td>ANTH 695</td>
<td>Globalization and Global Population Health</td>
<td>4</td>
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<tr>
<td>CLAS 540A</td>
<td>Environment, Technology and Ancient Society: Sustaining Ancient Rome Ecology and Empire</td>
<td>4</td>
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<tr>
<td>ECON 706</td>
<td>Economics of Climate Change</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 521</td>
<td>Nature Writers</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 747</td>
<td>Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar</td>
<td>4</td>
</tr>
<tr>
<td>EREC 444</td>
<td>The New Pirates of the Caribbean</td>
<td>4</td>
</tr>
<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 650</td>
<td>Field Methods in Geography</td>
<td>4</td>
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<tr>
<td>GEOG 673</td>
<td>Political Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values</td>
<td>4</td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living - Global Perspectives</td>
<td>4</td>
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<tr>
<td>NR 787</td>
<td>Advanced Topics in Sustainable Energy</td>
<td>4</td>
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<tr>
<td>PHIL 450</td>
<td>Environmental Ethics</td>
<td>4</td>
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<tr>
<td>POLT 444</td>
<td>Politics and Policy in a Warming World</td>
<td>4</td>
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<tr>
<td>POLT 547</td>
<td>Race and Justice in the Americas: Insights from Film, Literature, and Politics</td>
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<tr>
<td>POLT 548</td>
<td>Drug Wars</td>
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<td>POLT 567</td>
<td>Politics of Global Resources</td>
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<td>POLT 750</td>
<td>Politics of Poverty</td>
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<td>POLT 751</td>
<td>Comparative Environmental Politics and Policy</td>
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<tr>
<td>POLT 780</td>
<td>International Environmental Politics, Policy, and Law</td>
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</table>
Thompson School of Applied Science

Regina A. Smick-Attisano, Executive Director

The Thompson School of Applied Science (TSAS), established in 1895, is an academic unit of the College of Life Sciences and Agriculture (COLSA) offering the associate in applied science degree in seven program areas. Curricula comprise a balance of professional, science-related, and general education courses that prepare students to meet the specific demands of a technical or applied profession, continuing education, and the general demands of life.

Imagine a classroom where you will learn—where you will work. The Thompson School of Applied Science offers dedicated professional faculty who deliver a career-relevant education for students who want an associate degree; students who value a college education combining hands-on experiences and academic knowledge in a small learning environment within the campus of the University of New Hampshire.

Thompson School faculty and staff are committed to educate, train, and retain students to be entrepreneurs, to be solid in their knowledge, to be competent in acquired skills and to be aware of the communities they impact. This is accomplished through the development of mentorships with faculty and advisors, business and industry partnerships, unique programs of study with relevant facilities, and excellent job placement.

Thompson School of Applied Science Overview

Faculty members at the Thompson School have significant work experience in industry and business; extensive and up-to-date knowledge of their specialties; ongoing contacts with practicing professionals; dedication to students and to excellence in teaching; and a commitment to practical, science-based education. They work closely with students, providing academic advising, career counseling, and special assistance, even outside the classroom, when needed.

Located at the western entrance to campus, the Thompson School's classrooms, laboratories, and working enterprises are designed for career-related experiences.

Barton Hall contains a brand new veterinary technology clinic and surgical suite (open to qualifying low-income pet owners), a food preparation lab, an animal grooming facility; several classrooms (two of which are high-tech learning labs), faculty offices, and a student lounge.

Cole Hall includes a 150-seat lecture auditorium, a commercial kitchen and restaurant, a student study and lounge area, a computer laboratory (which serves as a GIS lab), classrooms, and administrative offices.

Putnam Hall houses two multipurpose geospatial computer labs used for courses in geographic information systems (GIS), computer-aided design (CAD), and building information modeling (BIM); a surveying and mapping lab; an agricultural mechanization shop (welding, engines, and building science); a forestry lab and multiuse classrooms; staff and faculty offices.

More detailed information on our various program areas and concentrations follow.

- Whether the concentration is animal agriculture, equine management, or companion animal science, students in Applied Animal Science utilize professional facilities both on and off campus. On-campus facilities include the Thomas P. Fairchild Dairy Teaching and Research Center (https://colsa.unh.edu/nhaes/fairchild), UNH's Organic Dairy Research Farm (https://colsa.unh.edu/nhaes/odrf), UNH's equine facilities (https://colsa.unh.edu/dbs/equine/facilities), the Thompson School Grooming Shop (https://colsa.unh.edu/tsas/grooming-shop). Our companion animal science program partners with the New Hampshire SPCA (http://www.nhspca.org) (Stratham, N.H.), Cochecho Valley Humane Society (http://www.cvhsonline.org) (Dover, N.H.), and Pope Memorial SPCA (http://www.popememorialspca.org) (Concord, NH). The Thompson School also maintains a small flock of layers, containing mostly heritage breeds of chickens, on campus, cared for by the students.

- Civil Technology students have a variety of experiential classroom experiences available to them, including materials testing, residential wiring, field surveying, high-precision and mapping-grade GPS, laser scanning, welding, and many others. Unique to civil technology are two exclusive state-of-the-art computer labs. These labs feature the most up-to-date software for computer aided design (CAD), geographic information systems (GIS), building information modeling, 3D architectural design (BIM/Revit), project management, civil design, surveying and mapping, and point-cloud modeling.

- Culinary Arts and Nutrition Students engage in a carefully designed curriculum combining theory with more than 700 hours of practical application of culinary techniques in modern production kitchens located on UNH's campus. Students also are required to complete a summer work experience of a minimum of 400 hours at a pre-approved establishment between their first and second years of study. The program is accredited by the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC) (https://www.acfchefs.org/ACF/Education/Accreditation/ACF/Education/Accreditation).

- Forest Technology students integrate all aspects of forest management as they complete projects on more than 3,000 acres of University land (http://colsa.unh.edu/woodlands). Using the school's sawmill and harvesting equipment, they contribute to the sustainable management of UNH lands. In the classroom and the forest, they develop skills and techniques critical to the future ecological and economic health and management of the natural resources of the state and region. Students are expected to enhance class work with an extensive work experience requirement. The educational program in Forest Technology leading to the Associate in Applied Science degree is accredited by the Society of American Foresters (http://www.eforester.org) (SAF). The Thompson School’s Forest Technology program was the first two-year program in the U.S. to complete the accreditation process.

- Horticultural Technology students have the use of the Thompson School horticultural facilities (https://colsa.unh.edu/tsas/hort/facilities) (glass- and poly-covered greenhouses used for propagation and cultivation of a wide selection of ornamental plant material), refrigerated compartments, display gardens (public and private), and the campus arboretum as well as a wide variety of landscaping tools and equipment. Students design, install, and maintain landscaping components on the grounds of the University and with local organizations and homeowners in surrounding communities.

- Students customize their own agricultural course of study in the Integrated Agriculture Management program. Possibilities for study include: sustainable agriculture, organic production, local foods, farmers markets, slow food, community-supported agriculture, business, and nutrition, as well as soil, water, and forest conservation. As a cross-curricular program, integrated agriculture management shares extensive facilities with several UNH programs. These include greenhouse and hoop-house complexes, pasture and crop lands,
multiple-use demonstration forest lands, "forever wild" College Woods, two dairies (one organic), equine and small animal facilities, a large-scale composting operation, computer labs for GIS and CAD, the campus landscape plant collections, and horticultural research farms for fruit, vegetables, and ornamentals. Most of these facilities are on campus or within walking or campus shuttle distance.

- **Veterinary Technology** students have the unique opportunity to work with both small and large animals at UNH and have access to professional facilities both on and off campus. On-campus facilities include the Thompson School PAWS Veterinary Clinic, Thomas P. Fairchild Dairy Teaching and Research Center (https://colsa.unh.edu/nhaes/fairchild), UNH’s Organic Dairy Research Farm (https://colsa.unh.edu/nhaes/odrf), UNH’s equine facilities (https://colsa.unh.edu/dbs/equine/facilities), the Thompson School Grooming Shop (https://colsa.unh.edu/tsas/grooming-shop). Students also work with the Thompson School’s small flock of mostly heritage breeds of chickens (layers). The program also partners with the New Hampshire SPCA (http://www.nhspca.org) (Stratham, N.H.), Cochecho Valley Humane Society (http://www.cvhsonline.org) (Dover, N.H.), and Pope Memorial SPCA (http://www.popememorialspca.org) (Concord, NH). The program is accredited by the American Veterinary Medical Association (https://www.avma.org/Pages/home.aspx) (AVMA). Students who graduate from an accredited program are eligible to take the Veterinary Technician National Exam (VTNE) to become a credentialed veterinary technician.

### Associate in Applied Science

To graduate with an associate in applied science degree, a student must complete specified coursework in general education, technical concentration, and general electives (see the following section), with an overall grade-point average of no less than 2.0. In addition, students must earn a minimum of 64 credits (more than 64 credits may be required depending on the program of study).

### General Education

In addition to curriculum-specific coursework, the associate in applied science degree includes a general education component designed to educate and to enlighten students about the world around them. General education courses develop each student's ability to think and communicate effectively; to better understand the many social, cultural, and environmental issues and challenges of the world; to become problem solvers; and to make positive contributions to society. This is achieved through a combination of coursework in the sciences, including mathematics, arts and humanities, and the social sciences. A minimum of 20 credits are dedicated to this component of the degree.

In this area, a student must complete:

- courses in the sciences, including mathematics (minimum of three credit hours) and technology;
- courses in arts and humanities, to include COM 209 Expository Writing and Reading;
- courses in the social sciences, to include either SSCI 201 Human Relations or SSCI 202 Social Issues.

The remaining nine credits (at least two additional courses) of the minimum 20 needed to fulfill the general education component of the associate in applied science degree must be taken from two of the three named areas. A maximum of eight credits may be double counted as a required course within the student’s program area.

### Specific Requirements for General Education for the Associate of Applied Science Degree at the Thompson School

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities, including communication</td>
<td>COM 209</td>
<td>Expository Writing and Reading</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>SSCI 201</td>
<td>Human Relations</td>
<td>4</td>
</tr>
<tr>
<td>or SSCI 202</td>
<td>Social Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science, including math and technology</td>
<td>MTH 202</td>
<td>College Algebra</td>
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<tr>
<td>or MTH 203</td>
<td>Algebra and Trigonometry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional 9 credits taken from two of the three named areas above</td>
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<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td></td>
<td><strong>20</strong></td>
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### Technical Concentration

These are courses designed to develop the necessary scientific knowledge, technical skills, and practical experience required for employment in a professional discipline. Each student must complete all technical courses specified in the selected program of study.

See the following Programs of Study (p. 298) sections for course requirements and descriptions.

### General Electives

This component of the degree program allows the individual to pursue courses of personal or professional interest. In this area, a student may choose a number of courses in each program of study specified as electives. These may be chosen from courses offered by the Thompson School or from other selected University undergraduate courses with advisor and administrative approval. Not all Thompson School programs have room for general electives.

### Full-Time and Part-Time Programs

The associate in applied science degree at the Thompson School may be completed by pursuing either a full-time or part-time program of study. Most students enroll in the full-time program. This allows completion of a program of study in four semesters (the traditional two-year period). The sequence of required courses and semester schedules for each program are listed throughout this catalog.

Some students who are unable to attend on a full-time, two-year schedule or who wish to spread the financial investment of a college education over a longer period of time elect the option of part-time study. This allows students to work toward completion of the degree over an extended period, typically two calendar years to five academic years. The schedule may be shortened or lengthened to meet the needs of the individual student. For further information, please contact the Thompson School at (603) 862-1025.

### Admissions

The Thompson School welcomes applications from both recent high school graduates and non-traditional (adult) students.

Admission to an associate in applied science degree program is based upon successful completion of a secondary school program of college preparatory coursework or its equivalent. Primary consideration is given to the candidate's academic record, as demonstrated by secondary school course selections and achievement, recommendation, and the results of the SAT and/or ACT exam. Consideration is also given to the
applicant’s personal motivation, demonstrated interest in a career field, and leadership roles.

For most programs, candidates must, at a minimum, present a solid college preparatory program including at least four years of English, two years of mathematics (one of which must be Algebra I, Geometry, and/or Algebra II), two years of science (biology with a lab, being one of them), and three years of social science. The majority of students are admitted with three years of both college-prep mathematics and science. Some programs have more specific requirements, which are included in the appropriate sections of this catalog.

For a non-traditional student who graduated from high school several years ago, the Office of Admissions will consider not only his or her academic record but also accomplishments since high school. Important factors include professional work and advancement and motivation to succeed in Thompson School courses. In addition, applicants will be considered on the basis of any available test scores such as General Education Development (GED), SAT or ACT, and College Level Examination Program (CLEP) exams; letters of reference; previous college study; and military record (if applicable). Non-traditional students who have been out of high school for a number of years may request the Office of Admissions waive the SAT requirement.

Transfer students are welcome at the Thompson School. Upon admission to UNH, the Office of Admissions will complete an official credit evaluation and inform the student of the total credits transferred and any general education requirements that have been fulfilled. Please note that it is up to each Thompson School academic department to determine which courses from other institutions will be accepted towards fulfilling major requirements. Transfer students often fulfill program or general education requirements by transferring in credits of unequal value (i.e. transfer in a 3-credit class from elsewhere to meet the requirements of a 4-credit UNH class). Students who do this must pay special attention to ensure they accrue at least the minimum 64 credits overall, meet general education requirements (20 credits), and meet technical concentration, grade point average, and elective requirements for their program.

**How to Apply**

Most first-year and transfer applicants to UNH’s Thompson School of Applied Science must submit the Common Application to be considered for admission. Veterans, non-traditional students, and N.H. community college transfer students have a slightly different application process.

Although UNH will accept the paper-version of the application, students are strongly encouraged to submit the application electronically through the Common Application website, www.commonapp.org (http://www.commonapp.org), as this expedites the process (99 percent of students submit their applications electronically). These same options are available to students applying from countries other than the United States.

The electronic version of the Common Application may be submitted from August, once the Common Application opens, through April 1. The Early Action due date is November 15. Notice of admission to the Thompson School will normally be sent within 30 days following receipt of all required information. Housing may not be guaranteed if application is received after February 1. When applying from April 2 through July 15, the PDF (paper) application must be submitted.

Please note that priority due dates for students requesting UNH residential housing are February 1 for the fall semester and November 1 for the spring semester. Housing assignments are handled on a space-available basis. The UNH Financial Aid due date is March 1 for the following academic year.

**Campus Visits**

Prospective students are encouraged to participate in an interview at the Thompson School, attend an open house, and/or take a tour of the Thompson School and the rest of the UNH campus. Interviews are recommended but not required. An open house/prospective student day is held in the fall. To attend this event or to arrange your visit, please contact the Thompson School at (603) 862-1025 or visit our website at https://colsa.unh.edu/tsas

**Expenses, Financial Aid, and Scholarships**

Costs for students include tuition, fees, room and board, books and supplies, and personal and travel expenses. These costs are the same for any student enrolled at the University of New Hampshire (see Fees and Expenses), and students majoring at the Thompson School have access to the same student services. (See also Campus Life, Programs and Services for Students, and Health Services.) Required curriculum and lab fees for Thompson School programs are listed with each program area.

Information about scholarships, loans, and work-study is located at http://financialaid.unh.edu/ or by calling (603) 862-3600. A Free Application for Federal Student Aid (FAFSA) must be processed by the Financial Aid Office by March 1 of each year for a student to be considered for several scholarships for the following academic year. (See also Financial Aid.)

The Thompson School, one of four divisions of the College of Life Sciences and Agriculture (COLSA), informs students of scholarship opportunities, which are primarily for second-year students but do include opportunities for incoming students.

**New England Regional Student Program**

The Thompson School at UNH participates in the New England Regional Student Program of the New England Board of Higher Education, through which each state university system in New England offers a number of regional curricula to students from other New England states. Under this program, students pay in-state tuition plus 75 percent. See the following table for Thompson School programs that are eligible in 2017-2018. Eligibility under this program may vary from year to year, so it is suggested that you obtain further information by contacting:

The New England Board of Higher Education 45 Temple Place Boston, MA 02111 (617) 357-9620

You may also contact the UNH Office of Admissions (http://www.unh.edu/main/admissions) for more information.

<table>
<thead>
<tr>
<th>Associate Degree Program</th>
<th>Available to Residents of</th>
</tr>
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<tbody>
<tr>
<td>Applied Animal Science</td>
<td>MA, ME, RI, VT</td>
</tr>
<tr>
<td>Civil Technology</td>
<td>CT, RI</td>
</tr>
<tr>
<td>Culinary Arts and Nutrition</td>
<td>MA, RI, VT</td>
</tr>
<tr>
<td>Forest Technology</td>
<td>CT, MA, RI, VT</td>
</tr>
<tr>
<td>Horticultural Technology</td>
<td>RI</td>
</tr>
<tr>
<td>Integrated Agriculture Management</td>
<td>CT, ME, MA, RI, VT</td>
</tr>
</tbody>
</table>
Veterinary Technology

Transfer Opportunities

UNH invites Thompson School graduates to continue their education at the University. Many of the associate degree programs offered by the School have baccalaureate degree counterparts. Specifically, these counterparts include animal science, civil and environmental engineering, forestry, sustainable agriculture and food systems, equine management, nutritional sciences, and hospitality management. Many other baccalaureate majors also are available. A final cumulative grade-point average of at least 2.5 is required for transfer to most programs; some UNH baccalaureate programs require a higher cumulative grade-point average. Successful completion of a baccalaureate degree usually requires a minimum of two years of additional study at the University. Other colleges and universities, especially those within the University System of New Hampshire, also welcome graduates from the Thompson School.

http://colsa.unh.edu/tsas

Departments

- Applied Animal Science (p. 298)
- Civil Technology (p. 303)
- Culinary Arts & Nutrition (p. 307)
- Forest Technology (p. 309)
- Horticultural Technology (p. 311)
- Integrated Agriculture Management (p. 314)
- Veterinary Technology (p. 316)

Programs of Study

- Applied Animal Science (AAS) (p. 298)
- Civil Technology (CT) (p. 303)
- Culinary Arts and Nutrition (CAN) (p. 307)
- Forest Technology (FORT) (p. 309)
- Horticultural Technology (HT) (p. 311)
- Integrated Agriculture Management (IAG) (p. 314)
- Veterinary Technology (VTEC) (p. 316)

Applied Animal Science (AAS)

Applied animal science (AAS) provides students with hands-on practical skills combined with knowledge and understanding of the latest technology. The core program offers a solid background in anatomy, physiology, nutrition, health, and animal breeding. In addition, students choose a concentration in animal agriculture, equine management, or companion animal science. Each concentration also allows for choices of elective courses in other areas.

Practical learning experience is provided at the UNH equine facilities (https://colsa.unh.edu/dbs/equine/facilities), consisting of the Tirrell Horse Barn, W.C. Skoglund indoor riding arena, a lighted outdoor riding arena, a USEA-recognized combined training competition course for beginner novice through preliminary riders, three regulation-size dressage competition arenas, plus the Thomas P. Fairchild Dairy Teaching and Research Center (https://colsa.unh.edu/article/2013/09/fairchild-dairy-teaching-and-research-center) and the UNH Organic Dairy Farm (https://colsa.unh.edu/nhaes/odrf). The Thompson School also operates its own grooming shop (https://colsa.unh.edu/tsas/grooming-shop), veterinary clinic, and biology laboratories. The Applied Animal Science program also maintains a small flock of layers, containing mostly heritage breeds of chickens, on campus, cared for by the students in two different classes. Eggs from "Fowl Hall" are used by students in the Culinary Arts program, emphasizing and promoting the trend of local food and "farm-to-table". The curriculum has a number of animal-related educational partnerships that include the New Hampshire SPCA (http://www.nhspca.org) in Stratham, N.H., the Cochecho Valley Humane Society (http://www.cvhsonline.org) in Dover, N.H., and Pope Memorial SPCA (http://www.popememorialsPCA.org) in Concord, NH, with field trips to numerous animal-related businesses.

Admissions Requirements

Applicants to the applied animal science program area must present college preparatory English and at least two years of satisfactory work in both college preparatory mathematics and science (one of the sciences being biology, with a lab). One year of laboratory college preparatory chemistry is highly recommended.

Curriculum Fee

Applied animal science, all concentrations: $700

1 This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. There may be additional fees for uniforms, specific high-cost courses, and/or professional equipment. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

Applied Animal Science Curriculum Standards

Applied animal science (AAS) students must maintain a minimum 2.0 cumulative grade-point average in AAS classes after two semesters (minimum 26 credits) to take additional AAS classes. Students with AAS averages lower than 2.0 must repeat classes with lower grades and raise their average to the required 2.0 before taking additional AAS classes. Students must have a minimum cumulative 2.0 grade-point average in AAS classes to qualify for graduation from the program.

http://colsa.unh.edu/tsas/aas

Programs

- Applied Animal Science: Animal Agriculture Concentration (A.A.S.) (p. 299)
- Applied Animal Science: Companion Animal Science Concentration (A.A.S.) (p. 300)
- Applied Animal Science: Equine Management Concentration (A.A.S.) (p. 302)

Faculty

http://colsa.unh.edu/faculty/all
**Applied Animal Science: Animal Agriculture Concentration (A.A.S.)**

http://colsa.unh.edu/tsas/aas/animal-agriculture

**Description**

The production or meat, milk and fiber from animals is expected to continue to grow for decades to come. Students interested in working in the highly technical, rapidly changing field of farm animal production and management, must become well versed in the many species of farm animals, including breeding, feeding, health care, housing and marketing. In the animal agriculture concentration, students apply many of the skills learned in the classroom on farms in the first few weeks of the program. Students learn to work safely with farm livestock and poultry. They visit farms, engage in hands-on activities weekly with their instructors. Students will balance rations, identify and treat diseases, learn to design appropriate buildings, fences, and properly take of the land and environment necessary to support farm animals. Students maintain a small poultry flock, visit and interact with nearby farms with beef, sheep, goats and swine. Students also have the opportunity to work and study at the University's dairy and equine farms. UNH Maintains two modern and well-equipped teaching and research centers, and as an option students interested in dairy cattle can also collaborate to manage the CREAM (Cooperative for Real Education in Agriculture) herd. All students will also study at the UNH Organic Dairy Research Farm (http://colsa.unh.edu/article/2012/10/organic-dairy-research-farm).

Students learn the business of farming through field exercises in land management, forage production, financial management, and computer use on a farm as well as through continued practical experience with farm livestock, poultry and dairy cattle. The program prepares students to work both on the farm and in related businesses.

The Thompson School’s Animal Agriculture program is in a unique position with the baccalaureate animal science major. Students may start with the Thompson School program, obtain their associate in applied science (A.A.S.) degree then transfer to a four-year major and obtain a B.S. in two to two-and-a-half additional years with a full-time course of study. This allows students to receive two degrees in as little as four years or obtain their A.A.S. degree and work in the field to later return for a B.S. Students wishing to follow this course of action need to work closely with their adviser and maintain a grade of C or better in key applied animal science courses.

**Career Opportunities**

Herd manager, agricultural sales and/or service employee, farm manager, artificial insemination (AI) technician, crop manager, farm owner, or farm-business owner.

**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Applied Animal Science Animal Agriculture program. Animal Agriculture students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AAS 423</td>
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**Degree Plan**

**Animal Agriculture Program of Study**

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<th>Credits</th>
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<tbody>
<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
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<tr>
<td>or AAS 402</td>
<td>Introduction to Livestock and Poultry Management</td>
<td></td>
</tr>
<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
<td>1</td>
</tr>
<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>COM 209</td>
<td>Expository Writing and Reading</td>
<td>4</td>
</tr>
<tr>
<td>or COM 212</td>
<td>Writing in the Workplace</td>
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<tr>
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<td>Dairy Selection</td>
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<tr>
<td>AAS 434</td>
<td>Equipment and Facilities Management</td>
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1. Applied Business Management (ABM) (p. 383) courses, offerings vary by semester.


<table>
<thead>
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<td>AAS 439</td>
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<td>Fundamentals of Animal Health Lab for Applied Animal Science Majors</td>
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<td>ABM 404A</td>
<td>Introduction to Business I</td>
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<td>COM 210</td>
<td>Public Speaking or Writing in the Workplace</td>
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<td>College Algebra</td>
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**Second Year**

**Fall**

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<tr>
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<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 535</td>
<td>Animal Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Choose One of the Following:</td>
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<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<tr>
<td>AAS 597</td>
<td>Applied Animal Science Elective 1</td>
<td>0</td>
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<tr>
<td>SSCI 201</td>
<td>Human Relations</td>
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**Spring**

<table>
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<tbody>
<tr>
<td>AAS 540</td>
<td>Animal Breeding</td>
<td>3</td>
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<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar or Diseases of Small Ruminants, Swine, Poultry, and Camelids</td>
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<tr>
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<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<tr>
<td>ANSC 406</td>
<td>Careers in Animal Science</td>
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<tr>
<td>&amp; IAG 490</td>
<td>and Integrated Agriculture Management Capstone</td>
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<td></td>
<td>Elective(s)</td>
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</table>

**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Applied Animal Science Companion Animal Science program.

**Career Opportunities**

Animal control, animal sheltering and rescuing, ownership or management of companion animal businesses, pet groomer, animal training and behavior, veterinary assistant, animal caregiver, animal-assisted activities/therapy volunteer and/or coordinator.

---

### Applied Animal Science: Companion Animal Science Concentration (A.A.S.)

http://closa.unh.edu/tsas/aas/companion-animal-science

### Description

Animal companionship provides millions of people with an oasis in a hectic, impersonal world. Pet owners consistently seek quality professional services for pets that are often considered members of the family. The companion animal science concentration prepares students to work in specialized areas by choosing one of two tracks; Applied Animal Behavior or Veterinary Assisting and Animal Management. Both tracks focus on traditional companion animals such as dogs, cats, along with other domestic species. Actual field and work/volunteer experience takes place the second year along with academic coursework. Through local partnerships, all tracks complete a capstone course supporting the individual care and population management of community shelter animals.

Additionally, each track aligns with professional industry organizations’ learning objectives and skills for certification after graduation. Depending on the organization and student, additional applied hours may be required before a certification exam may be taken. Organizations include but are not limited to: Certification Council for Pet Dog Trainers and Behavior Consultants, International Association of Animal Behavior Consultants, International Professional Groomers, and the National Association of Veterinary Technicians in America that provide certification for veterinary assistants.

Companion animal science is a diverse career area that requires specialized knowledge and applied skills. We look forward to guiding students onto the correct career pathway and/or preparing for them to meet future academic goals.

---

1. Applied Business Management (ABM) (p. 383) courses, offerings vary by semester.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
<td>2</td>
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<td>AAS 422</td>
<td>Small Animal Grooming I</td>
<td>2</td>
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<tr>
<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
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<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
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<tr>
<td>AAS 430</td>
<td>Small Animal Breeds and Behavior</td>
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<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
<td>2</td>
</tr>
<tr>
<td>AAS 439A</td>
<td>Fundamentals of Animal Health Lab for Applied Animal Science Majors</td>
<td>1</td>
</tr>
<tr>
<td>AAS 445</td>
<td>Veterinary Assisting Techniques</td>
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<td>Clinical Animal Nursing Techniques I</td>
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<td>AAS 540</td>
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<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
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<td>AAS 558</td>
<td>Animal Population Medicine and Management</td>
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<tr>
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Companion Animal Science, Veterinary Assistant track students are required to take:

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<tr>
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<td>AAS 422</td>
<td>Small Animal Grooming I</td>
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<tr>
<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
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<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
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<td>AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
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<tr>
<td>AAS 430</td>
<td>Small Animal Breeds and Behavior</td>
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<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
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<tr>
<td>AAS 439</td>
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<tr>
<td>AAS 439A</td>
<td>Fundamentals of Animal Health Lab for Applied Animal Science Majors</td>
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<tr>
<td>AAS 445</td>
<td>Veterinary Assisting Techniques</td>
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<tr>
<td>AAS 449</td>
<td>Clinical Animal Nursing Techniques I</td>
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<td>AAS 451</td>
<td>Human/Animal Bond</td>
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</tr>
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<td>AAS 535</td>
<td>Animal Nutrition</td>
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<td>AAS 540</td>
<td>Animal Breeding</td>
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<td>AAS 546</td>
<td>Animal Business Applications</td>
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<td>AAS 558</td>
<td>Animal Population Medicine and Management</td>
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<td>Introduction to Business I</td>
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<tr>
<td>AAS 527</td>
<td>Companion Animal Diseases</td>
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<td>AAS 579</td>
<td>Small Animal Care Practicum</td>
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<td>VTEC 424</td>
<td>Introduction to Veterinary Technology</td>
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Companion Animal Science, Animal Management track students are required to take:

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<td>AAS 422</td>
<td>Small Animal Grooming I</td>
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<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
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<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
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<tr>
<td>AAS 430</td>
<td>Small Animal Breeds and Behavior</td>
<td>4</td>
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<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
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<tr>
<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
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<td>AAS 439A</td>
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<td>Human/Animal Bond</td>
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<td>Animal Business Applications</td>
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<td>AAS 563</td>
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**Degree Plan**

**Companion Animal Science / Applied Animal Behavior Program of Study**

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<td>Introduction to Animal Science</td>
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<td>Equine Handling and Care Techniques</td>
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<tbody>
<tr>
<td>AAS 439</td>
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<td>AAS 421</td>
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<th>Course</th>
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Companion Animal Science / Veterinary Assistant and Animal Management Track
Program of Study

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<tr>
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<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
<td>1</td>
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<td>AAS 430</td>
<td>Small Animal Breeds and Behavior</td>
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<td>AAS 431</td>
<td>Introduction to Animal Science</td>
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<td>AAS 449</td>
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<td>Small Animal Grooming I</td>
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<tr>
<td>Fall</td>
<td></td>
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<tr>
<td>AAS 451</td>
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<td>4</td>
</tr>
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<td>AAS 535</td>
<td>Animal Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>AAS 597</td>
<td>Applied Animal Science Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>SSCI 201</td>
<td>Human Relations</td>
<td>4</td>
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<tr>
<td>or SSCI 202</td>
<td>or Social Issues</td>
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<tr>
<td>Choose one option based on track</td>
<td></td>
<td><strong>2-4</strong></td>
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<tr>
<td>Animal Management Track</td>
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<tr>
<td>AAS 433</td>
<td>Small Animal Grooming II</td>
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</tr>
<tr>
<td>Veterinary Assistant Track</td>
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<tr>
<td>AAS 579</td>
<td>Small Animal Care Practicum</td>
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<td>AAS 527</td>
<td>Companion Animal Diseases</td>
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<td><strong>13-15</strong></td>
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<tr>
<td>Spring</td>
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<tr>
<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
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<tr>
<td>AAS 540</td>
<td>Animal Breeding</td>
<td>3</td>
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<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>AAS 558</td>
<td>Animal Population Medicine and Management</td>
<td>2</td>
</tr>
<tr>
<td>COM 210</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>or COM 212</td>
<td>or Writing in the Workplace</td>
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<td>Choose one option based on track</td>
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</tbody>
</table>

Applied Animal Science: Equine Management Concentration (A.A.S.)

http://colsa.unh.edu/tsas/aas/equine-management

**Description**

The equine industry in New England encompasses many different types of facilities and disciplines. Students in the equine management concentration combine courses utilizing the most recent technical information with related practical experience. They gain hands-on experience in bandaging, selection, ration-balancing by computer, fitting and care of equipment, and farm and barn analysis. They also acquire decision-making and managerial skills through the organization and running of a combined test competition each spring. Graduates have a solid foundation to pursue either employment or additional educational opportunities upon completion of the program.

The riding focus at UNH is balance seat with schooling in dressage, cross country, and stadium jumping. Thompson School students in horsemanship classes ride in the UNH program and have the opportunity to try out for the award-winning Intercollegiate Horse Show Association (IHSA) (http://colsa.unh.edu/ihsa) or Intercollegiate Dressage Association (IDA) (http://colsa.unh.edu/ida) teams.

Students who plan to continue their college education in a four-year major are encouraged to express their interest to their advisor. Together, student and adviser can develop a sequence of courses that will assist with the transition from the two-year to four-year degree program.

**Career Opportunities (directly out of the associate degree program)**

Horse and farm manager, sales (tack shops, grain companies, among other industries), horse show manager, veterinary assistant/equine practice, or riding instructor (with additional studies), and several graduates have been employed in the insurance industry.

Graduates have become animal control officers, have worked with mounted police units, and have worked at the NHSPCA.

Several graduates have gone on and earned their Bachelor degrees in several different majors, and others have earned their Masters degrees. Several have dual majored in education and have become agricultural vocational educational teachers.

**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Applied Animal Science Equine Management program. Equine Management students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
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VTEC 424 Introduction to Veterinary Technology

<table>
<thead>
<tr>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>16-17</td>
<td>64-67</td>
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</table>
## Degree Plan

### Equine Management Program of Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>or AAS 428A</td>
<td>Anatomy and Physiology of Domestic Animals Lab for AAS majors</td>
<td>1</td>
</tr>
<tr>
<td>or AAS 428B</td>
<td>Anatomy and Physiology of Domestic Animals Lab for VTEC majors</td>
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</tr>
<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>AAS 437</td>
<td>Equine Handling and Care Techniques</td>
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<td>ANSC 411</td>
<td>Freshman Seminar in Equine Science</td>
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<tr>
<td>COM 209</td>
<td>Expository Writing and Reading</td>
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<td>Total Credits</td>
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<td>17</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAS 426</td>
<td>Equine Conformation and Lameness</td>
<td>4</td>
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<td>AAS 436</td>
<td>Equine Show Preparation and Competition</td>
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<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
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<td>AAS 439A</td>
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</tr>
<tr>
<td>or AAS 439B</td>
<td>Fundamentals of Animal Health Lab for Veterinary Technology Majors</td>
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<tr>
<td>AAS 535</td>
<td>Animal Nutrition</td>
<td>3</td>
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<tr>
<td>AAS 538</td>
<td>Equine Handling/Longeing</td>
<td>1</td>
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<tr>
<td>AAS 540</td>
<td>Animal Breeding</td>
<td>3</td>
</tr>
<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>AAS 547</td>
<td>Applied Equine Management</td>
<td>3</td>
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<tr>
<td>AAS 597</td>
<td>Applied Animal Science Work Experience</td>
<td>0</td>
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<td>SSCI 201</td>
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<td>17-19</td>
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<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
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<td>AAS 535</td>
<td>Animal Nutrition</td>
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</tr>
<tr>
<td>AAS 538</td>
<td>Equine Handling/Longeing</td>
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</tr>
<tr>
<td>AAS 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>AAS 547</td>
<td>Applied Equine Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 597</td>
<td>Applied Animal Science Work Experience</td>
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<td>SSCI 201</td>
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<tr>
<td>AAS 434</td>
<td>Equipment and Facilities Management</td>
<td>3</td>
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<td>AAS 540</td>
<td>Animal Breeding</td>
<td>3</td>
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<tr>
<td>AAS 552</td>
<td>Equine Health Management</td>
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<td>AAS 553</td>
<td>Equine Competition Management</td>
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<td>ANSC 402</td>
<td>Horsemanship</td>
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<tr>
<td>ANSC 402</td>
<td>Horsemanship</td>
<td>3</td>
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<td>Any General Education Class</td>
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<tr>
<td>Total Credits</td>
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<td>17-19</td>
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</tbody>
</table>

### Additional course options (when offered)

- AAS 572 Comparative Equine Operations 2
- AAS 593 Equine Field Operations 1-3

## Civil Technology (CT)

Civil technology is a dynamic educational opportunity offering skill-based learning through classroom instruction, extensive hands-on laboratory experience and fieldwork, as well as opportunities to develop a strong portfolio. Students choose from one or more of the following concentrations: Construction Management, Surveying and Mapping, or Sustainable Energy Management.

The cornerstone of the educational experience is instruction in computer-aided design (CAD) and parametric modeling using the Thompson School’s state-of-the-art CAD/GIS/BIM (building information management) labs. Students in surveying use the latest GPS and surveying equipment, and students studying geographical information systems (GIS) use the new GIS Instructional Lab. Additional coursework covers building science, building mechanical and electrical systems, construction contracting, materials, soils and foundation design, and methodologies of professional practice in the concentrations.
Admissions Requirements
Applicants to the construction management, surveying and mapping, and sustainable energy management concentrations must present college preparatory English and at least two years of satisfactory work in college preparatory mathematics.

Curriculum Fee
Civil technology, all concentrations: $102

This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

Curriculum Fee
Civil technology, all concentrations: $102

1. This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

http://colsa.unh.edu/tsas/ct

Programs

- Civil Technology: Construction Management Concentration (A.A.S.) (p. 304)
- Civil Technology: Surveying and Mapping Concentration (A.A.S.) (p. 305)
- Civil Technology: Sustainable Energy Management Concentration (A.A.S.) (p. 306)

Faculty

http://colsa.unh.edu/faculty/all

Civil Technology: Construction Management Concentration (A.A.S.)

http://colsa.unh.edu/tsas/ct/construction-management

Description

In the Construction Management concentration, students prepare for careers in land development, construction contracting and management, and land-use planning. Students learn not only how to build well but how to build wisely. They study construction and its related technologies, dealing with material selection and design, and design of foundation and drainage systems. They also examine environmental and land development issues by studying residential and commercial septic, waste disposal, and municipal environmental systems, recycling, and effective energy management. Some graduates elect to continue their education in Bachelor of Science programs in civil engineering or community development.

Graduates of the construction management concentration find employment in a variety of building industry-related positions.

Career Opportunities

Construction supervisor, project manager, cost estimator, public-works employee, contractor, code-enforcement officer, construction-material tester, land-development planning employee, site evaluator for building components, construction product manufacturer, product representative, or DOT engineering technician.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Civil Technology Construction Management program. Construction Management students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CT 423</td>
<td>Introduction to Surveying and Mapping</td>
<td>3</td>
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<tr>
<td>CT 425</td>
<td>Surveying and Mapping Lab</td>
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</tr>
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<td>CT 427</td>
<td>2D Computer Aided Design</td>
<td>4</td>
</tr>
<tr>
<td>CT 428</td>
<td>3D Design, Modeling and Visualization</td>
<td>4</td>
</tr>
<tr>
<td>CT 432</td>
<td>Applied Environmental Technology</td>
<td>4</td>
</tr>
<tr>
<td>CT 442</td>
<td>Construction Surveying</td>
<td>4</td>
</tr>
<tr>
<td>CT 483</td>
<td>Mechanical and Electrical Systems</td>
<td>4</td>
</tr>
<tr>
<td>CT 551</td>
<td>Statics and Materials</td>
<td>4</td>
</tr>
<tr>
<td>CT 538</td>
<td>Construction Contracting</td>
<td>4</td>
</tr>
<tr>
<td>CT 554</td>
<td>Soils and Foundations</td>
<td>4</td>
</tr>
<tr>
<td>CT 557</td>
<td>Land Design and Regulations</td>
<td>4</td>
</tr>
<tr>
<td>CT 576</td>
<td>Building Science/Residential Construction</td>
<td>4</td>
</tr>
<tr>
<td>CT 597</td>
<td>Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>TSAS 405A &amp; TSAS 405B</td>
<td>Computers in the Workplace/Focus on Software Applications and Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security</td>
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<tr>
<td>Program Elective</td>
<td>Choose one of the following as offered (in conjunction with CT Advisor)</td>
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</tr>
<tr>
<td>AM 451</td>
<td>Welding/Fabrication Technology</td>
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</tr>
<tr>
<td>AM 461</td>
<td>Internal Combustion Engines I</td>
<td></td>
</tr>
<tr>
<td>CEP 672</td>
<td>Fundamentals of Real Estate</td>
<td></td>
</tr>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td></td>
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<tr>
<td>FORT 581</td>
<td>Applied Geographic Information Systems (GIS) Techniques</td>
<td></td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td></td>
</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
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<tr>
<td>Other options with approval of CT Advisor</td>
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Total Credits: 52-53

Degree Plan

Construction Management Program of Study

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<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 423</td>
<td>Introduction to Surveying and Mapping</td>
<td>3</td>
</tr>
<tr>
<td>CT 425</td>
<td>Surveying and Mapping Lab</td>
<td>2</td>
</tr>
<tr>
<td>CT 427</td>
<td>2D Computer Aided Design</td>
<td>4</td>
</tr>
<tr>
<td>MTH 203</td>
<td>Algebra and Trigonometry</td>
<td>3</td>
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http://colsa.unh.edu/tsas/ct/construction-management
### TSAS 405A & TSAS 405B
Computers in the Workplace/Focus on Software Applications and Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security

<table>
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### Spring

<table>
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<td>COM 212 Writing in the Workplace</td>
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<tr>
<td>CT 428 3D Design, Modeling and Visualization</td>
<td>4</td>
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<td>CT 432 Applied Environmental Technology</td>
<td>4</td>
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<tr>
<td>CT 442 Construction Surveying</td>
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<td>SSCI 202 Social Issues</td>
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**Total Credits:** 16

### Second Year

#### Fall

<table>
<thead>
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<tbody>
<tr>
<td>COM 209 Expository Writing and Reading</td>
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<tr>
<td>CT 483 Mechanical and Electrical Systems</td>
<td>4</td>
</tr>
<tr>
<td>CT 551 Statics and Materials</td>
<td>4</td>
</tr>
<tr>
<td>CT 557 Land Design and Regulations</td>
<td>4</td>
</tr>
<tr>
<td>CT 597 Work Experience</td>
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**Credits:** 19

#### Spring

<table>
<thead>
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<td>CT 576 Building Science/Residential Construction</td>
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</tr>
<tr>
<td>CT 538 Construction Contracting</td>
<td>4</td>
</tr>
<tr>
<td>CT 554 Soils and Foundations</td>
<td>4</td>
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Program Elective: Choose one of the following as offered (in conjunction with CT Advisor)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AM 451 Welding/Fabrication Technology</td>
<td>3-4</td>
</tr>
<tr>
<td>AM 461 Internal Combustion Engines I</td>
<td>4</td>
</tr>
<tr>
<td>CEP 672 Fundamentals of Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>CEP 673 Green Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>NR 435 Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>THDA 459 Stagecraft</td>
<td>4</td>
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</table>

Other options with approval of CT Advisor

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT 538 Construction Contracting</td>
<td>4</td>
</tr>
<tr>
<td>CT 541 Legal Aspects of Surveying</td>
<td>4</td>
</tr>
<tr>
<td>CT 543 Advanced Surveying and Mapping</td>
<td>4</td>
</tr>
<tr>
<td>CT 548 Advanced Surveying Computation</td>
<td>4</td>
</tr>
<tr>
<td>CT 557 Land Design and Regulations</td>
<td>4</td>
</tr>
<tr>
<td>CT 597 Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>FORT 581 Applied Geographic Information Systems (GIS) Techniques</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Elective: Choose one of the following as offered (in conjunction with CT Advisor)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSAS 405A Computers in the Workplace/Focus on Software Applications</td>
<td>4</td>
</tr>
<tr>
<td>&amp; TSAS 405B Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits:** 66-67

---

**Career Opportunities**

Licensed land surveyor, DOT engineering technician, GIS technician, land-development planner, construction surveyor, or GPS technician.

**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Civil Technology Surveying and Mapping program. Surveying and Mapping students are required to take:

- CT 423 Introduction to Surveying and Mapping
- CT 425 Surveying and Mapping Lab
- CT 427 2D Computer Aided Design
- CT 428 3D Design, Modeling and Visualization
- CT 432 Applied Environmental Technology
- CT 442 Construction Surveying

**Total Credits:** 52-53

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**Civil Technology: Surveying and Mapping Concentration (A.A.S.)**

http://colsa.unh.edu/tsas/ct/surveying-and-mapping

**Description**

As land values increase and the need to use our natural resources efficiently while protecting our environment becomes more critical, the role of surveyors is expanding. The Surveying and Mapping concentration contains a core sequence of six courses (from Introductory Surveying to the Legal Aspects of Surveying) that continuously challenge students to improve their technical knowledge, computer skills, and field competency. Using electronic field measuring equipment, computers to create and plot maps, satellite positioning technology, and laser scanning, the surveyors and mappers of today are at the forefront of acquiring, analyzing, and managing land information. Graduates are prepared to sit for the Fundamentals of Surveying exam (http://ncees.org/surveying/fs) as a first step in getting licensed as a land surveyor in New Hampshire.

---

**Degree Plan**

**Surveying and Mapping Program of Study**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 423</td>
<td>Introduction to Surveying and Mapping</td>
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</tr>
<tr>
<td>CT 425</td>
<td>Surveying and Mapping Lab</td>
<td>2</td>
</tr>
<tr>
<td>CT 427</td>
<td>2D Computer Aided Design</td>
<td>4</td>
</tr>
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</table>
### Civil Technology: Sustainable Energy Management Concentration (A.A.S.)

http://cels.unh.edu/tsas/ct/sustainable-energy-management

**Description**

Energy efficiency and renewable/sustainable energy sources are topics at the forefront of today’s society. In the Sustainable Energy Management concentration, students learn the basics of sustainable and renewable energy sources, relevant energy management principles in the construction industry, minimizing our environmental impact, and the proper implementation of these energy options. Students will start with foundation courses to build a broad, interdisciplinary base of knowledge and skills in science, engineering, technology, design, analysis, and communication. From the first semester, students have access to state-of-the-art mapping and surveying gear, advanced CAD, GIS, and 3D modeling software, as well as significant facilities and equipment used in traditional construction. In keeping with the Thompson School’s heavy emphasis on experiential and field work, the program offers numerous hands-on experiences to apply concepts learned in the classroom. Graduates of the Sustainable Energy Management concentration will have the necessary skills and experience to fill the green energy jobs of the future.

**Career Opportunities**

Residential/commercial energy auditor, solar/wind/geothermal/biomass energy system sales, designer, installation and service technician, sustainable energy advocate, green building project manager

### Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Civil Technology Sustainable Energy Management program. Sustainable Energy Management students are required to take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CT 427</td>
<td>2D Computer Aided Design</td>
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<tr>
<td>CT 428</td>
<td>3D Design, Modeling and Visualization</td>
<td>4</td>
</tr>
<tr>
<td>CT 432</td>
<td>Applied Environmental Technology</td>
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<tr>
<td>CT 483</td>
<td>Mechanical and Electrical Systems</td>
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<tr>
<td>CT 538</td>
<td>Construction Contracting</td>
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</tr>
<tr>
<td>CT 576</td>
<td>Building Science/Residential Construction</td>
<td>4</td>
</tr>
<tr>
<td>CT 597</td>
<td>Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>CT XXX</td>
<td>Energy Use In Buildings (course in development)</td>
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<tr>
<td>CT XXX</td>
<td>Renewable Energy Systems (course in development)</td>
<td>4</td>
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<tr>
<td>CT XXX</td>
<td>Green Building Rating Systems (course in development)</td>
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<tr>
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<tr>
<td>AM 451</td>
<td>Welding/Fabrication Technology</td>
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</tr>
<tr>
<td>AM 461</td>
<td>Internal Combustion Engines I</td>
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<tr>
<td>CEP 672</td>
<td>Fundamentals of Real Estate</td>
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<td>CEP 673</td>
<td>Green Real Estate</td>
<td></td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
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</tr>
<tr>
<td>THDA 459</td>
<td>Stagecraft</td>
<td></td>
</tr>
<tr>
<td>Other options with approval of CT Advisor</td>
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<tr>
<td>Credits</td>
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**Total Credits**: 66-67
### Degree Plan

#### Sustainable Energy Management Concentration Program of Study

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>CT 427</td>
<td>2D Computer Aided Design</td>
<td>4</td>
</tr>
<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science</td>
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<td>COM 209</td>
<td>Expository Writing and Reading</td>
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<td>TSAS 405A</td>
<td>Computers in the Workplace/Focus on Software Applications</td>
<td>2</td>
</tr>
<tr>
<td>TSAS 405B</td>
<td>Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security</td>
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<td>3D Design, Modeling and Visualization</td>
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<td>Applied Environmental Technology</td>
<td>4</td>
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<td>CT 576</td>
<td>Building Science/Residential Construction</td>
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<td>COM 212</td>
<td>Writing in the Workplace</td>
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<td>SSCI 202</td>
<td>Social Issues</td>
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<td><strong>Credits</strong></td>
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<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>CT 483</td>
<td>Mechanical and Electrical Systems</td>
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</tr>
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<td>CT 597</td>
<td>Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>CT XXX - Energy Use In Buildings (course in development)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CT XXX - Renewable Energy Systems (course in development)</td>
<td>4</td>
<td></td>
</tr>
<tr>
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<tr>
<td>AM 461</td>
<td>Internal Combustion Engines I</td>
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<tr>
<td>AM 462</td>
<td>Internal Combustion Engines II</td>
<td></td>
</tr>
<tr>
<td>ARTS 525</td>
<td>Introductory Woodworking</td>
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<tr>
<td>CEP 672</td>
<td>Fundamentals of Real Estate</td>
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<td>CEP 673</td>
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<td>CT 551</td>
<td>Statics and Materials</td>
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<td>CT 554</td>
<td>Soils and Foundations</td>
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<td>CT 557</td>
<td>Land Design and Regulations</td>
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<td>Applied Geographic Information Systems (GIS) Techniques</td>
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<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<td><strong>Credits</strong></td>
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<td>16</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td>70</td>
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</table>

#### Culinary Arts and Nutrition (CAN)

The culinary arts and nutrition (CAN) program offers concentrations in culinary arts and baking and pastry arts. The culinary arts program is accredited by the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC).

#### Admissions Requirements

Applicants to culinary arts must present college preparatory English and a minimum of two years of satisfactory work in college preparatory mathematics.

#### Curriculum Fee

Culinary arts and nutrition, culinary arts: $588

1 This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

http://colsa.unh.edu/tsas/can

#### Programs

- Culinary Arts and Nutrition: Baking and Pastry Arts Concentration (A.A.S.) (p. 308)
- Culinary Arts and Nutrition: Culinary Arts Concentration (A.A.S) (p. 308)

#### Faculty

http://colsa.unh.edu/faculty/all
Culinary Arts and Nutrition: Baking and Pastry Arts Concentration (A.A.S.)

http://colsa.unh.edu/tsas/can/baking-pastry-arts

Description

Educated consumers are building demand for real foods, moving away from processed, commercially prepared industrial baked foods into appreciation and recognition of artisan and skillfully prepared baked goods made using fresh, local products. This trend fits right into the renewed emphasis of farm to table and locally-sourced foods at the Thompson School. In addition, the increase in food allergies among consumers requires today’s chefs and bakers to be skilled in the ability to substitute ingredients in order to meet these specific dietary needs. The Baking and Pastry Arts concentration starts with foundation courses to build a broad base of knowledge and skills in food science, nutrition, culinary arts, team work, and communication. Coursework offers ample opportunity for hands-on experiences, especially in the lab courses. Working collaboratively with culinary arts concentration students, baking and pastry arts students will prepare baked goods that will be served in 180 Blue and Stacey’s Express, the Thompson School’s two on-campus restaurants run by students. Additionally, students will apply their skills in the baking and pastry arts field with a required work experience and in externship to gain valuable real-world experience valued by employers.

Career Opportunities

Baker in diverse environments including commercial, retail, restaurants, hotels, catering operations, and entrepreneurs in small businesses.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Culinary Arts and Nutrition program. Baking and Pastry Arts students are required to take:

- CAN 401 Food Preparation Fundamentals 2
- CAN 403 Culinary Arts and Baking Skills Development 4
- CAN 404 Baking and Pastry Fundamentals 4
- CAN 405 Retail Baking and Merchandising 4
- CAN 407 Hospitality Sanitation and Safety 1
- CAN 422 Cuisine and Culture 4
- CAN 504 Intermediate Baking 4
- CAN 506 Food and Beverage Cost Control 4
- CAN 507 Advanced Baking 4
- CAN 508 Baking and Pastry Externship 5
- CAN 528 Culinary Nutrition 2
- CAN 598 Work Experience 0
- ABM 404A Introduction to Business I 2
- ABM 506 Human Resource Management 4
- COM 209 Expository Writing and Reading 4
- MTH 202 College Algebra 3
- TSAS 405A Computers in the Workplace/Focus on Software Applications 2

Culinary Arts and Nutrition: Culinary Arts Concentration (A.A.S)

http://colsa.unh.edu/tsas/can/culinary-arts

Description

Students who complete the requirements for the culinary arts concentration are prepared for a variety of positions working as chefs in the hospitality industry. In a program that combines classroom work with practical experience, students learn and explore career opportunities, menu development, cost control, food safety, baking, nutrition, management skills, and general education. Culinary arts
students manage and operate two on-campus restaurants that are open to the public. 180 Blue (https://colsa.unh.edu/tsas/180-blue), a fine dining restaurant, and Stacey's Express (https://colsa.unh.edu/tsas/staceys-express), a lunchtime casual dining experience, serve as lab settings where students round out their culinary experience and build their skills as culinarians. Through a unique partnership with University Hospitality Services, students complete rotations in state-of-the-art production kitchens on campus at Holloway Commons. These rotations provide opportunities to develop proficiency in contemporary and classical culinary techniques and cooking methods related to a la carte, banquet, and quantity food production and service. The culinary arts concentration is annually reviewed by its own advisory committee of industry professionals, program faculty, and chef-instructors who revise the curriculum to meet changing industry needs. The culinary arts program is accredited by the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). Students who join the American Culinary Federation become certified culinarians after graduating from the Culinary Arts and Nutrition program.

Career Opportunities

Chef in restaurants, hotels, private clubs, theme parks, catering and banquet facilities, destination resorts, cruise ships, corporate chains, and health care facilities.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Culinary Arts and Nutrition program. Culinary Arts students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CAN 401</td>
<td>Food Preparation Fundamentals</td>
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<tr>
<td>CAN 403</td>
<td>Culinary Arts and Baking Skills Development</td>
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<tr>
<td>CAN 404</td>
<td>Baking and Pastry Fundamentals</td>
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</tr>
<tr>
<td>CAN 407</td>
<td>Hospitality Sanitation and Safety</td>
<td>1</td>
</tr>
<tr>
<td>CAN 422</td>
<td>Cuisine and Culture</td>
<td>4</td>
</tr>
<tr>
<td>CAN 426</td>
<td>Dining Room Practicum</td>
<td>3</td>
</tr>
<tr>
<td>CAN 443</td>
<td>Quantity Food Production and Display Cooking</td>
<td>4</td>
</tr>
<tr>
<td>CAN 506</td>
<td>Food and Beverage Cost Control</td>
<td>4</td>
</tr>
<tr>
<td>CAN 525</td>
<td>American and Regional Cuisine</td>
<td>5</td>
</tr>
<tr>
<td>CAN 528</td>
<td>Culinary Nutrition</td>
<td>2</td>
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<tr>
<td>CAN 535</td>
<td>International Cuisine</td>
<td>5</td>
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<td>CAN 544</td>
<td>Catering and Garde Manger</td>
<td>4</td>
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<td>ABM 506</td>
<td>Human Resource Management</td>
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<td>TSAS 405A</td>
<td>Computers in the Workplace/Focus on Software</td>
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<tr>
<td>COM 210</td>
<td>Public Speaking</td>
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Choose one of the following: 2-5

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<tr>
<td>CAN 597</td>
<td>Culinary Arts Internship ¹</td>
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<td>CAN 598</td>
<td>Work Experience (plus additional 2 credits of</td>
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<td></td>
<td>elective coursework)</td>
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Total Credits 53-56

¹ CAN 597 is by invitation only

Degree Plan

Culinary Arts Concentration Program of Study

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<td>CAN 401</td>
<td>Food Preparation Fundamentals</td>
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<td>CAN 403</td>
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<td>CAN 407</td>
<td>Hospitality Sanitation and Safety</td>
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<td>COM 209</td>
<td>Expository Writing and Reading</td>
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<tr>
<td>MTH 202</td>
<td>College Algebra</td>
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<td>TSAS 405A</td>
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Credits 16

Spring

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<td>CAN 422</td>
<td>Cuisine and Culture</td>
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</tr>
<tr>
<td>CAN 426</td>
<td>Dining Room Practicum</td>
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<td>CAN 443</td>
<td>Quantity Food Production and Display Cooking</td>
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Credits 18

Second Year Fall

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<td>CAN 506</td>
<td>Food and Beverage Cost Control</td>
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<tr>
<td>CAN 525</td>
<td>American and Regional Cuisine</td>
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<tr>
<td>CAN 528</td>
<td>Culinary Nutrition</td>
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<tr>
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<td>Culinary Arts Internship ¹</td>
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</tr>
<tr>
<td>CAN 598</td>
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<td></td>
<td>elective coursework)</td>
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Credits 13-16

Spring

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<td>Human Resource Management</td>
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<td>CAN 535</td>
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<td>CAN 544</td>
<td>Catering and Garde Manger</td>
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<tr>
<td>SSCI 202</td>
<td>Social Issues</td>
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Credits 17

Total Credits 64-67

¹ CAN 597 Culinary Arts Internship is by invitation only

Forest Technology (FORT)

Students in the forest technology (FORT) program are uniquely prepared for careers in forest industries and natural resource management in New Hampshire and New England. Classroom lecture is supported by practical field work in each of the subject areas. The educational program in Forest Technology leading to the Associate in Applied Science degree is accredited by the Society of American Foresters (SAF) (https://www.eforester.org) (the first two-year program in the
U.S. to complete the accreditation application process) and reviewed by an advisory committee representing the full spectrum of forestry organizations in the region. There is a strong emphasis on leadership, safety, communication skills, accuracy of field work, data collection, and professional presentation. Unique facilities for teaching and learning include centrally located classroom and shop facilities; 3,000+ acres of University-owned forest land (http://colsa.unh.edu/woodlands); a new sawmill and Forest Industries Training Center (FITC) (http://colsa.unh.edu/tsas/thompson-school-unh-sawmill); logging equipment; technologically advanced navigation, data collection, and analysis equipment; and a faculty with vast field experience in the subject areas dedicated to teaching.

**Admissions Requirements**

As stated in the Thompson School admissions requirements (p. 295), applicants to the forest technology program area must present four years of college preparatory English and a minimum of two years of college preparatory science (one science being biology with a lab). Forest Technology applicants are required to have taken at least two years of college preparatory mathematics, but three years are preferred.

**Curriculum Fee**

Forest technology: $736

This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

http://colsa.unh.edu/tsas/fort/forest-technology

**Programs**

- Forest Technology (A.A.S.) (p. 310)

**Faculty**

http://colsa.unh.edu/faculty/all

**Forest Technology (A.A.S.)**

http://colsa.unh.edu/tsas/fort/forest-technology

**Description**

Forest technicians help plan, direct, and operate forestry enterprises. Students in the forest technician concentration experience a breadth and depth of instruction. They are exposed to the theory and practice of planting, thinning, and other silvicultural operations, including harvesting supervision. They learn how to design, lay out, and construct roads and trails; how to map and survey property; how to manage woodlands to improve timber quality and wildlife habitat; how to inventory natural resources and develop a plan for their future management; how to identify and deal with forest health issues; and how to conserve soil, water, and other natural resources. Graduates work in wood products-related industries, in public forestland management agencies, with forestry consulting firms, urban tree care companies, and with a range of conservation organizations. Graduates can become licensed in New Hampshire to practice forestry on private lands.

**Career Opportunities**

Forestry consultant, forest fire control and use technician, mapping technician, geographic information systems/global positioning systems (GIS/GPS) technician, timber and log buyer, log scaler, lumber grader, sawmill technician, arborist, urban tree care specialist, timber cruiser/forest inventory technician, or forestry equipment/products sales representative.

**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Forest Technology program. Forest Technology students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
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<td>FORT 461</td>
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<td>FORT 463</td>
<td>Forest Ecology</td>
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<td>FORT 465</td>
<td>Forest Orientation Seminar</td>
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<td>FORT 466</td>
<td>Forest Surveying and Mapping</td>
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<td>FORT 470</td>
<td>Applied Silviculture</td>
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<td>FORT 475</td>
<td>Forestry Field Practice</td>
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<td>FORT 567</td>
<td>Leadership, Supervision &amp; Safety</td>
<td>2</td>
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<tr>
<td>FORT 569</td>
<td>Wildlife Ecology &amp; Conservation</td>
<td>3</td>
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<tr>
<td>FORT 572</td>
<td>Mensuration</td>
<td>4</td>
</tr>
<tr>
<td>FORT 573</td>
<td>Management Operation &amp; Analysis</td>
<td>3</td>
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<tr>
<td>FORT 574</td>
<td>Industrial Forest Management Tour</td>
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<td>FORT 576</td>
<td>Forest Products</td>
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<td>FORT 577</td>
<td>Forest Harvesting Systems</td>
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<td>FORT 578</td>
<td>Forest Insects &amp; Diseases</td>
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<td>FORT 579</td>
<td>Forest Fire Control and Use</td>
<td>2</td>
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<tr>
<td>FORT 581</td>
<td>Applied Geographic Information Systems (GIS) Techniques</td>
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Total Credits 51

**Degree Plan**

**Forest Technician Program of Study**

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<thead>
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<tr>
<td>COM 209</td>
<td>Expository Writing and Reading</td>
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<tr>
<td>FORT 461</td>
<td>Dendrology</td>
<td>3</td>
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<tr>
<td>FORT 463</td>
<td>Forest Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FORT 465</td>
<td>Forest Orientation Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MTH 203</td>
<td>Algebra and Trigonometry</td>
<td>3</td>
</tr>
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</table>
Horticultural Technology (HT)

Horticultural technology (HT) students study applied plant science, preparing for environmentally attuned careers in "the green industry." Rigorous first-year foundation courses in plant materials, plant growth and development, and soils support second-year concentrations in landscape construction management or plant production. Courses unique to the program include "pond-less" water features, lighting design/installation, rain harvesting, and hydroponics/aquaponics. Employment opportunities in these areas continue to be excellent. Graduates enter a rapidly expanding job market in plant production, nursery and garden center management, fruit and vegetable production, parks and grounds management, landscape construction and management. Many recent graduates have established their own horticulture enterprises, and others continue their education toward a four-year degree in areas such as environmental horticulture, greenhouse production, or landscape architecture.

Admissions Requirements

Applicants to the horticultural technology program area must present college preparatory English and at least two years of satisfactory work in both college preparatory mathematics and science (one science being biology, with a lab).

Curriculum Fee

Horticultural technology, both concentrations: $831

This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

Programs

- Horticultural Technology: Landscape Construction and Management Concentration (A.A.S.) (p. 311)
- Horticulture Technology: Plant Production Concentration (A.A.S.) (p. 312)

Faculty

http://colsa.unh.edu/faculty/all

Horticultural Technology: Landscape Construction and Management Concentration (A.A.S.)

http://colsa.unh.edu/tsas/hort/landscape-construction-management

Description

Landscape construction and management has been projected to be one of the fastest growing service industries of the coming decade. It is a field that also offers unparalleled aesthetic satisfaction and meaningful reward. To succeed in the landscape industry increasingly requires a degree of technical and scientific expertise, as well as creativity, artistry, and problem-solving skills. Students in the landscape operation concentration gain a solid foundation by completing core requirements in the fundamentals of plant growth and development, soils, plant identification, pruning, and plant health care. They then complete a series of landscape maintenance, construction, and business courses. This combination prepares them to become successful members of the landscape industry. In their classes, students meld theory and practice, and then apply what they learn in weekly lab periods and on-site visits to area operations.

Career Opportunities

Landscape construction specialist, garden center/nursery sales, or maintenance/management for golf courses, schools and parks, private and public grounds.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying
the requirements of the Horticultural Technology Landscape Construction Management program. Landscape Construction Management students are required to take:

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<thead>
<tr>
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<tbody>
<tr>
<td>HT 405</td>
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<td>HT 407</td>
<td>Plant Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>HT 415</td>
<td>Soils and Land Use</td>
<td>2</td>
</tr>
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<td>HT 416</td>
<td>Soils and Plant Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>HT 454</td>
<td>Irrigation Design</td>
<td>3</td>
</tr>
<tr>
<td>HT 458</td>
<td>Herbaceous Ornamental Plants</td>
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<tr>
<td>HT 460</td>
<td>Sustainable Plant Management</td>
<td>4</td>
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<tr>
<td>HT 553</td>
<td>&quot;Pond-less&quot; Water Feature Design and Installation</td>
<td>2</td>
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<tr>
<td>HT 554</td>
<td>Sustainable Irrigation and Rain Harvesting</td>
<td>3</td>
</tr>
<tr>
<td>HT 555</td>
<td>Landscape Lighting Design and Installation</td>
<td>2</td>
</tr>
<tr>
<td>HT 563</td>
<td>Landscape Construction</td>
<td>4</td>
</tr>
<tr>
<td>HT 565</td>
<td>Turf Management</td>
<td>4</td>
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<tr>
<td>HT 572</td>
<td>Horticultural Work Experience</td>
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</tr>
<tr>
<td>AM 462</td>
<td>Internal Combustion Engines II</td>
<td>4</td>
</tr>
<tr>
<td>AM 504A</td>
<td>Introduction to Business I</td>
<td>2</td>
</tr>
<tr>
<td>AM 504B</td>
<td>Introduction to Business II</td>
<td>2</td>
</tr>
<tr>
<td>FORT 564</td>
<td>Arboriculture</td>
<td>3</td>
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<tr>
<td>FORT 578</td>
<td>Forest Insects &amp; Diseases</td>
<td>2</td>
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Choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABM 508</td>
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<tr>
<td>ABM 514</td>
<td>Applied Sales</td>
<td>2</td>
</tr>
<tr>
<td>ABM 532</td>
<td>Small Business Law</td>
<td>2</td>
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<tr>
<td>TSAS 405A</td>
<td>Computers in the Workplace/Focus on Software Applications</td>
<td>2</td>
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<tr>
<td>TSAS 405B</td>
<td>Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security</td>
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<tr>
<td>SSCI 403</td>
<td>Environmental Issues &amp; Society</td>
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Total Credits: 60

Degree Plan

Landscape Operations Concentration Program of Study

First Year

**Fall**

<table>
<thead>
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<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>COM 210</td>
<td>Public Speaking</td>
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<tr>
<td>HT 407</td>
<td>Plant Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>HT 415</td>
<td>Soils and Land Use (Half-term I)</td>
<td>2</td>
</tr>
<tr>
<td>HT 416</td>
<td>Soils and Plant Nutrition (Half-term II)</td>
<td>2</td>
</tr>
<tr>
<td>HT 553</td>
<td>&quot;Pond-less&quot; Water Feature Design and Installation</td>
<td>2</td>
</tr>
<tr>
<td>HT 555</td>
<td>Landscape Lighting Design and Installation</td>
<td>2</td>
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<tr>
<td>TSAS 405A</td>
<td>Computers in the Workplace/Focus on Software Applications</td>
<td>2</td>
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Choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ABM 508</td>
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</tr>
<tr>
<td>ABM 514</td>
<td>Applied Sales</td>
<td>2</td>
</tr>
<tr>
<td>ABM 532</td>
<td>Small Business Law</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 19

Horticulture Technology: Plant Production Concentration (A.A.S.)

http://colsa.unh.edu/tsas/hort/plant-production

**Description**

Ornamental, food, and medicinal crop production, whether hydroponics or conventional field agriculture, are areas of great growth potential and life satisfaction. In the Horticultural Technology Plant Production Concentration, students will learn all aspects of plant crop production in controlled environments and in field production systems.

After learning the fundamentals of soil and plant science, students will develop an understanding of crop production in soil, soil-less and hydroponic systems. Other areas of study include crop scheduling, crop care, crop health management, plant production business operation,
Students will also learn about greenhouse design, construction, operation and management.

In addition to comprehensive classroom and field trip studies, students in this concentration will learn extensively by producing crops in the Thompson School's fully functional greenhouse facility and potentially working in the College of Life Science and Agriculture's high tunnel production system.

**Career Opportunities**


**Requirements**

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Horticultural Technology Plant Production concentration. Plant Production students are required to take:

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<thead>
<tr>
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<tbody>
<tr>
<td>HT 404</td>
<td>Plant Propagation</td>
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<td>HT 405</td>
<td>Plants, People, Place</td>
<td>2</td>
</tr>
<tr>
<td>HT 407</td>
<td>Plant Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>HT 415</td>
<td>Soils and Land Use</td>
<td>2</td>
</tr>
<tr>
<td>HT 416</td>
<td>Soils and Plant Nutrition</td>
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</tr>
<tr>
<td>HT 427</td>
<td>Horticultural Facilities Mgmt</td>
<td>2</td>
</tr>
<tr>
<td>HT 428</td>
<td>Horticultural Facilities Mgmt (II)</td>
<td>2</td>
</tr>
<tr>
<td>HT 458</td>
<td>Herbaceous Ornamental Plants</td>
<td>2</td>
</tr>
<tr>
<td>HT 529</td>
<td>Horticultural Facilities Mgmt (Greenhouse Practicum and Capstone I)</td>
<td>2</td>
</tr>
<tr>
<td>HT 530</td>
<td>Horticultural Facilities Mgmt (Greenhouse Practicum and Capstone I)</td>
<td>2</td>
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<tr>
<td>HT 557</td>
<td>Woody Landscape Plants</td>
<td>3</td>
</tr>
<tr>
<td>HT 575</td>
<td>Hydroponics</td>
<td>2</td>
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<tr>
<td>HT 576</td>
<td>Greenhouse Crop Production</td>
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</tr>
<tr>
<td>HT 585</td>
<td>Fruit and Vegetable Production</td>
<td>3</td>
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<tr>
<td>HT 597</td>
<td>Horticultural Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>ABM 404A</td>
<td>Introduction to Business I</td>
<td>2</td>
</tr>
<tr>
<td>ABM 404B</td>
<td>Introduction to Business II</td>
<td>2</td>
</tr>
<tr>
<td>COM 210</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>FORT 578</td>
<td>Forest Insects &amp; Diseases</td>
<td>2</td>
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<tr>
<td>SAFS 679</td>
<td>Food Production Field Experience I</td>
<td>4</td>
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<tr>
<td>SAFS 680</td>
<td>Food Production Field Experience II</td>
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<tr>
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<tr>
<td>ABM 532</td>
<td>Small Business Law</td>
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**Degree Plan**

**Plant Production Concentration Program of Study**

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<tr>
<td>HT 407</td>
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<td>HT 415</td>
<td>Soils and Land Use (1/2 term)</td>
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<tr>
<td>HT 416</td>
<td>Soils and Plant Nutrition</td>
<td>2</td>
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<tr>
<td>HT 427</td>
<td>Horticultural Facilities Mgmt</td>
<td>2</td>
</tr>
<tr>
<td>MTH 202</td>
<td>College Algebra</td>
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<td>TSAS 405B</td>
<td>Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security</td>
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<td>HT 415</td>
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<td>HT 416</td>
<td>Soils and Plant Nutrition</td>
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<tr>
<td>HT 427</td>
<td>Horticultural Facilities Mgmt</td>
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<tr>
<td>MTH 202</td>
<td>College Algebra</td>
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| credits | 17 |

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<tr>
<td>COM 210</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>FORT 578</td>
<td>Forest Insects &amp; Diseases</td>
<td>2</td>
</tr>
<tr>
<td>HT 404</td>
<td>Plant Propagation</td>
<td>4</td>
</tr>
<tr>
<td>HT 428</td>
<td>Horticultural Facilities Mgmt (II)</td>
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<tr>
<td>SAFS 679</td>
<td>Food Production Field Experience I</td>
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| credits | 19 |

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<td>Fall</td>
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<tr>
<td>HT 529</td>
<td>Horticultural Facilities Mgmt (Greenhouse Practicum and Capstone I)</td>
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</tr>
<tr>
<td>HT 557</td>
<td>Woody Landscape Plants</td>
<td>3</td>
</tr>
<tr>
<td>HT 458</td>
<td>Herbaceous Ornamental Plants</td>
<td>2</td>
</tr>
<tr>
<td>HT 457</td>
<td>Hydroponics</td>
<td>2</td>
</tr>
<tr>
<td>HT 585</td>
<td>Fruit and Vegetable Production</td>
<td>3</td>
</tr>
<tr>
<td>HT 597</td>
<td>Horticultural Work Experience</td>
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</tr>
<tr>
<td>SAFS 680</td>
<td>Food Production Field Experience II</td>
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| credits | 18 |

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<tbody>
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<td>Horticultural Facilities Mgmt (Greenhouse Practicum and Capstone II)</td>
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</tr>
<tr>
<td>HT 405</td>
<td>Plants, People, Place</td>
<td>3</td>
</tr>
<tr>
<td>HT 458</td>
<td>Herbaceous Ornamental Plants</td>
<td>2</td>
</tr>
<tr>
<td>HT 457</td>
<td>Hydroponics</td>
<td>2</td>
</tr>
<tr>
<td>HT 585</td>
<td>Fruit and Vegetable Production</td>
<td>3</td>
</tr>
<tr>
<td>HT 597</td>
<td>Horticultural Work Experience</td>
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</tr>
<tr>
<td>SAFS 680</td>
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<td>4</td>
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| credits | 18 |

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<thead>
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<tr>
<td>ABM 508</td>
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<td>ABM 514</td>
<td>Applied Sales</td>
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<tr>
<td>ABM 532</td>
<td>Small Business Law</td>
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</tbody>
</table>
Integrated Agriculture Management (IAG)

The course of study in integrated agriculture management addresses the critical importance of understanding the relationships among agriculture, forestry, business management and marketing, nutrition, food systems, the environment, and community. We live in a world where everything is connected. No one piece can be managed without some understanding of the other pieces and their connections. We also live in a world in which diversification—whether in biology or in business—is a necessary ingredient for rapid adaptation and continued survival.

Integrated agriculture management (IAG) guides students to examine ecological and cultural relationships, and to assemble a collection of coursework in a focus area while attending the Thompson School. The IAG program is truly interdisciplinary, drawing upon diverse course offerings across several of the academic programs at the Thompson School.

Graduates of IAG will be able to choose from a large number of opportunities across an array of fields, including sustainable agriculture, fruit and vegetable production, livestock production, community-supported agriculture (CSA), value-added agricultural products, sustainable forest management, soil/water/forest conservation, cooperative extension, organic certification, and diversified farm management, or in more specific areas such as greenhouse production, sustainable landscape construction and maintenance, forest technician, dairy management, and others. A number of current students plan to return to family farms with new information and insight to help determine the future of their lands and enterprises as the world changes.

Graduates are also encouraged to consider transferring into UNH's baccalaureate program in sustainable agriculture and food systems.

Admissions Requirements

Applicants to integrated agriculture management must present at least two years each of satisfactory work in college preparatory mathematics and sciences. One of the science courses should be biology with a lab.

Curriculum Fee

Integrated agriculture management: $831

This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the program. The curriculum fee covers the entire two-year course of study. There may be additional fees for uniforms, specific high-cost courses, and/or professional equipment. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

Career Opportunities

- Working on diversified farms where forestry, horticulture, and/or livestock and dairy might be a component
- Working for non-profit farm and forest education centers
- Managing New England farms based on dairy, horticulture, livestock, forestry, etc.
- Technicians working in pest control for commercial greenhouses, dairy and livestock farms, or forest operations
- Technicians for the Natural Resource Conservation Service
- Marketing farm products for New England farmers
- Operating community-supported agriculture (CSA) and farm stands
- Producing unique, local and/or organic products for direct marketing to consumers
- Partnering with horticultural growers and dairy producers to create high-end market opportunities

http://colsa.unh.edu/tsas/iag/integrated-agriculture-management

Programs

- Integrated Agriculture Management (A.A.S.) (p. 314)

Faculty

http://colsa.unh.edu/faculty/all

Integrated Agriculture Management (A.A.S.)

http://colsa.unh.edu/tsas/iag/integrated-agriculture-management

Description

First-year students in IAG take a core of courses covering the basics of soils, plants, and animals. This provides a strong foundation for second-year study, during which the student may either specialize in one or two areas or take courses across the breadth of programs in horticultural technology, applied animal science, forest technology, civil technology, and culinary arts and nutrition. Working closely with a faculty advisor, and benefitting from a wide array of flexible concentration courses, the student in integrated agriculture management designs the path of study that aligns with his or her particular talents and interests.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Integrated Agriculture Management (IAG) program. IAG students are required to take:

Required Program Courses

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>or AAS 431</td>
<td>Introduction to Animal Science</td>
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Choose one of the following: 3-4

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<tr>
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</thead>
<tbody>
<tr>
<td>FORT 461</td>
<td>Dendrology</td>
<td></td>
</tr>
<tr>
<td>HT 405 &amp; HT 458</td>
<td>Plants, People, Place and Heraceous Ornamental Plants</td>
<td></td>
</tr>
<tr>
<td>HT 557</td>
<td>and Woody Landscape Plants</td>
<td></td>
</tr>
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<td>HT 585</td>
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<td>Forest Harvesting Systems</td>
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<td>Forest Fire Control and Use</td>
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**Degree Plan**

**Integrated Agriculture Management Program of Study**

The curriculum checklist (or roadmap to the degree) that follows is the recommended sequence of courses for IAG students. However, the sequence of when courses are taken can be modified in consultation with the student's faculty adviser.

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<td>Dendrology</td>
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<td>HT 405   &amp; HT 458 &amp; HT 557</td>
<td>Plants, People, Place and Herbaceous Ornamental Plants and Woody Landscape Plants</td>
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<td>Fruit and Vegetable Production</td>
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<td>COM 209</td>
<td>Expository Writing and Reading</td>
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Veterinary Technology (VTEC)

Program Mission Statement

The program provides veterinary technology students with a broad understanding of veterinary medicine and the role of animals in society. Students are instructed in the methods and knowledge of veterinary technology such that they become veterinary technicians who are strong advocates for animals, capable of compassionate and accurate animal care; professional in their actions and judgments; and have a desire for lifelong learning and self-improvement.

The primary goal of the veterinary technology program is to provide students with exceptional technical and clinical reasoning skills and knowledge in veterinary technology such that graduates will be prepared to pass the Veterinary Technician National Exam (VTNE) and to be immediate and valuable members of a veterinary medical team. Additionally, the program aims to develop a firm foundation in both farm animal and companion animal veterinary practices. Courses in the program cover basic sciences, veterinary nursing, and veterinary practice management, with a strong focus on hands-on practical knowledge throughout the curriculum. Students gain basic knowledge and skills for the major domestic animal species (dog, cat, horse, and cow). Integration of knowledge in communication, veterinary ethical and legal issues, veterinary practice management, clinical reasoning skills, and hands-on technical skills allow students to become complete veterinary technicians, capable of providing high-quality, compassionate, and expert care to animals both small and large.

Practical learning experience is provided at the brand new Veterinary Teaching Clinic, the UNH equine facilities (https://colsa.unh.edu/dbs/equine/facilities) and the Thomas P. Fairchild Dairy Teaching and Research Center (https://colsa.unh.edu/nhaes/fairchild) and the UNH Organic Dairy Research Farm (https://colsa.unh.edu/nhaes/odrf). The program has a number of animal-related educational partnerships, including those with the New Hampshire SPCA (http://www.nhspca.org) in Stratham, N.H., the Cochecho Valley Humane Society (http://www.cvhsonline.org) in Dover, N.H, and the Pope Memorial SPCA (http://www.popememorialsPCA.org) in Concord, NH. The veterinary technology curriculum also includes a service learning course where students provide wellness services to local pets in need.

The program is accredited by the AVMA (https://www.avma.org/Pages/home.aspx). Students who graduate from an accredited program are eligible to take the Veterinary Technician National Exam (VTNE) (https://www.aavsb.org/vtne) and pursue credentialing.

Admissions Requirements

Applicants to veterinary technology must present four years of college preparatory biology, a minimum of three years of social sciences, a minimum of two years of satisfactory work in college preparatory mathematics (three years is strongly suggested, through Algebra 2), and three years of college prep sciences. Two of the three should be college preparatory biology and chemistry with labs. It is recommended that applicants have some experience with animals in a professional setting, and applicants should include a statement in the student application describing their experience. Successful applicants have an overall minimum GPA of 3.0 on a weighted 4.0 scale as well as solid SAT/ACT scores.

Curriculum Fee

Veterinary technology: $744

1 This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the program. The curriculum fee covers the entire two-year course of study. There may be additional fees for uniforms, specific high-cost courses, and/or professional equipment. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.
Description

Veterinary Technology Curriculum Requirements

Students must demonstrate all of the following for retention in and graduation from the veterinary technology program:

1. A minimum grade of C+ in all AAS and VTEC courses, plus TSAS 235 (Chemistry) and MTH 202 (College Algebra).
2. A cumulative GPA of 2.5 in the courses listed above.

Students may repeat a major course only one time before dismissal from the major. Courses must be completed in proper sequence, according to prerequisites as listed in the course catalog.

All coursework in the veterinary technology curriculum should be completed within five years of matriculating into the program. If this cannot be accomplished, the student may be required to retake major courses where AVMA essential skills have changed significantly.

Students must successfully complete all required skills listed in the Veterinary Technology Essential and Recommended Skills List developed by the Committee on Veterinary Technician Education and Activities (CVTEA) of the American Veterinary Medical Association (AVMA), the accrediting body for this program.

Students must show proof of pre-exposure rabies immunization or adequate rabies titer prior to enrollment in practicum and internship coursework. Transportation is provided to students for practicum coursework. Students are responsible for providing their own transportation during internship experiences.

Career Opportunities

Credentialed veterinary technicians can work in private veterinary hospitals, biomedical research laboratories, humane societies, zoos, and wildlife centers, and can specialize in areas such as anesthesia and surgical assisting, behavior, and emergency medicine.

Requirements

Candidates for a degree must satisfy all of the Thompson School of Applied Science General Education requirements in addition to satisfying the requirements of the Veterinary Technology program. Veterinary Technology students are required to take:

Required Program Courses

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<tr>
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<td>Large Animal Behavior and Handling Techniques</td>
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<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
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<td>AAS 428B</td>
<td>Anatomy and Physiology of Domestic Animals Lab for VTEC majors</td>
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<td>AAS 430</td>
<td>Small Animal Breeds and Behavior</td>
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<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
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<td>AAS 550</td>
<td>Clinical Animal Nursing Techniques II</td>
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<td>AAS 579</td>
<td>Small Animal Care Practicum</td>
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Total Credits 52

Degree Plan

Veterinary Technology Program of Study

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<td>TSAS 235</td>
<td>Introductory Chemistry</td>
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<td>VTEC 424</td>
<td>Introduction to Veterinary Technology</td>
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<td>VTEC 497</td>
<td>Veterinary Technology Work Experience</td>
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<td>Pharmacology for Veterinary Technicians</td>
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<td>VTEC 575</td>
<td>Veterinary Anesthesia and Surgical Assisting</td>
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<td>Small Animal Practicum for Veterinary Technicians</td>
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<td>VTEC 582</td>
<td>Pet Access to Wellness Services (PAWS)</td>
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First Year

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Spring

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**Spring**

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<td>VTEC 595</td>
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</tbody>
</table>

**Total Credits:** 16

**Total Credits:** 67

---

### Approved Veterinary Technology Elective List (when offered)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>AAS 422</td>
<td>Small Animal Grooming I</td>
<td>2</td>
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<tr>
<td>AAS 424</td>
<td>Animal Law and Regulations</td>
<td>3</td>
</tr>
<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>AAS 426</td>
<td>Equine Conformation and Lameness</td>
<td>4</td>
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<tr>
<td>AAS 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
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<tr>
<td>AAS 525</td>
<td>Canine Learning Theory and Application</td>
<td>4</td>
</tr>
<tr>
<td>AAS 535</td>
<td>Animal Nutrition</td>
<td>3</td>
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<tr>
<td>AAS 540</td>
<td>Animal Breeding</td>
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<tr>
<td>AAS 552</td>
<td>Equine Health Management</td>
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<tr>
<td>AAS 558</td>
<td>Animal Population Medicine and Management</td>
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</tr>
<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
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</tr>
</tbody>
</table>
University of New Hampshire at Manchester

manchester.unh.edu (http://manchester.unh.edu)

Michael P. Decelle, Dean
Kimberly M. DeRego, Associate Dean
Daniel W. Reagan, Associate Dean
Ann E. Donahue, Interim Assistant Dean

Welcome to the University of New Hampshire at Manchester—the university’s campus in the heart of Merrimack Valley. Our mission is to provide the world-class UNH education and diploma to students in southern New Hampshire. We offer an affordable avenue to earn a UNH degree, with smaller classes held at times that accommodate the schedules of students who are also working.

At UNH Manchester, we capitalize on our location in the revitalized millyard of New Hampshire’s largest city. Our campus on the banks of the Merrimack River is a few blocks from the heart of the state’s financial and corporate center and home to many of the region’s non-profit and government offices. Led by faculty who are experts in their fields, our programs prepare students for the opportunities of tomorrow in the region’s business, education, government, non-profit, service, and technology sectors.

UNH Manchester is uniquely equipped to support regional economic development, creating a campus environment in which students, faculty, business/industry, government, and non-profits collaborate on mutually beneficial projects and initiatives. As a community partner, we have a commitment to the region’s economic vitality, respond to educational and economic opportunities, and support innovation and student access to programs designed and delivered for the future.

Bringing together career-driven programs, faculty talent and a focus on experiential learning, UNH Manchester prepares students for success in their chosen field — and connects them to the wealth of opportunities in the region.

Accreditation

The University of New Hampshire at Manchester was established in 1985 as the sixth undergraduate college of the University of New Hampshire. The University of New Hampshire is accredited by the New England Association of Schools and Colleges, which accredits schools and colleges in the six New England states. Accreditation by the association indicates that the institution has been carefully reviewed and found to meet or exceed standards agreed upon by nationally recognized educators.

Faculty

The UNH Manchester faculty is its greatest asset. Residential faculty members have earned reputations for excellent teaching, scholarly achievement in their fields, and service to the community. They are recognized scholars and have acquired national and international reputations. Adjunct faculty members bring applied experience and a commitment to teaching to the classroom. Most importantly, UNH Manchester’s dedicated faculty members are outstanding teachers who care about each individual student. Faculty members work closely with students as advisers and help students define their goals, plan career objectives, and develop an individualized program of study within each major.

Programs of Study

- ASL/English Interpreting (ASL) (p. 319)
- Analytics and Data Science (DATA) (p. 321)
- Art (p. 323)
- Biological Sciences (BSCI) (p. 323)
- Biotechnology (BIOTECH) (p. 325)
- Business (BUS) (p. 327)
- Communication Arts (CA) (p. 331)
- Computer Information Systems (COMP) (p. 336)
- Computer Science and Entrepreneurship (COMP) (p. 338)
- Education (p. 339)
- Engineering Technology (ET) (p. 340)
- English Teaching (ENGLTECH) (p. 341)
- General Studies (GENSTUD) (p. 343)
- History (HIST) (p. 343)
- Homeland Security (HLS) (p. 345)
- Humanities (HUMA) (p. 347)
- Legal Advocacy (p. 348)
- Literary Arts and Studies (LAS) (p. 348)
- Neuropsychology (PSYC) (p. 352)
- Philosophy (p. 353)
- Politics and Society (PS) (p. 354)
- Psychology (PSYC) (p. 359)

ASL/English Interpreting (ASL)

Preparing skillful interpreters through interaction and immersion

In the nation’s first accredited interpreting program and one of only 14 accredited programs in the country, you’ll learn American Sign Language and the foundation of ASL/English interpreting from distinguished faculty, all of whom are native ASL signers and/or certified interpreters.

The demand for skilled interpreters is on the rise, with the Bureau of Labor Statistics (http://www.bls.gov/ooh) projecting 29 percent growth in the interpreting field between 2014 and 2024. Our program prepares you to work with the Deaf community by teaching you the intricacies of American Sign Language and Deaf culture, as well as the skills you need to pursue a career as an ASL/English interpreter.

Students are integrated with the Deaf community inside and outside the classroom, which is a very unique feature of our ASL/English Interpreting program. During your senior year internship, you will be paired with a nationally certified mentor and use your interpretation and ASL skills within organizations throughout the state.

Our graduates have pursued careers in ASL/English interpreting, deaf education, rehabilitation, healthcare, audiology, social work, counseling and the media. From medicine to law, education to performing arts — your career opportunities as a bilingual and bicultural graduate are vast.

http://manchester.unh.edu/academics/degree-programs/sign-language-interpretation
Programs

- ASL/English Interpreting Major (B.S.) (p. 320)
- American Sign Language and Deaf Studies Minor (p. 321)

Faculty

ASL/English Interpreting Faculty (http://manchester.unh.edu/academics/degree-programs/asl-english-interpreting/#unhstyleCollapsePane2684)

ASL/English Interpreting Major (B.S.)

http://manchester.unh.edu/academics/degree-programs/asl-english-interpreting/

Description

The American Sign Language (ASL)/English interpreting program at UNH Manchester is a specialized, in-depth program with a national reputation for quality and has twice been recognized at the national level. In 1999, the program became the first interpreting program in the country to be found in compliance with the National Interpreter Education Standards of the Conference of Interpreter Trainers (CIT). In 2007, the program became the first interpreting program in the nation to be accredited by the Commission on Collegiate Interpreter Education (CCIE). UNH Manchester also houses one of northern New England’s most comprehensive collections of books and media materials on ASL/English interpreting.

The program is guided by the premise that deaf people, as a linguistic minority, possess their own cultural values, literature, history, traditions, and social conventions. Interpretation requires bilingual and bicultural competence in spoken English and American Sign Language. The ASL/English interpreting program at UNH Manchester provides students with a strong theoretical foundation as generalists in ASL/English interpreting and helps prepare students for either state-level interpreter screening or national Registry of Interpreters for the Deaf (RID) interpreter certification, depending on students’ skill level and experience.

Graduates may go on to pursue specialty areas in interpretation or related fields of study.

Students who complete the bachelor of science degree in ASL/English interpreting graduate with a varied and flexible academic base. Interpreting requires skills such as sustained powers of concentration, versatility in dealing with a variety of people and content areas, fast-thinking and excellent communication skills in the respective languages. Students seeking to become interpreters receive a foundation in American Sign Language, Deaf culture, and the interpreting process, and their programs of study often include elective courses in linguistics, sociology, communication, and psychology. Students also gain a thorough grounding in the liberal arts through the University’s Discovery program.

Graduates of the ASL/English interpreting program may pursue careers in ASL/English interpreting, deaf education, rehabilitation, health care, audiology, social work, counseling, and the media. The program provides students with a varied and flexible academic base. Graduates are prepared for further study in such fields as psychology, communication, linguistics, sociology, and anthropology.

Requirements

Students must complete 64 credits in the major, 40 credits in the University’s Discovery program, and 24 credits in elective courses. Students must complete 64 credits in the major with a grade of C or better. Students who earn less than a C on a particular course may repeat that course only once. Students must achieve a GPA of 2.5 or better in major courses and must pass both ASL 532 American Sign Language IV and INTR 630 Consecutive Interpretation I with at least a B- (or successfully demonstrate competence in American Sign Language and consecutive interpretation, respectively). Transfer students must complete a minimum of eight ASL/English interpreting courses at UNH Manchester.

Required Courses

<table>
<thead>
<tr>
<th>Language Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ASL 435 American Sign Language I</td>
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<tr>
<td>ASL 436 American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>ASL 532 American Sign Language IV</td>
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</tr>
<tr>
<td>ASL 621 Advanced American Sign Language Discourse I</td>
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<td>ASL 622 Advanced American Sign Language Discourse II</td>
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<table>
<thead>
<tr>
<th>Culture and Linguistics Courses</th>
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<tbody>
<tr>
<td>INTR 438 A Socio-cultural Perspective on the Deaf Community</td>
<td>4</td>
</tr>
<tr>
<td>INTR 539 Comparative Linguistic Analysis for Interpreters</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Interpreting Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INTR 430 Introduction to Interpretation</td>
<td>4</td>
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<tr>
<td>INTR 439 Ethics and Professional Standards for Interpreters</td>
<td>4</td>
</tr>
<tr>
<td>INTR 540 Translation</td>
<td>4</td>
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<tr>
<td>INTR 630 Consecutive Interpretation I</td>
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<tr>
<td>INTR 636 Consecutive Interpretation II</td>
<td>4</td>
</tr>
<tr>
<td>INTR 732 Simultaneous Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>INTR 734 Field Experience and Seminar I</td>
<td>4</td>
</tr>
<tr>
<td>INTR 735 Field Experience and Seminar II</td>
<td>4</td>
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</table>

Total Credits 64

Capstone Experience

The capstone experience in the bachelor of science degree program in ASL/English interpreting is met by INTR 735 Field Experience and Seminar II, which is a senior-level course and the last in the sequence of courses required for the major. This course meets the following two criteria of the capstone experience for this major:

1. the capstone synthesizes and applies disciplinary knowledge and skills,
2. the capstone demonstrates emerging professional competencies.

For more information, contact Jack Hoza, program director, (603) 641-4143, jack.hoza@unh.edu or the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
American Sign Language and Deaf Studies Minor

http://manchester.unh.edu/academics/degree-programs/american-sign-language-deaf-studies-minor

**Description**

To earn a minor in American Sign Language and Deaf Studies, students must complete 24 credits, with no individual grade lower than C-.

**Requirements**

**Required Courses**

- ASL 435 American Sign Language I 4
- ASL 436 American Sign Language II 4
- INTR 438 A Socio-cultural Perspective on the Deaf Community 4

**Electives**

Select three courses from the following: 12

- ASL 531 American Sign Language III
- ASL 532 American Sign Language IV
- INTR 539 Comparative Linguistic Analysis for Interpreters
- ASL 599 Special Topics in American Sign Language/Deaf Studies
- ASL 621 Advanced American Sign Language Discourse I
- ASL 622 Advanced American Sign Language Discourse II

Total Credits 24

For more information, contact Jack Hoza, program coordinator, at (603) 641-4143 or jack.hoza@unh.edu.

Analytics and Data Science (DATA)

**Shaping the next generation of data revolutionaries**

With an explosion of big data initiatives in organizations worldwide, the demand for data-savvy individuals has never been higher. Fully available on both campus sites - Durham and Manchester, our Analytics and Data Science program is the only on-campus degree of its kind in the region, specifically designed to prepare the next generation of innovative data scientists and analysts.

You’ll learn the cutting-edge technical skills you need to manage, distill, and interpret data for industries from finance to healthcare to marketing and advertising. You’ll master programming languages like Python and Ruby so you can derive actionable information from data, and the industry-standard software SAS, making you eligible for certification as a base SAS programmer or a SAS business analyst. Plus, you’ll become fluent in big-data frameworks like Hadoop and MapReduce – valuable skills to any employer.

Through hands-on learning and real-world experience, you’ll get cutting-edge technical skills and a competitive advantage in a rapidly growing field.

http://manchester.unh.edu/academics/degree-programs/analytics

**Programs**

- Analytics and Data Science Major (B.S.) (p. 321)

**Faculty**

Analytics and Data Science Faculty (http://manchester.unh.edu/academics/degree-programs/analytics/#unhstyleCollapsePane2768)

**Analytics and Data Science Major (B.S.)**

http://manchester.unh.edu/academics/degree-programs/analytics

**Description**

The analytics and data science bachelor of science program, fully available on both Manchester and Durham campuses, is designed to prepare the next generation of data scientists and analytics professionals through a multidisciplinary program that incorporates experiential education, professional development, and project and work experience at a greater level than that typically seen in a bachelor of science program.

The analytics and data science bachelor of science program prepares graduates with the knowledge, skills, and best practices for working in data-intensive roles in industry. Graduates will be prepared to become leaders in data-driven decision-making. The program also prepares graduates to further their studies at the graduate level. Career opportunities are varied, and may include roles such as data engineer, data scientist, business analyst, marketing analyst, quantitative analyst, consultant, and actuary, though this is only a partial list. Career options exist in a wide range of organizations and will expand as more and more industries, governmental organizations, and nonprofits develop, use, and integrate data-driven decision-making processes.

Data scientists and business analysts are often most effective when they have some discipline-specific background or expertise. To assist students in the program in attaining such expertise, departments and programs at the University of New Hampshire will be invited to identify approximately two courses in their program that will provide students an appropriate foundation in their discipline. These courses may already exist, or the program can choose to create them. At least one of the specialization courses must contain a data analysis element. For example, if a student wished to complete a bachelor of science in analytics and data science with a specialization in finance, the student would complete the core analytics curriculum, and would select for their elective/specialization courses the set of courses identified by the business program as providing the foundational knowledge necessary for working in finance. In this way, students can tailor their analytics and data science B.S. degree to suit their interests.

**Program Objectives**

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied
mathematics and statistics, communication skills, and business savvy. Graduates of the bachelor of science in analytics and data science program are expected to have:

- An understanding of the role of data in guiding decision-making in industry
- An understanding of how data is generated, stored, and accessed
- An understanding of data security
- An understanding of the ethical use of data
- An understanding of structured vs. unstructured data
- An understanding of the methods, statistical and other, used to derive actionable information from data
- Experience with multiple programming languages
- Experience with multiple statistical and data analysis software programs
- The ability to communicate detailed, technical information to a variety of audiences clearly and concisely, without the use of jargon
- The ability to work effectively, both as an individual or as a member of a team
- The ability to successfully lead a team
- The ability to adapt to a dynamic, rapidly changing work environment
- Completed projects and other work experiences on a larger scale than is typical in a bachelor’s degree program.

During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

## Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University’s Discovery program, completing all of the 20 required courses in the major as listed below, including the capstone course, the internship preparedness course, and a three-credit internship. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major requirements (not counting those courses used to satisfy Discovery requirements).

## Requirements - Manchester Campus

### Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
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<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
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### Computer Science

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<td>COMP 425</td>
<td>Introduction to Programming</td>
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</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 490</td>
<td>Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>COMP 520</td>
<td>Database Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
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### Business

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<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
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</tr>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
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### Analytics Courses

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<tbody>
<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
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</tr>
<tr>
<td>DATA 674</td>
<td>Predictive and Prescriptive Analytics I</td>
<td>4</td>
</tr>
<tr>
<td>DATA 675</td>
<td>Predictive and Prescriptive Analytics II</td>
<td>4</td>
</tr>
<tr>
<td>DATA 757</td>
<td>Big Data</td>
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<tr>
<td>DATA 790</td>
<td>Capstone Project</td>
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### Professional Development Courses

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<tr>
<td>UMST 599</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>DATA 690</td>
<td>Internship Experience</td>
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</tbody>
</table>

Total Credits: 76

For additional information about the analytics and data science program, contact Jeremiah Johnson, program coordinator, (603) 641-4127, jeremiah.johnson@unh.edu or contact the UNH Manchester Office of Admissions, (603) 641-4150, unhm.admissions@unh.edu.
Art

Programs

- Art Minor (UNHM) (p. 323)

Art Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/arts-minor

Requirements

The minor in art consists of five courses (20 credits) chosen from the offerings of the department, two of which must be at the 500-level or above. Courses can be all studio art, all art history, or a combination of both. Studio art courses are taught at the New Hampshire Institute of Art through a partnership with UNH Manchester.

A maximum of two courses (8 credits) may be transferred from another accredited institution, provided UNH has accepted them as transfer credits. Transfer courses must be a minimum of three credits. Students with three credit transfers must make up the credit shortage.

For more information, contact the Academic Counseling Office (unhm.counseling@unh.edu) at (603) 641-4170.

Biological Sciences (BSCI)

Explore the living world through hands-on experience in the lab and in the field

Discover the inner workings of living organisms from molecules to ecosystems in our Biological Sciences program. As our largest and most popular major, the Biological Sciences program is designed to give you the degree you want — through self-designed concentrations, independent study, research projects, internships, job shadows and more.

You’ll work with faculty mentors to customize your degree around your interests, allowing you to focus your learning in these diverse areas of study:

- Biology Teaching
- Ecology
- Microbiology
- Pre-Dental
- Pre-Med
- Pre-Optometry
- Pre-Pharmacy
- Pre-Physician Assistant Studies
- Pre-Veterinary

Research is central to this program, empowering you to explore, question and invent. Side-by-side with your classmates and professors, you’ll conduct experiments in our seven state-of-the-art labs: general biology, advanced biology, microbiology, general chemistry and organic chemistry, as well as the cell culture research lab and microbiology research lab.

Take a virtual tour of our biology labs. (http://youvis.it/zLiFcr)

You’ll also have the opportunity to apply your skills in the real world through a robust job shadow at the Elliot Hospital Laboratory, an internship at Manchester Water Works, a summer research course at Shoals Marine Laboratory—and so much more.

Through diverse areas of study, faculty experts and hands-on experience, you’ll be prepared for success in graduate, medical or professional studies, and careers in industries from healthcare to agriculture to education.

http://manchester.unh.edu/academics/degree-programs/biological-sciences

Programs

- Biological Sciences (A.S.) (p. 323)
- Biological Sciences Major (B.A.) (p. 324)

Faculty

Biological Sciences Faculty (http://manchester.unh.edu/academics/degree-programs/biological-sciences/#unhstyleCollapsePane73)

Biological Sciences (A.S.)

http://manchester.unh.edu/academics/degree-programs/biological-sciences-associate

Description

Biology is the study of living organisms in both laboratory and field conditions. It concerns itself with questions of understanding the living world, its complex interrelationships, and the role of human beings within it.

The associate of science in biological sciences program at UNH Manchester is designed to serve either as a terminal degree or as a springboard for students interested in the life sciences, which include majors in biology, microbiology, zoology, plant biology, wildlife management, environmental conservation, biochemistry, and animal sciences. Employment opportunities in the public and private sectors include education; food, water, wastewater and other industrial laboratories; clinical laboratories; biotechnology; environmental research and monitoring; and animal behavior.

Requirements

Students must complete a minimum of 64 credits to graduate. There are two tracks in the A.S. degree program at UNH Manchester: biology and microbiology.

Biology Track Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>or MATH 424B</td>
<td>Calculus for Life Sciences</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 414</td>
<td>Principles of Biology II</td>
<td>4</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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Undergraduate Academic Catalog 2017-2018

Biology Core Curriculum

Biology Courses

<table>
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<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>8</td>
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<tr>
<td>&amp; BIOL 414</td>
<td>and Principles of Biology II</td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
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<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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Chemistry Courses

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<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
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Mathematics Courses

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<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
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</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td></td>
</tr>
</tbody>
</table>

Statistics Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 37

1. provide an opportunity for students to complete a baccalaureate degree in biology while completing the required courses for admission to medical, dental, veterinary, physician assistant, pharmacy, physical therapy, optometry, and other professional or graduate programs.

Employment opportunities in the public and private sectors include education; industrial, clinical, and research laboratories; biotechnology; and environmental field research.

Requirements

Students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements. Each course required in the major must be completed with a minimum grade of C-. Students must attain a minimum GPA in the major of 2.0. Transfer students must complete at least 24 credits in the major at UNH. BIOL 413 Principles of Biology I, BIOL 414 Principles of Biology II may be used to satisfy the biological sciences Discovery requirement and CHEM 403 General Chemistry I, CHEM 404 General Chemistry II may be used to satisfy the Physical Sciences Discovery requirement. PSYC 402 Statistics in Psychology may be used to satisfy the Quantitative Reasoning Discovery requirement; however, students interested in graduate or professional programs are encouraged to take MATH 425 Calculus I, or MATH 424B Calculus for Life Sciences, to satisfy the Quantitative Reasoning requirement.

The UNH Manchester B.A. in biological sciences program is structured with three levels of coursework.

Biology Core Curriculum

Biology Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; BIOL 414</td>
<td>and Principles of Biology II</td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Chemistry Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
<td></td>
</tr>
</tbody>
</table>

Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td></td>
</tr>
</tbody>
</table>

Statistics Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 37

1. Other statistics courses such as BIOL 528 Applied Biostatistics I or BUS 430 Introduction to Business Statistics may be used to satisfy this requirement.

Depending on their specific academic and career goals and in consultation with their adviser, students may elect to take additional supporting science courses such as:

Biological Sciences Major (B.A.)

http://manchester.unh.edu/academics/degree-programs/biological-sciences

Description

Biology is the study of living organisms in both laboratory and field conditions. It concerns itself with questions of understanding the living world, its complex interrelationships, and the role of human beings within it.

The B.A. in biological sciences at UNH Manchester is designed to:

1. allow students to earn a baccalaureate degree in biology at UNH Manchester;
2. allow students to combine study in biology with other programs and disciplines by completing a second major, a minor, or a self-designed set of elective courses along with their biology degree;
3. allow students to complete a major in biology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
4. allow students to complete a major in biology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
5. allow students to complete a major in biology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
These courses are often required for admission to medical, professional, and other graduate programs.

**Self-Designed Concentration in Biology**

Students will select, in consultation with their adviser, four biology courses at the 600-700 level to be taken at UNH Manchester or UNH Durham.

**Capstone Experience**

In consultation with your academic advisor, select a capstone experience, such as the following:

- BSCI 792 Research
- BSCI 793 Internship
- BSCI 794 Clinical Microbiology Internship
- BSCI 795 Independent Study

Senior Seminar will meet weekly during either semester of the senior year in a seminar format. Students will share information about capstone experiences, listen to presentations on timely issues in biology, develop career preparation skills, and provide training in poster production. Other methods of oral presentation and scientific writing are explored as students prepare to present the results of their capstone activities at the Undergraduate Research Conference or other venues.

In addition, all students will take elective courses to fulfill the 128-credit requirement for a B.A. degree. These elective courses could fulfill the requirements for a major or minor in another program or they could fulfill a self-designed interdisciplinary concentration. They could include some of the supporting science courses listed above. These courses would be selected in consultation with the adviser and the appropriate faculty adviser in another program.

Note: Students preparing for professional or graduate programs may need to take: CHEM 651 Organic Chemistry I-CHEM 652 Organic Chemistry II and CHEM 653 Organic Chemistry Laboratory-CHEM 654 Organic Chemistry Laboratory. These courses may substitute for CHEM 545 Organic Chemistry/CHEM 546 Organic Chemistry Laboratory and BMCB 658 General Biochemistry-BMCB 659 General Biochemistry Lab. Please consult your academic advisor.

**Biotechnology (BIOTECH)**

**Channeling scientific curiosity to fuel discovery and innovation**

You're a scientist at heart — curious about how everything works, right down to the smallest detail. Exploring topics like biochemistry, molecular biology and genetics, our Biotechnology program puts you at the heart of one of the newest and fastest-growing scientific fields.

Whatever your scientific passion, studying biotechnology can bring you to its doorstep — preparing you to create advancements that can change lives and improve the world around you.

http://manchester.unh.edu/academics/degree-programs/biotechnology

**Programs**

- Biotechnology Major (B.S.) (p. 325)

**Faculty**

Biotechnology Faculty (http://manchester.unh.edu/academics/degree-programs/biotechnology/#unhstyleCollapsePane73)

**Biotechnology Major (B.S.)**

http://manchester.unh.edu/academics/degree-programs/biotechnology

**Description**

Biotechnology is the use of living organisms, biological systems, and small chemicals and biomolecules in technology. Biotechnology has applications in the treatment of diseases, the production of food, the protection of ecosystems, and the generation of energy, as well as in the basic science study of many biological questions.

The B.S. in biotechnology at UNH Manchester is designed to:

1. allow students to earn a baccalaureate degree in biotechnology at UNH;
2. allow students to combine study in biotechnology with other programs and disciplines by completing a minor, or a self-designed set of elective courses along with their biotechnology degree;
3. allow students to complete a major in biotechnology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
4. provide an opportunity for students to complete a baccalaureate degree in biotechnology while completing the required courses for admission to medical, dental, veterinary, physician assistant,
pharmacy, physical therapy, optometry, and other professional or graduate programs.

5. allow students to complete a baccalaureate degree in biotechnology while completing the required courses for admission to graduate research programs (M.S. or Ph.D.) in the life sciences and related fields.

Employment opportunities in the public and private sectors include education; research laboratories; clinical laboratories; forensic laboratories; jobs in diverse areas from research to quality control to sales in the pharmaceutical industry; industrial positions in the food industry; water and wastewater laboratories and facilities; and environmental research and monitoring.

**Requirements**

Students must complete a minimum of 128 credits and satisfy the University's Discovery Program and writing requirement. Each course required in the major must be completed with a minimum grade of C-. Students must attain a minimum GPA in the major of 2.0. Transfer students must complete at least 24 credits in the major at UNH.

BIOL 413 Principles of Biology I, BIOL 414 Principles of Biology II can be used to satisfy the biological sciences Discovery requirement and CHEM 403 General Chemistry I, CHEM 404 General Chemistry II may be used to satisfy the Physical Sciences Discovery requirement. PSYC 402 Statistics in Psychology or MATH 424B Calculus for Life Sciences/MATH 425 Calculus I may be used to satisfy the Quantitative Reasoning Discovery requirement.

The UNH Manchester B.S. in biotechnology program is structured with three levels of coursework.

### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; BIOL 414</td>
<td>Principles of Biology II</td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 501</td>
<td>Ethical Issues in Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 652</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 654</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 407</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

### Advanced Biology Courses (600/700 level)

Select five courses (at least one course from each of the three categories) 20

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 711W</td>
<td>Genomics and Bioinformatics</td>
</tr>
<tr>
<td>GEN 714</td>
<td>Personal Genomics</td>
</tr>
</tbody>
</table>

### I. Advanced Biology courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
</tr>
<tr>
<td>or BMS 705</td>
<td>Immunology</td>
</tr>
<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
</tr>
<tr>
<td>BSCI 620</td>
<td>Global Science Exploration</td>
</tr>
<tr>
<td>BSCI 670</td>
<td>Clinical Pathophysiology</td>
</tr>
<tr>
<td>BSCI 680</td>
<td>Pharmacology</td>
</tr>
<tr>
<td>BSCI 692</td>
<td>Evolutionary Medicine</td>
</tr>
<tr>
<td>BSCI 695</td>
<td>Exploring Biology Teaching (4 credits)</td>
</tr>
<tr>
<td>BSCI 735</td>
<td>Cell Biology</td>
</tr>
</tbody>
</table>

### II. Laboratory Techniques courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
</tr>
<tr>
<td>BSCI 765</td>
<td>Nucleic Acid Techniques</td>
</tr>
<tr>
<td>BSCI 766</td>
<td>Protein and Immunologic Techniques</td>
</tr>
<tr>
<td>BSCI 777</td>
<td>Molecular Biology and Biotechnology</td>
</tr>
<tr>
<td>CHE 651</td>
<td>Biotech Experience/Biomanufacturing (BTEC 220 GBCC)</td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology &amp; ZOOL 626 Animal Physiology</td>
</tr>
</tbody>
</table>

### III. Advanced Microbiology courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 601</td>
<td>Bacteriology of Food</td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
</tr>
<tr>
<td>&amp; BMS 708</td>
<td>and Virology Laboratory</td>
</tr>
<tr>
<td>BSCI 737</td>
<td>Microbial Genomics</td>
</tr>
<tr>
<td>BSCI 740</td>
<td>Aquatic Microbiology</td>
</tr>
</tbody>
</table>

Total Credits 76

1 BMS 705 Immunology, may optionally be taken with or without BMS 715 Immunology Laboratory.

Depending on their specific academic and career goals and in consultation with their adviser, students may elect to take additional supporting science courses and a full year of physics (adding PHYS 402 Introduction to Physics II to PHYS 401 Introduction to Physics I listed above). These courses are often required for admission to medical, veterinary, and other professional and graduate programs.

### Capstone Experience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 701</td>
<td>Senior Seminar I (during either semester of the year)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select a capstone experience, such as the following: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 792</td>
<td>Research</td>
</tr>
<tr>
<td>BSCI 793</td>
<td>Internship</td>
</tr>
<tr>
<td>BSCI 794</td>
<td>Clinical Microbiology Internship</td>
</tr>
<tr>
<td>BSCI 795</td>
<td>Independent Study</td>
</tr>
</tbody>
</table>

Total Credits 5

Senior Seminar will meet weekly during either semester of the senior year in a seminar format. Students will share information about capstone experiences, listen to presentations on timely issues in biology, develop career preparation skills, and provide training in poster production. Other methods of oral presentation and scientific writing are explored as students prepare to present the results of their capstone activities at the Undergraduate Research Conference or other venues.
In addition, all students will take elective courses to fulfill the 128-credit requirement for a B.S. degree. These elective courses could fulfill the requirements for a major or minor in another program or they could fulfill a self-designed interdisciplinary concentration. These courses would be selected in consultation with the adviser and the appropriate faculty adviser in another program.

For more information, contact Stephen Pugh, program coordinator, at Stephen.Pugh@unh.edu; or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Business (BUS)**

**Leadership Through Innovation, Collaboration and Real-World Experience.**

Located in the economic heart of New Hampshire, our Business program gives you the skills, resources and connections to become a successful, innovative leader. Small class sizes offer you individualized attention from faculty, while our vast network of business partners gets you the practical experience employers want.

Our faculty members bring years of industry experience to the classroom, and their flipped-classroom approach means you’ll apply concepts and theories to real, hands-on work. Senior capstone experience brings your learning to life through: an internship or project at a local business, case studies, business ethics study, and developing your professional self.

This highly interdisciplinary program is designed to explore your interests and prepare you for a lucrative career, offering areas of focus in:

- accounting & finance
- business economics
- management and human resources
- marketing and sales

Working hand-in-hand with local businesses through internships, capstone experience or involvement in our award-winning Enactus program (http://manchester.unh.edu/current-students/enactus), you’ll get the real-world experience and leadership skills that today’s employers look for.

http://manchester.unh.edu/academics/degree-programs/business

---

**Business Administration (A.S.) UNHM**

**Description**

http://manchester.unh.edu/academics/degree-programs/business-administration

Our Associate in Science degree in Business Administration is designed to provide students with a stepping stone to a career. Graduates of the program are prepared for entry-level employment opportunities, or to continue their education at the baccalaureate level.

**Requirements**

Students must complete a minimum of 64 credits to graduate with an associate of science degree in business administration. A minimum cumulative GPA of 2.0 is required for graduation. In addition to completing eight Discovery Program courses and one Inquiry or Inquiry-attribute course within their first 48 earned credits, students must complete six courses (24 credits) in the major and one elective course.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>BUS 532</td>
<td>Introduction to Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 533</td>
<td>Introduction to Managerial Accounting</td>
<td>4</td>
</tr>
</tbody>
</table>

**Business Administration Electives**

Select two of the following courses: 1, 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 430</td>
<td>Introduction to Business Statistics</td>
<td></td>
</tr>
<tr>
<td>BUS 601</td>
<td>Financial Management</td>
<td></td>
</tr>
<tr>
<td>BUS 610</td>
<td>Marketing Principles and Applications</td>
<td></td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
<td></td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Internet and Web Authoring</td>
<td></td>
</tr>
<tr>
<td>COMP 515</td>
<td>Multimedia: Introduction and Applications</td>
<td></td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td></td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td></td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td></td>
</tr>
<tr>
<td>ECN 635</td>
<td>Money, Banking and Macroeconomic Activity</td>
<td></td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
<td></td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
<td></td>
</tr>
</tbody>
</table>

Other 600-level ECN or BUS courses by permission of instructor

**Electives**

Select one elective

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
</tr>
</tbody>
</table>

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1 Students may select electives from 600-level ECN or BUS courses with adviser permission.

2 Students planning to pursue the B.A. in business should select BUS 430 Introduction to Business Statistics, and ECN 411 Introduction to Macroeconomic Principles.

For more information, contact Bill Troy (bill.troy@unh.edu), program coordinator, at (603) 641-4345, or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.
Business Major (B.A.) UNHM
http://manchester.unh.edu/academics/degree-programs/business

### Description

The bachelor of arts in business has a strong interdisciplinary focus. The curriculum adheres to a philosophy that effective decision making requires a broad understanding of the institutional and cultural climate within which businesses are operating. The program uses the resources of Manchester’s business community and its economic strengths to provide students with skills, knowledge, and opportunities.

The business program offers areas of focus in accounting, business economics, management (including human resources), and marketing/sales. Students with a unique interest can create a self-designed concentration with approval of their adviser and the coordinator of the business program.

A culminating capstone experience enables students to apply their knowledge in the form of an internship, applied senior project, or special topics seminar. Because this is a bachelor of arts program, students fulfill the foreign language requirement. Students have the opportunity to enhance fluency through community experiences and internships. Graduates of UNH Manchester’s business program are in demand because they offer future employers a portfolio of practical skills and theoretical knowledge, coupled with applied experiences through internships, leading to effective communication and leadership.

### Requirements

Students must complete 128 credits to graduate. Each required course must be completed with a minimum grade of C-. Students must attain a minimum GPA of 2.0 in major courses required for graduation. Majors cannot use BUS 430 Introduction to Business Statistics, ECN 411 Introduction to Macroeconomic Principles, or ECN 412 Introduction to Microeconomic Principles to satisfy both Discovery Program and major requirements. Transfer students must complete at least half of their credits in the major and the 8-credit capstone experience (BUS 705 Business Ethics and either BUS 750 Business Internship Seminar or BUS 760 Applied Senior Project) in residence at UNH Manchester.

#### Introductory Business Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Business Communications)</td>
<td>4</td>
</tr>
<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>BUS 430</td>
<td>Introduction to Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BUS 532</td>
<td>Introduction to Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 533</td>
<td>Introduction to Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 675</td>
<td>Special Topics in Business Administration</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

**Select one of the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Internet and Web Authoring</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
</tr>
</tbody>
</table>

### Intermediate Business Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 601</td>
<td>Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 610</td>
<td>Marketing Principles and Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship ²</td>
<td>1-4</td>
</tr>
</tbody>
</table>

### Capstone

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 705</td>
<td>Business Ethics ³</td>
<td>4</td>
</tr>
<tr>
<td>BUS 750</td>
<td>Business Internship Seminar ³</td>
<td>4</td>
</tr>
<tr>
<td>or BUS 760</td>
<td>Applied Senior Project</td>
<td></td>
</tr>
</tbody>
</table>

### Area of Study

Select an area of study

### Total Credits

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>81-84</td>
</tr>
</tbody>
</table>

---

¹ Prerequisite is ENGL 401 First-Year Writing or equivalent
² Experiential learning is required prior to the last semester at the University. BUS 690 Business Program Internship as an internship course satisfies this requirement. Most students will take two internships at UNH Manchester - (BUS 690 Business Program Internship and BUS 750 Business Internship Seminar.)
³ Business Capstone Experience (two courses: BUS 705 Business Ethics and one senior business seminar [BUS 750 Business Internship Seminar or BUS 760 Applied Senior Project], fulfills the Discovery Program capstone requirement for business majors and is taken during the senior year).

### Areas of Study

#### Business Economics

Select four of the following courses (including at least one course at 600 level or above):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECN 635</td>
<td>Money, Banking and Macroeconomic Activity</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
</tr>
<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship</td>
</tr>
<tr>
<td>BUS 635</td>
<td>Entrepreneur Application through Enactus</td>
</tr>
<tr>
<td>BUS 695</td>
<td>Independent Study in Business</td>
</tr>
</tbody>
</table>

**Total Credits**

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

#### Management

Select four of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
</tr>
<tr>
<td>BUS 455</td>
<td>Management of Human Resources Management</td>
</tr>
<tr>
<td>BUS 520</td>
<td>Training and Development</td>
</tr>
<tr>
<td>BUS 630</td>
<td>International Management</td>
</tr>
<tr>
<td>BUS 635</td>
<td>Entrepreneur Application through Enactus</td>
</tr>
<tr>
<td>BUS 640</td>
<td>Business Communication and Conflict</td>
</tr>
<tr>
<td>BUS 663</td>
<td>Services Marketing and Operations Management</td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship</td>
</tr>
</tbody>
</table>

---
BUS 695  Independent Study in Business  

Total Credits 16  

**Marketing**  
Select three of the following courses:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 565</td>
<td>Selling and Sales Management</td>
</tr>
<tr>
<td>BUS 661</td>
<td>Integrated Marketing Communication</td>
</tr>
<tr>
<td>BUS 663</td>
<td>Services Marketing and Operations Management</td>
</tr>
<tr>
<td>BUS 665</td>
<td>International Marketing Strategy Management</td>
</tr>
</tbody>
</table>

Select one of the following courses or one course not taken from the list above:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 675</td>
<td>Special Topics in Business Administration</td>
</tr>
<tr>
<td>BUS 695</td>
<td>Independent Study in Business (Marketing/Communication Project)</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship (in Marketing or Communication)</td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Internet and Web Authoring</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
</tr>
</tbody>
</table>

Total Credits 4

**Self Designed**  
Select four courses (or 16 credit hours) with faculty approval, including at least one course at 500 level or above.  

Total Credits 16

For more information, contact Bill Troy, program coordinator, at (603) 641-4345 or Bill.Troy@unh.edu, or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

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**Business Major: Accounting Option (B.A.) UNHM**

**Description**

http://manchester.unh.edu/academics/degree-programs/business/accounting-option

The Accounting Option is offered in response to the growing demand for Accounting graduates in public accounting firms as well as in industry. Many local public accounting firms have expressed that with an expected high retirement rate among “baby boomers”, there appears to be a need for graduates with robust accounting credentials. Representatives from well-known CPA exam prep course firms expressed the opinion that accountants are in high demand and the unemployment rate in this industry is very low.

The Accounting Option would offer students the necessary courses to enable them to sit for the CPA exam, which is one of the major steps in obtaining a CPA license.

The requirements for sitting for the CPA exam in the State of New Hampshire are a bachelor’s degree, 24 credits in business subjects, and 30 credits in accounting subjects. The Accounting Option within the Business program provides these required courses.

---

**Requirements**

Students must complete 128 credits to graduate. Each required course must be completed with a minimum grade of C-. Students must attain a minimum GPA of 2.0 in major courses required for graduation. Majors cannot use BUS 430 Introduction to Business Statistics, ECN 411 Introduction to Macroeconomic Principles, or ECN 412 Introduction to Microeconomic Principles to satisfy both Discovery Program and major requirements. Transfer students must complete at least half of their credits in the major and the 8-credit capstone experience (BUS 705 Business Ethics and either BUS 750 Business Internship Seminar or BUS 760 Applied Senior Project) in-residence at UNH Manchester.

**Introductory Business Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Business Communications)</td>
</tr>
<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 430</td>
<td>Introduction to Business Statistics</td>
</tr>
<tr>
<td>BUS 532</td>
<td>Introduction to Financial Accounting</td>
</tr>
<tr>
<td>BUS 533</td>
<td>Introduction to Managerial Accounting</td>
</tr>
<tr>
<td>BUS 675</td>
<td>Special Topics in Business Administration</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
</tr>
<tr>
<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
</tr>
</tbody>
</table>

**Intermediate Business Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 601</td>
<td>Financial Management</td>
</tr>
<tr>
<td>BUS 610</td>
<td>Marketing Principles and Applications</td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship</td>
</tr>
<tr>
<td>or BUS 691</td>
<td>VITA Internship</td>
</tr>
</tbody>
</table>

**Capstone**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 705</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>BUS 750</td>
<td>Business Internship Seminar</td>
</tr>
<tr>
<td>or BUS 760</td>
<td>Applied Senior Project</td>
</tr>
</tbody>
</table>

Total Credits 65-68

---

1 Prerequisite is ENGL 401 First-Year Writing or equivalent.
2 Experiential learning is required prior to the last semester at the University. BUS 690 Business Program Internship or BUS 691 VITA Internship satisfy this experiential learning requirement.
3 Business Capstone Experience (two courses: BUS 705 Business Ethics and one senior business seminar [BUS 750 Business Internship Seminar or BUS 760 Applied Senior Project], fulfills the Discovery Program capstone requirement for business majors and is taken during the senior year).

Note: Because this is a bachelor of arts program, students must fulfill a language requirement. Efforts will be made to enhance fluency through subsequent courses and community experiences.
Requirements - Accounting Option

BUS 535  Federal Taxation 4
BUS 603  Intermediate Financial Accounting I 4
BUS 615  Intermediate Financial Accounting II 4
BUS 720  Auditing 4

Select two of the following courses: 8
BUS 629  Adv Managerial Accounting
BUS 715  Forensic Accounting
BUS 725  Financial Statement Analysis

Total Credits 24

For more information, contact Bill Troy, program coordinator, at (603) 641-4345 or Bill.Troy@unh.edu, or contact the Office of Admissions (unhm.admissions@unh.edu).

Business Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/business-minor

Description

The minor in business allows students to pursue their interests in the liberal arts and sciences while building a foundation of business skills and adding a valuable credential to their portfolio and resume. The minor in business requires successful completion of five business courses or 20 credit hours from the courses listed below.

Requirements

Students must complete five courses (20 credits) with a cumulative minimum grade point average of 2.0 and with no grade below a C- grade. Transfer course approval for the minor is limited to at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Students must complete a minimum of 20 credits for the minor, with a maximum of 8 credits transferred from accredited institutions and a minimum of 12 credits completed in residence at UNH.

Required Courses

BUS 400  Introduction to Business 4
BUS 430  Introduction to Business Statistics 4
BUS 532  Introduction to Financial Accounting 4
ECN 412  Introduction to Microeconomic Principles 4
or ECN 411  Introduction to Macroeconomic Principles 4

Electives

Select two of the following (at least one of which must be at the 600 level or above): 8

BUS 430  Introduction to Business Statistics
BUS 533  Introduction to Managerial Accounting 4
BUS 601  Financial Management 4
BUS 610  Marketing Principles and Applications 4
BUS 620  Organizational Behavior 4

Total Credits 20

Other 600- or 700-level courses in business (BUS) or economics (ECN) may be substituted for courses listed above with permission of the business program coordinator. This may include an Internship course (BUS 690 Business Program Internship), Special Topics courses (BUS 675 Special Topics in Business Administration/BUS 685 Applications in Business Management), or an Independent Study in Business (BUS 695 Independent Study in Business).

For more information, contact Bill Troy, program coordinator and minor supervisor, at (603) 641-4345 or Bill.Troy@unh.edu.

Entrepreneurship Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/entrepreneurship-minor

Description

The entrepreneurship minor is designed for those students who are interested in starting their own business or enhancing a business in which they are currently working.

The course content of the minor is designed to meet the objective of developing the mindset, skills, competencies, and experiential learning that enable students to function as entrepreneurs or as productive members of emerging, entrepreneurial firms.

The entrepreneurship program integrates the knowledge and experiences gained in other disciplines, as well as from the field of entrepreneurship, into an understanding of the process of new venture creation and the management of entrepreneurial businesses. With the minor presenting entrepreneurial concepts from a generalist perspective, students will acquire knowledge to conceive, develop, and launch new ventures and to turn innovative ideas into products that can be brought to market. Emphasis is placed on the managerial, legal, and marketing aspects of start-up businesses. The program culminates with a juried business plan competition for financial backing and start-up funding support.

Ethical and legal—In addition to exploring legal issues associated with a small business, students will examine their own personal values and aspirations to help guide their entrepreneurial careers.

Knowing the numbers—Entrepreneurs must be intimately familiar with the financial health of their businesses, particularly in regard to cash flow and other limited resource management and forecasting.

Business model—Students will be expected to develop a full understanding of how to create and utilize a business model and transform it into a fundable business plan.

Selling the idea—Students must not only understand how to identify and evaluate potential investors, but also how to sell their business idea when the opportunity presents itself.

Managing growth in entrepreneurial companies—Students will learn the unique set of leadership and communication skills necessary to guide a company through its most perilous time period: rapid growth.

Requirements

Courses

BUS 410  Introduction to Entrepreneurship 4
BUS 453  Leadership for Managers 4
BUS 565  Selling and Sales Management 4
BUS 600  New Venture Creation 4
Entrepreneurship minors are strongly encouraged to become active members in the ENACTUS program (http://manchester.unh.edu/current-students/enactus), which focuses on helping entrepreneurs in the Manchester community. Students will also be encouraged to take advantage of internship opportunities through the Internship & Career Planning Office.

For more information, contact Bill Troy, program coordinator and minor supervisor, at (603) 641-4345 or Bill.Troy@unh.edu.

Communication Arts (CA)

Shaping skilled communicators through creativity, technology and hands-on experience

With expert faculty, state-of-the-art studios and a vast network of internship opportunities, our Communication Arts program gives you the skills and experience to turn your passion into a profession. Our highly interdisciplinary program opens doors to limitless career possibilities — shaping the next generation of filmmakers, journalists, HR specialists, marketers and beyond.

Recent data from the American Academy of Arts & Sciences shows that Communication Arts is the largest and most popular of the humanities disciplines. Part of this interest is because we live in a world where communication is a vital part of daily life, regardless of career or industry. But another part, potentially even more important, is the inherent flexibility that students find — not only during college, but in the job market after graduation.

Your interests inspire what you study, allowing you to focus your degree in areas like Cinema and Media Arts (http://manchester.unh.edu/academics/degree-programs/communication-arts/cinema-media-arts-option), Digital Media (http://manchester.unh.edu/academics/degree-programs/communication-arts/digital-media-option), Human Relations (http://manchester.unh.edu/academics/degree-programs/communication-arts/human-relations-option), Media History and Cultural Studies, or News and Public Relations. Students can also take courses in graphic design, advertising design and typography through our partnership with the New Hampshire Institute of Art.

Through hands-on learning in our classrooms, in the field and in our audio, video and editing studios, you’ll shape the interpersonal and technical communication skills you need for success in industries from media to business, healthcare, education and more.

http://manchester.unh.edu/academics/degree-programs/communication-arts

Programs

- Communication Arts Minor (p. 335)

Faculty

Communication Arts Faculty (http://manchester.unh.edu/academics/degree-programs/communication-arts/unhstyleCollapsePane73)

Communication Arts Major (B.A.)

http://manchester.unh.edu/academics/degree-programs/communication-arts

Description

Communication Arts majors explore the creativity, artistry, and impact of human communication. The program offers a rich variety of learning experiences, including:

- Working with cutting-edge digital media in state-of-the-art sound and video production studios and a high-definition editing suite with full Adobe creative cloud access.
- Discovering how communication theories and practices shape personal identity, social skills, professional relationships, and human relations.
- Enhancing your media writing, social media, public relations, and strategic communication skills.
- Exploring the history of media using a super-tech screening room with surround sound.
- Developing hands-on research activities, creative media projects, and internship experiences that link students with businesses, nonprofits, and the community.

To complete the major, students can take courses from across the Communication Arts curriculum, or they may choose to focus their coursework in one of four suggested areas of study: Cinema and Media Arts*, Digital Media*, Human Relations*, or News and Public Relations.

A degree in Communication Arts prepares students for today’s communication-driven society. The program offers students the knowledge and skills they need to succeed as professional communicators, media artists, and entrepreneurs working in a variety of careers. Our alumni have gone on to work in fields such as radio, television, film, web, digital video, corporate communications, journalism, public relations, social media, advertising, sales, strategic communication, audience research, counseling, conflict mediation, human resources, and more. A Communication Arts degree also creates pathways to careers in government, social services, public education, and community affairs, where employers seek graduates who can think creatively and communicate effectively to a variety of audiences and constituents.

Communication Arts faculty bring exceptional expertise to the classroom and are actively engaged in their own creative and scholarly work. They regularly share their knowledge with audiences around the state, the country, and the world. Some are also experienced professionals who bring current, real-world knowledge from the workplace to the classroom. In addition to classroom instruction, the program also provides students with exceptional access to experiential learning.
opportunities (internships, community-based research, service learning, and media production projects) that occur within real-life settings.

* Cinema and Media Arts, Digital Media, and Human Relations are **Degree Options** that appear on the official UNH transcript and diploma. The specific requirements for each Degree Option are presented elsewhere in this catalog. Students are encouraged to contact the communication arts program coordinator or their academic advisor to discuss whether a Degree Option is the right choice for them.

### Requirements

**Degree Requirements**

Students must complete a minimum of 128 credits and satisfy the University's Discovery Program and foreign language requirements. Communication Arts (CA) majors must complete 10 courses (40 credits) and maintain a minimum overall grade point average of 2.0 in the major. Transfer students must complete at least 20 credits in the Communication Arts major at UNH. Communication Arts majors may use up to two CMN and/or CA courses toward both the Communication Arts major and UNH Discovery Program requirements. Degree requirements for the major are presented below.

### I. Required Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>

### II. Selected Coursework

Select three courses from area A, two from area B, two from area C.

| Total Credits | 40 |

1. Students must earn a "C" or better in each course to satisfy CA degree requirements.
2. Students must earn a "C-" or better in each course to satisfy CA degree requirements.

### A. Communication Practices

Select three of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 444</td>
<td>Manipulating Media: Exploring Image and Sound Aesthetics</td>
<td>1</td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td>1</td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>1</td>
</tr>
<tr>
<td>CA 502</td>
<td>Image and Sound</td>
<td>1</td>
</tr>
<tr>
<td>CA 503</td>
<td>Techniques for News Reporting</td>
<td>1</td>
</tr>
<tr>
<td>CA 504</td>
<td>Film Criticism</td>
<td>1</td>
</tr>
<tr>
<td>CA 506</td>
<td>Gender</td>
<td>1</td>
</tr>
<tr>
<td>CA 507</td>
<td>Relational Violence</td>
<td>1</td>
</tr>
<tr>
<td>CA 508</td>
<td>Conflict in Relational Communication</td>
<td>1</td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
<td>1</td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td>1</td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
<td>1</td>
</tr>
<tr>
<td>CA 516</td>
<td>Speechwriting</td>
<td>1</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td>1</td>
</tr>
</tbody>
</table>

| Total Credits | 12 |

### B. Communication Practices: Organization, History, and Policy

Select two of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 525</td>
<td>Media Programming</td>
<td>1</td>
</tr>
<tr>
<td>CA #526</td>
<td>Organization of Newswork</td>
<td>1</td>
</tr>
<tr>
<td>CA 527</td>
<td>History of Film</td>
<td>1</td>
</tr>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>1</td>
</tr>
<tr>
<td>CA 532</td>
<td>Typography I</td>
<td>1</td>
</tr>
<tr>
<td>CA 533</td>
<td>Typography II</td>
<td>1</td>
</tr>
<tr>
<td>CA 537</td>
<td>Health Communication</td>
<td>1</td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
<td>1</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td>1</td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td>1</td>
</tr>
<tr>
<td>CA 550</td>
<td>Special Topics in Communication Organization, History, and Policy</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 534</td>
<td>21st Century Journalism: How the News Works</td>
<td>1</td>
</tr>
</tbody>
</table>

| Total Credits | 8 |

### C. Communication Practices: Theory and Research

Select two of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 600</td>
<td>Research Methods in Media</td>
<td>1</td>
</tr>
<tr>
<td>CA 601</td>
<td>Exploring Relationships</td>
<td>1</td>
</tr>
<tr>
<td>CA 610</td>
<td>Communication Technologies and Culture</td>
<td>1</td>
</tr>
<tr>
<td>CA 611</td>
<td>Theories of Relational Communication</td>
<td>1</td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td>1</td>
</tr>
<tr>
<td>CA 614</td>
<td>Communication and Power</td>
<td>1</td>
</tr>
<tr>
<td>CA 615</td>
<td>Film History/Theory and Method</td>
<td>1</td>
</tr>
<tr>
<td>CA 618</td>
<td>Documentary</td>
<td>1</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CA 795</td>
<td>Independent Study</td>
<td>1</td>
</tr>
</tbody>
</table>

| Total Credits | 8 |

### Capstone Requirement

The capstone requirement will be satisfied in a student's senior year by completion of a specific four-credit capstone course at the 600 or 700 levels. Students may not enroll in a capstone course until they have completed all three CA program core courses (CMN 455 Introduction to Media Studies, CMN 456 Propaganda and Persuasion, and CMN 457 Introduction to Language and Social Interaction) and all CA Area A and Area B requirements. The capstone course can also fulfill an Area C course requirement.

The capstone experience offers seniors an opportunity to synthesize and apply knowledge and skills gained throughout their communication arts
major coursework. The capstone course requires students to conduct an original research study, a creative media project, an internship, community-based research, or an advanced service learning project in communication arts under the close supervision of a communication arts faculty member. Students are strongly encouraged to share their capstone projects with the larger UNH community through participation in the Undergraduate Research Conference, a presentation in the Brown Bag lunch series, publication in the UNH undergraduate journal *Inquiry,* or presentation in some other public venue. Students should work closely with their advisers to make sure the capstone requirement has been satisfied.

Courses that satisfy this requirement include, but are not limited to:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 601</td>
<td>Exploring Relationships</td>
<td>4</td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td>4</td>
</tr>
<tr>
<td>CA 614</td>
<td>Communication and Power</td>
<td>4</td>
</tr>
<tr>
<td>CA 615</td>
<td>Film History/Theory and Method</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>4</td>
</tr>
<tr>
<td>CA 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
</tbody>
</table>

**Suggested Areas of Study**

Students may choose courses from across the Communication Arts curriculum, but those wishing to meet specific academic or professional goals may plan coursework using one of the pathways suggested below. Please note that these are "suggested" areas of study that may be used to help plan courses but will not appear on the student's official UNH transcript. Students who wish to complete a Degree Option that appears on their transcript will find the specific requirements for each Option elsewhere in this catalog. Students are encouraged to contact the communication arts program coordinator or schedule an appointment with their academic advisor to discuss whether a Degree Option is the right choice for them.

**Cinema and Media Arts**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 444</td>
<td>Manipulating Media: Exploring Image and Sound Aesthetics</td>
<td>4</td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td>4</td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>4</td>
</tr>
<tr>
<td>CA 502</td>
<td>Image and Sound</td>
<td>4</td>
</tr>
<tr>
<td>CA 504</td>
<td>Film Criticism</td>
<td>4</td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
<td>4</td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td>4</td>
</tr>
<tr>
<td>CA 518</td>
<td>Advanced Topics in Digital Media Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 519</td>
<td>Advanced Screenwriting</td>
<td>4</td>
</tr>
<tr>
<td>CA 522</td>
<td>Graphic Design I</td>
<td>4</td>
</tr>
<tr>
<td>CA 523</td>
<td>Graphic Design II</td>
<td>4</td>
</tr>
<tr>
<td>CA 525</td>
<td>Media Programming</td>
<td>4</td>
</tr>
<tr>
<td>CA 527</td>
<td>History of Film</td>
<td>4</td>
</tr>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>4</td>
</tr>
<tr>
<td>CA 532</td>
<td>Typography I</td>
<td>4</td>
</tr>
<tr>
<td>CA 533</td>
<td>Typography II</td>
<td>4</td>
</tr>
<tr>
<td>CA 600</td>
<td>Research Methods in Media</td>
<td>4</td>
</tr>
<tr>
<td>CA 615</td>
<td>Film History/Theory and Method</td>
<td>4</td>
</tr>
</tbody>
</table>

**Digital Media**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 618</td>
<td>Documentary</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

**Human Relations**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>1-4</td>
</tr>
<tr>
<td>CA 506</td>
<td>Gender</td>
<td>4</td>
</tr>
<tr>
<td>CA 507</td>
<td>Relational Violence</td>
<td>4</td>
</tr>
<tr>
<td>CA 508</td>
<td>Conflict in Relational Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 537</td>
<td>Health Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
<td>4</td>
</tr>
<tr>
<td>CA 601</td>
<td>Exploring Relationships</td>
<td>4</td>
</tr>
<tr>
<td>CA 611</td>
<td>Theories of Relational Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td>4</td>
</tr>
<tr>
<td>CA 614</td>
<td>Communication and Power</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

**News and Public Relations**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td>4</td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>1-4</td>
</tr>
<tr>
<td>CA 503</td>
<td>Techniques for News Reporting</td>
<td>4</td>
</tr>
<tr>
<td>CA 516</td>
<td>Speechwriting</td>
<td>4</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td>4</td>
</tr>
<tr>
<td>CA 525</td>
<td>Media Programming</td>
<td>4</td>
</tr>
<tr>
<td>CA 526</td>
<td>Organization of Newswark</td>
<td>4</td>
</tr>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>4</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td>4</td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td>4</td>
</tr>
<tr>
<td>CA 600</td>
<td>Research Methods in Media</td>
<td>4</td>
</tr>
<tr>
<td>CA 610</td>
<td>Communication Technologies and Culture</td>
<td>4</td>
</tr>
<tr>
<td>CA 618</td>
<td>Documentary</td>
<td>4</td>
</tr>
</tbody>
</table>
Communication Arts Major: Cinema and Media Arts Option (B.A.)

Description

http://manchester.unh.edu/academics/degree-programs/communication-arts/cinema-media-arts-option

Students choosing the Cinema & Media Arts option study the creative media industries with a focus on developing professional skills and knowledge relating to careers in film, television and radio. Courses cover topics such as narrative, screenwriting, audio and video production, film history and criticism, documentary, and audience research methods. Students may elect to take an internship in the area of cinema and media arts to help fulfill requirements for the Option.

Requirements

Students must complete all of the Communication Arts major requirements. The option in Cinema and Media Arts consists of 24 credits as distributed below. Courses may be used toward the Communication Arts Degree requirements as well as the Cinema and Media Arts option. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits at UNH Manchester.

Program Requirements

I. Select three of the following: 12

- CA 500 Media Writing
- CA 512 Screenwriting
- CA 514 Fundamentals of Video Production
- CA 515 Advanced Video Production
- CA 517 Fundamentals of Audio Prod
- CA 518 Advanced Topics in Digital Media Production
- CA 519 Advanced Screenwriting
- CA 520 Special Topics in Applied Communication

II. Select two of the following: 8

- CA 501 Internship/Communication in the Urban Community
- CA 502 Image and Sound
- CA 527 History of Film
- CA 550 Special Topics in Communication Organization, History, and Policy

III. Select one of the following: 4

- CA 600 Research Methods in Media
- CA 612 Narrative
- CA 615 Film History/Theory and Method
- CA 618 Documentary

Total Credits 24

1 Topic must be related to cinema and media arts.

Communication Arts Major: Digital Media Option (B.A.)

Description

http://manchester.unh.edu/academics/degree-programs/communication-arts/digital-media-option

Students choosing the Digital Media option use coursework and hands-on learning to explore the intersections of technology, creativity and artistry with a focus on audio, video and web-based media. Students gain a comprehensive overview of the different stages of a digital media project, from writing and pre-production through production and post-production. Courses cover topics such as web authoring and multimedia, audio and video production, social media and public relations, ethics and law in the digital age, and motion graphics. An internship in the area of digital media is required.

Requirements

Students must complete all of the Communication Arts major requirements. The option in Digital Media consists of 24 credits as distributed below. Note that some courses may also be used to fulfill the requirements of the Communication Arts major. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits, including the Digital Media Internship, at UNH Manchester.

Program Requirements

I. Select three of the following (one must be COMP): 12

- COMP 405 Introduction to Internet and Web Authoring
- COMP 415 Mobile Computing First and For Most
- COMP 515 Multimedia: Introduction and Applications
- CA 500 Media Writing
- CA 514 Fundamentals of Video Production
- CA 515 Advanced Video Production
- CA 517 Fundamentals of Audio Prod
- CA 518 Advanced Topics in Digital Media Production
- CA 531 History and Organization of Advertising
- CA 540 Public Relations
- CA 542 Social Media for Organizations and Business
- COMP 560 Ethics and the Law in the Digital Age

II. Select one of the following: 4

- CA 531 History and Organization of Advertising
- CA 540 Public Relations
- CA 542 Social Media for Organizations and Business
- COMP 560 Ethics and the Law in the Digital Age

III. Select one of the following: 4

- CA 610 Communication Technologies and Culture
- CA 795 Independent Study
- CA 720 Seminar
IV. Complete one, four-credit Digital Media Internship with advisor approval

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 24

1. Topic must be related to digital media
2. Advisor approval required.

For more information, contact Jeff Klenotic, program coordinator, at (603) 641-4130 or jeffrey.klenotic@unh.edu, or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Communication Arts Major: Human Relations Option (B.A.)

**Description**

http://manchester.unh.edu/academics/degree-programs/communication-arts/human-relations-option

Students choosing the Communication Arts Human Relations Option explore practical, theoretical, and historical perspectives on the study of human relationships in professional and personal contexts. With so many of today’s employers emphasizing the value of human communication skills in potential employees, the Human Relations Option offers students the knowledge and hands-on learning they need to develop their oral and written communication skills, as well as their ability to work in teams. Coursework covers topics such as verbal and nonverbal communication, perception, identity, conflict, human resource management, power, health, social psychology, human development, and counseling. An internship in the area of human relations is required.

**Requirements**

Students must complete all of the Communication Arts major requirements. The option in Human Relations consists of 24 credits as distributed below. Note that some courses may also be used to fulfill the requirements of the Communication Arts major. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits, including the Human Relations Internship, at UNH Manchester.

**Program Requirements**

Select four of the following courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
</tr>
<tr>
<td>BUS 455</td>
<td>Management of Human Resources Management</td>
</tr>
<tr>
<td>CA 506</td>
<td>Gender</td>
</tr>
<tr>
<td>CA 507</td>
<td>Relational Violence</td>
</tr>
<tr>
<td>CA 508 or CA 550</td>
<td>Conflict in Relational Communication or Special Topics in Communication Organization, History, and Policy</td>
</tr>
<tr>
<td>CA 520</td>
<td>Special Topics in Applied Communication</td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
</tr>
</tbody>
</table>

Total Credits: 16

1. At least two courses must be above the 400 level.
2. Course has prerequisites
3. Topic must be related to human relations
4. Internship must be in the human relations area, with advisor approval

For more information, contact Jeff Klenotic, program coordinator, at (603) 641-4130 or jeffrey.klenotic@unh.edu, or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Communication Arts Minor

http://manchester.unh.edu/academics/degree-programs/communication-arts-minor

**Description**

The communication arts minor allows students in other majors to broaden their understanding of human communication while also developing deeper knowledge and practical skills that can enhance their professional lives and complement their major field of study.

**Requirements**

The communication arts minor allows students to expand their understanding of human communication while also developing knowledge and skills that can enhance their professional lives and complement their major fields of study.

The communication arts minor requires completion of five courses (20 credits), according to the requirements below. A minimum GPA of 2.0 in minor courses is required, with no individual grade lower than a C. Courses taken on a pass/fail basis may not be used for the minor. Students should work with their major advisers to ensure that any prerequisites for CA courses have been met, or that permission to enter the course has been granted by the course instructor. Courses used to satisfy Discovery Program requirements may be used to satisfy CA minor requirements. No more than 8 credits used by a student to satisfy major
requirements may be used for the minor. At the discretion of the minor coordinator, transfer credits may be used to satisfy minor requirements, but no more than 8 credits (or 2 of 5 classes) should be transfer credits.

I. Breadth Courses
Select any two of the following, as long as they are NOT from the same category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
</tr>
<tr>
<td>B</td>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
</tr>
<tr>
<td></td>
<td>CA 502</td>
<td>Image and Sound</td>
</tr>
<tr>
<td>C</td>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
</tr>
<tr>
<td></td>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
</tr>
</tbody>
</table>

II. Depth Courses
Select any three 500-level (or above) CA course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Students who use CA 502 Image and Sound as a "breadth" course may not use it as a "depth" course.

For more information, contact Jeff Klenotic, minor supervisor, at (603) 641-4130 or Jeffrey.Klenotic@unh.edu.

Computer Information Systems (COMP)
Inspiring future innovators through technology and real-world experience

Computing drives innovation in all economic sectors, from business to science to entertainment. Our Computer Information Systems program is designed to develop your technical skills through hands-on projects in programming, networking, software development, system administration and information security.

Guided by faculty experts, you’ll explore the latest technologies in our advanced labs and state-of-the-art server room. Through work on teams and independently, you will be prepared to effectively select, administer, apply, and integrate computing technologies to create IT solutions that meet the needs of users within an organizational context.

Real-world projects and internships with business partners will open doors to network with local start-ups, nonprofits, government and more — all while giving you the experience you need for a lucrative career in the dynamic field of information technology.

http://manchester.unh.edu/academics/degree-programs/computer-information-systems

Program Educational Objectives
Within five years of graduation a CIS student should be able to:

- Apply knowledge and skills in core and advanced information technologies to help an organization achieve its goals.
- Advocate for users of information technologies, whether they are end users of information systems, managers of enterprise applications, developers of IT solutions, or customers of IT-reliant work systems.
- Develop, manage, and evaluate computing and communication systems and services.
- Live and work as contributing, well-rounded members of society.

Program Outcomes
The program enables students to achieve, by time of graduation, the following competencies:

- Apply knowledge of computing and mathematics appropriate to the discipline.
- Analyze a problem, and identify and define the computing requirements appropriate to its solution.

Computer Information Systems Major (B.S.)
http://manchester.unh.edu/academics/degree-programs/computer-information-systems

Faculty
Computer Information Systems Faculty (http://manchester.unh.edu/academics/degree-programs/computer-information-systems/#unhstyleCollapsePane73)
Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

Function effectively on teams to accomplish a common goal.

Be cognizant of professional, ethical, legal, security, and social issues and responsibilities.

Communicate effectively with a range of audiences.

Analyze the local and global impact of computing on individuals, organizations, and society.

Recognize the need for, and an ability to engage in, continuing professional development.

Use current techniques, skills, and tools necessary for computing practice.

Use and apply current technical concepts and practices in the core information technologies.

Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems.

Effectively integrate IT-based solutions into the user environment.

Be cognizant of best practices and standards and their application.

Assist in the creation of an effective project plan.

The CIS program outcomes are aligned with criteria for accrediting computing programs (the first nine outcomes listed above) and information technology programs (the last five outcomes listed above) as recommended by the ABET Computing Accreditation Commission and the ACM Computing Curricula – IT 2008 Information Technology guidelines.

Requirements

Students majoring in computer information systems must complete 128 credits to graduate, satisfy the University’s Discovery Program, and complete 65 credits in the major with a minimum of C- in each course and 16 credits in a self-designed concentration in an area of study that enhances learning in the IT discipline. Students must maintain an overall cumulative GPA of 2.0 or better.

Transfer students who elect to major in computer information systems must earn 65 approved credits for completion of the CIS major, of which at least 24 credits must be completed at UNH Manchester, and 16 approved credits for completion of a self-designed concentration.

Program Requirements

Required Mathematics Course
Select one of the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 420</td>
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</tr>
<tr>
<td>MATH 424B</td>
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</tr>
<tr>
<td>MATH 425</td>
<td>4</td>
</tr>
<tr>
<td>COMP 500</td>
<td>4</td>
</tr>
</tbody>
</table>

Introductory Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>4</td>
</tr>
<tr>
<td>COMP 530</td>
<td>4</td>
</tr>
</tbody>
</table>

Intermediate Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 520</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>4</td>
</tr>
<tr>
<td>COMP 550</td>
<td>4</td>
</tr>
<tr>
<td>COMP 560</td>
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Integrative and Professional Experience

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COMP 715</td>
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<tr>
<td>COMP 730</td>
<td>4</td>
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<tr>
<td>UMST 582</td>
<td>1</td>
</tr>
<tr>
<td>COMP 690</td>
<td>4</td>
</tr>
<tr>
<td>COMP 790</td>
<td>4</td>
</tr>
</tbody>
</table>

CIS Electives
Select three courses of COMP courses not already applied to the major 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 715</td>
<td>4</td>
</tr>
<tr>
<td>COMP 730</td>
<td>4</td>
</tr>
<tr>
<td>UMST 582</td>
<td>1</td>
</tr>
<tr>
<td>COMP 690</td>
<td>4</td>
</tr>
<tr>
<td>COMP 790</td>
<td>4</td>
</tr>
</tbody>
</table>

Concentration
Select four courses 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 500</td>
<td>4</td>
</tr>
<tr>
<td>COMP 505</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>4</td>
</tr>
<tr>
<td>COMP 550</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 81

1 Any of these courses, except for COMP 500 Discrete Structures, may be used to satisfy the Quantitative Reasoning Discovery requirement.

2 No COMP 400-level courses or other major courses without permission from adviser.

3 Majors can creatively design a concentration of courses that meet their academic and professional goals and career plans. Four courses can be selected across a wide university curriculum, reflecting majors' interests in a liberal arts, scientific, engineering, interdisciplinary, or professional area of study. The concentration must be approved by the student's adviser before the student's junior year.

For additional information about the computer information systems program, contact Michael Jonas (michael.jonas@unh.edu), (603) 641-4352, or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Computer Information Systems Minor

http://manchester.unh.edu/academics/degree-programs/computer-information-systems-minor

Description

The minor requires five COMP courses (20 credit hours). Students must earn grades of at least C- in each course and maintain an overall GPA of 2.0 in minor courses. Transfer students may transfer up to two courses, subject to the approval of the minor supervisor. Courses taken on a pass/fail basis may not be used for the minor. No more than 8 credits used by the student to satisfy major requirements may be used in the minor.

Requirements

Select three of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>4</td>
</tr>
</tbody>
</table>

Page 337
COMP 430 Systems Fundamentals
COMP 500 Discrete Structures

Select two of the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 515</td>
<td>Multimedia: Introduction and Applications</td>
</tr>
<tr>
<td>COMP 520</td>
<td>Database Design and Development</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
</tr>
<tr>
<td>COMP 530</td>
<td>Machine and Network Architecture</td>
</tr>
<tr>
<td>COMP 550</td>
<td>Networking Concepts</td>
</tr>
<tr>
<td>COMP 650</td>
<td>Network Administration and Maintenance</td>
</tr>
<tr>
<td>COMP 625</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 640</td>
<td>Human Computer Interaction</td>
</tr>
<tr>
<td>COMP 698</td>
<td>Special Topics (Systems Software)</td>
</tr>
<tr>
<td>COMP 705</td>
<td>Web Application Development</td>
</tr>
<tr>
<td>COMP 715</td>
<td>Information Security</td>
</tr>
<tr>
<td>COMP 720</td>
<td>Database Application Development</td>
</tr>
</tbody>
</table>

Total Credits 20

Other 600- or 700-level COMP courses may be substituted with the permission of the minor supervisor. Students must seek permission of the minor supervisor to enroll in courses that have prerequisites.

For more information, contact Michael Jonas, minor supervisor, at (603) 641-4352 or michael.jonas@unh.edu.

Computer Science and Entrepreneurship (COMP)
Inspiring future innovators through technology and real-world experience

Computing drives innovation in all economic sectors, from business to science to entertainment. Our Computer Science & Entrepreneurship program gives you the computing and entrepreneurial skills to succeed in today's start-up and high-tech environments.

Guided by faculty experts, you'll explore the latest technologies in our advanced labs and state-of-the-art server room. Through work on teams and independently, you will be prepared to work with industry experts through internships and sponsored research.

Real-world projects and internships with business partners will open doors to network with local start-ups, nonprofits, government and more – all while giving you the experience you need for a lucrative career in the dynamic field of information technology.

http://manchester.unh.edu/academics/degree-programs/computer-science-entrepreneurship

Programs

• Computer Science and Entrepreneurship Major (B.S.) (p. 338)

Faculty

Computer Science and Entrepreneurship Faculty (http://manchester.unh.edu/academics/degree-programs/computer-science-entrepreneurship/#unhstyleCollapsePane73)

Computer Science and Entrepreneurship Major (B.S.)
http://manchester.unh.edu/academics/degree-programs/computer-science-entrepreneurship

Description

The Computer Science and Entrepreneurship (CS&E) program combines a solid foundation in computing with the entrepreneurial and business skills necessary to succeed in today's start-up and high-tech environments. The program is designed in response to market demand for students proficient in computer science with business knowledge.

Students in the bachelor of science in Computer Science and Entrepreneurship degree program are required to complete three sponsored projects focusing on entrepreneurship, engineering, and a new venture creation. The courses give students the opportunity to work with industry experts through internships and sponsored research. Students are also required to create a business plan, which they will have to pitch to venture capitalists and industry professionals.

Career opportunities for students with an undergraduate CS&E degree are varied, and may include such areas as applications developer, computer and information research scientist, data security specialist, database administrator, database developer, multimedia developer, network architect, product development manager, quality assurance analyst, software systems developer, user experience designer, or web developer.

Program Educational Objectives

Within five years of graduation, a CS&E student should be able to:

• Demonstrate mastery of the core areas of computer science
• Invent, develop, manage, and evaluate computing systems and services
• Exercise professional responsibility and have appreciation of the social, legal, ethical, and cultural issues inherent in the computing field.

Program Outcomes

The program enables students to achieve, by time of graduation, the following competencies:

• Apply knowledge of computing and mathematics appropriate to the discipline.
• Analyze a problem, and identify and define the computing requirements appropriate to its solution.
• Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
• Function effectively on teams to accomplish a common goal.
• Be cognizant of professional, ethical, legal, security, and social issues and responsibilities.
• Communicate effectively with a range of audiences.
• Analyze the local and global impact of computing on individuals, organizations, and society.
• Recognize the need for, and an ability to engage in, continuing professional development.
• Use current techniques, skills, and tools necessary for computing practice.
• Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
• Apply design and development principles in the construction of software systems of varying complexity.

Requirements

Students majoring in computer science and entrepreneurship must complete 128 credits to graduate, satisfy the University's Discovery Program, and complete 61 credits in the major with a minimum of C- in each course and 16 business-related credits in the entrepreneurship area. Students must maintain an overall cumulative GPA of 2.0 or better.

Transfer students who elect to major in computer science and entrepreneurship must earn 61 approved credits for completion of the their major, of which at least 24 credits must be completed at UNH Manchester; and 16 approved credits for completion of the entrepreneurship component.

Program Requirements

Mathematics and Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 490</td>
<td>Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>COMP 500</td>
<td>Discrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I (may be used to satisfy the Quantitive Reasoning Discovery Requirement)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I (may be used to satisfy the Physical Science Discovery requirements)</td>
<td>4</td>
</tr>
</tbody>
</table>

Computing Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most (may be used to satisfy Environment, Technology, and Society Discovery requirements)</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>Introduction to Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 530</td>
<td>Machine and Network Architecture</td>
<td>4</td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age (may be used to satisfy Humanities Discovery requirements)</td>
<td>4</td>
</tr>
<tr>
<td>COMP 625</td>
<td>Data Structures and Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>COMP 698</td>
<td>Special Topics (Systems Software)</td>
<td>4</td>
</tr>
</tbody>
</table>

Project and Professional Practice

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMST 582</td>
<td>Internship and Career Planning Seminar</td>
<td>1</td>
</tr>
<tr>
<td>COMP 590</td>
<td>Entrepreneurship Project</td>
<td>4</td>
</tr>
<tr>
<td>COMP 690</td>
<td>Internship Experience</td>
<td>4</td>
</tr>
<tr>
<td>COMP 790</td>
<td>Capstone Project</td>
<td>4</td>
</tr>
</tbody>
</table>

Entrepreneurship Component

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 410</td>
<td>Introduction to Entrepreneurship</td>
<td>4</td>
</tr>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
<td>4</td>
</tr>
<tr>
<td>BUS 565</td>
<td>Selling and Sales Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 675</td>
<td>Special Topics in Business Administration</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Select three courses in computing to broaden and advance student learning of computing innovations 12

Total Credits 86-89

1 The CS&E program of study requires three mathematics courses and one physics course
2 The program prepares students for the workforce and further education in a holistic way by emphasizing communication, collaboration, team work, initiative, appreciation for diversity, and self-direction and responsibility. These competencies are developed through the sequence of courses.

For additional information about the computer science and entrepreneurship program, contact Michael Jonas, (603) 641-4352, michael.jonas@unh.edu, or contact the UNH Manchester Office of Admissions, (603) 641-4150, unhm.admissions@unh.edu.

Education

Programs

• Education Minor (UNHM) (p. 339)

Education Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/education-minor

Requirements

A minor in Education consists of 20 credits of UNH Education Department courses. A methods course located in another department may be counted for four of these 20 credits, e.g., ARTS 791 Art Education (Elementary) or ARTS 792 Art Education (Secondary), ENGL 792 Teaching Literature and Literacy, MATH 708 Teaching Mathematics in Grades K-8, MATH 709 Teaching of Mathematics, 7-12.

- Courses used in obtaining a minor in special education cannot be used towards a minor in Education.
- EDUC 500 Exploring Teaching can only be counted once (four credits) towards the minor.
- No more than two transferred courses in Education from another college or university may be used towards a minor in Education. A three-credit course transferred from another school will count for three credits at UNH, not four credits.
- A minor in Education does NOT lead to a teaching certification.

A Certification of Completion of Minor form (http://www.unh.edu/registrar/regforms/minorform.pdf) needs to be completed at the beginning of a student’s final undergraduate semester at UNH. The form is available online, the Registrar’s Office, and the UNH Manchester Education Office (donna.laferriere@unh.edu).

For more information, contact Cindy Glidden, Department Coordinator, at cindy.glidden@unh.edu or (603) 862-2311.
Engineering Technology (ET)
Shaping the next generation technical workforce through hands-on and real-world experience

With topics including communications theory, digital signal processing, analog systems, and digital systems. The ABET-accredited Electrical Engineering Technology program gives you the practical experience to meet both industry demand and your career goals. Small class sizes mean opportunities to collaborate with faculty who are industry experts, giving you one-on-one attention to excel in the dynamic, highly rewarding field of electronics.

From advanced manufacturing concepts to complex machine design, the ABET-accredited Mechanical Engineering Technology program will ignite your fascination with how things work. You'll work alongside faculty experts to learn mechanical design, fluid/thermal technology, production systems, automation engineering and more.

Through hands-on experience in the classroom and in the field, this applied degree program gives you the practical experience to turn your passion into a career.

Programs

- Electrical Engineering Technology Major (B.S.) (p. 340)
- Mechanical Engineering Technology Major (B.S.) (p. 341)

Faculty

Electrical Engineering Technology Faculty (http://manchester.unh.edu/academics/degree-programs/electrical-engineering-technology/#unhstyleCollapsePane73)

Mechanical Engineering Technology Faculty (http://manchester.unh.edu/academics/degree-programs/mechanical-engineering-technology/#unhstyleCollapsePane73)

Electrical Engineering Technology Major (B.S.)

Description

http://manchester.unh.edu/academics/degree-programs/electrical-engineering-technology

Engineering technology requires the application of engineering and scientific knowledge and methods combined with technical skills in support of engineering activities. Graduates may work in a variety of areas including engineering design, manufacturing, field service, testing, and sales and may work in management positions related to engineering, manufacturing, and computer technology.

The UNH Manchester engineering technology program is accredited by:

The Engineering Technology Accreditation Commission of ABET
415 North Charles Street
Baltimore, MD 21201

(410) 347-7700

The engineering technology program at UNH Manchester offers only junior- and senior-level coursework. Students admitted to this program must have an appropriate associate degree from the New Hampshire Technical Institute or an equivalent institution accredited by the Engineering Technology Accreditation Commission of the Accreditation Board of Engineering and Technology (ETAC of ABET) or show academic evidence of ability to successfully complete the requirements of this calculus-based program. After two major courses, non-matriculated students must either be admitted to the program or declare that they are not planning to pursue a degree in engineering technology.

The programs at UNH Manchester are designed to meet the needs of both full- and part-time students with a mix of classes scheduled during the day and in the evening.

Requirements

All entering Engineering Technology students should have completed mathematics through differential and integral calculus, calculus I. All students must complete MATH 426 Calculus II within the first semester before taking advanced level Engineering Technology coursework. Students must complete a minimum of 128 credits and satisfy the University’s Discovery Program.

Electrical Engineering Technology (EET) Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 425 or COMP 415</td>
<td>Introduction to Programming/Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>4</td>
</tr>
<tr>
<td>ET 671</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
<td>4</td>
</tr>
<tr>
<td>ET 677</td>
<td>Analog Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 680</td>
<td>Communications and Fields</td>
<td>4</td>
</tr>
<tr>
<td>ET 697</td>
<td>Topics in Electrical Engineering Technology</td>
<td>4</td>
</tr>
<tr>
<td>ET 733</td>
<td>Business Organization and Law</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>ET 734</td>
<td>Economics of Business Activities</td>
<td>4</td>
</tr>
<tr>
<td>ET 781</td>
<td>Introduction to Automation Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ET 788</td>
<td>Introduction to Digital Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>ET 791</td>
<td>Electrical Engineering Technology Project (Senior Capstone Project, two semesters; satisfies the Discovery Senior Capstone Experience requirement)</td>
<td>8</td>
</tr>
</tbody>
</table>

Discovery Program Requirements, Writing Intensive (WI) Requirement, and electives

Total Credits 52

For information about the electrical engineering technology program (EET), contact the B.S. engineering technology program coordinator, Christopher LeBlanc, at Christopher.LeBlanc@unh.edu. For admissions information, contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
Mechanical Engineering Technology Major (B.S.)

Description

http://manchester.unh.edu/academics/degree-programs/mechanical-engineering-technology

Engineering technology requires the application of engineering and scientific knowledge and methods combined with technical skills in support of engineering activities. Graduates may work in a variety of areas including engineering design, manufacturing, field service, testing, and sales and may work in management positions related to engineering, manufacturing, and computer technology.

The UNH Manchester engineering technology program is accredited by:

The Engineering Technology Accreditation Commission of ABET
415 North Charles Street
Baltimore, MD 21201
(410) 347-7700

The engineering technology program at UNH Manchester offers only junior- and senior-level coursework. Students admitted to this program must have an appropriate associate degree from the New Hampshire Technical Institute or an equivalent institution accredited by the Engineering Technology Accreditation Commission of the Accreditation Board of Engineering and Technology (ETAC of ABET) or show academic evidence of ability to successfully complete the requirements of this calculus-based program. After two major courses, non-matriculated students must either be admitted to the program or declare that they are not planning to pursue a degree in engineering technology.

The programs at UNH Manchester are designed to meet the needs of both full- and part-time students with a mix of classes scheduled during the day and in the evening.

Requirements

All entering Engineering Technology students should have completed mathematics through differential and integral calculus, calculus I. All students must complete MATH 426 Calculus II within the first semester before taking advanced level Engineering Technology coursework. Students must satisfactorily complete CHEM 403 General Chemistry I or offer evidence of equivalent coursework and must complete a minimum of 128 credits and satisfy the University's Discovery Program.

Mechanical Engineering Technology (MET) Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 425</td>
<td>Introduction to Programming</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>4</td>
</tr>
<tr>
<td>ET 635</td>
<td>Fluid Technology and Heat Transfer</td>
<td>4</td>
</tr>
<tr>
<td>ET 641</td>
<td>Production Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 644</td>
<td>Mechanical Engineering Technology Concepts in Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
<td>4</td>
</tr>
<tr>
<td>ET 675</td>
<td>Electrical Technology</td>
<td>4</td>
</tr>
<tr>
<td>ET 696</td>
<td>Topics in Mechanical Engineering</td>
<td>4</td>
</tr>
</tbody>
</table>

ET 733 Business Organization and Law 4
or COMP 560 Ethics and the Law in the Digital Age 4
ET 734 Economics of Business Activities 4
ET 751 Mechanical Engineering Technology Project 8
ET 781 Introduction to Automation Engineering 4

Discovery Program Requirements, Writing Intensive (WI) Requirement, and electives

Total Credits 52

For information about the mechanical engineering technology program (MET), contact Sean Tavares at Sean.Tavares@unh.edu. For admissions information, contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

English Teaching (ENGLTCH)

Shaping skilled English educators through creativity and real-world experience

Inspire others to share your love of reading and writing with our English Teaching program. Considered one of the region's best, our program gives you the tools, guidance and real-world experience for a rewarding career in English education.

Our faculty are not only master teachers, but thoughtful advisors and mentors to those who see themselves as educators. They offer a diverse spectrum of expertise—from Shakespeare to African literature, from 21st century journalism to deep knowledge of standards-based literacy education.

Our five-year Accelerated Master's option allows you to work on requirements for your Master of Arts in Teaching degree while still in the bachelor’s program. You’ll spend the fifth year interning at an area school, preparing you to become state-certified to teach English Language Arts.

Combine your passion for reading and writing with theories of learning and teaching literacy—leading you to a career helping students develop the skills they need for a lifetime of learning.

http://manchester.unh.edu/academics/degree-programs/english-teaching

Programs

- English Teaching Major (B.A.) UNHM (p. 341)
- TESOL Minor (UNHM) (p. 342)

Faculty

English Teaching Faculty (http://manchester.unh.edu/academics/degree-programs/english-teaching/#unhstyleCollapsePane73)

English Teaching Major (B.A.) UNHM

http://manchester.unh.edu/academics/degree-programs/english-teaching
Description

The English Teaching major uses language, literature, and standards-based teaching as a means to explore education.

The English Teaching major is designed for students wishing to teach English or Language Arts in middle or high schools, grades 5-12. Students learn what the study of English entails and how areas of knowledge and the abilities to read, write, and discuss can best be taught to students in grades 5-12.

This major takes the guesswork out of course selection by clearly delineating the prerequisites necessary for New Hampshire state teaching certification and UNH's Master of Arts in Teaching (MAT).

Requirements

All English Teaching majors must complete 10 courses (40 credits). Six of 10 courses must be at the 600-level or above. The English Teaching major prepares prospective teachers of middle- and high-school English (grades 5-12). This degree does not provide state certification. Students who wish to be certified must apply for admission to graduate study within the Education Department. Certification requires an additional year of coursework and internship at the graduate level. Most, or all, of the graduate coursework and internship may be completed in the 12 months following completion of the B.A. in English Teaching.

- All prospective English Teaching majors should enroll in EDUC 500 Exploring Teaching as early as possible.
- ENGL 419 Introduction to Literary Analysis must be completed with a minimum grade of C. All other major courses must be completed with a minimum grade of C-.
- English Teaching majors must have a 2.5 GPA in the following program requirements:

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 514</td>
<td>Survey of British Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>Survey of American Literature</td>
<td>4</td>
</tr>
<tr>
<td>Select an additional 500/600/700-level English course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Select two literature courses 600/700 level</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 710</td>
<td>Teaching Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 792</td>
<td>Teaching Literature and Literacy</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>40</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Diversity Requirement**

In addition, students must take one course that focuses on diversity in race, ethnicity, religion, gender or class, and theories concerning them. This course may count toward the ten courses described above. Consult with your advisor about other courses that may fulfill this requirement.

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 517</td>
<td>Introduction to African American Literature and Culture</td>
</tr>
<tr>
<td>ENGL 581</td>
<td>Introduction to Postcolonial Literatures in English</td>
</tr>
</tbody>
</table>

Capstone Requirement

Select one of the following 1 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature</td>
</tr>
</tbody>
</table>

1 See faculty advisor about taking a course for Capstone credit during senior year.

Combine the English Teaching major with UNH's renowned MAT, taken at the Manchester campus, and in five years students can be state certified to teach English and Language Arts. With the five-year master's option, students can apply 12 undergraduate credits to the advanced degree. The English Teaching major includes courses that will introduce students to the Common Core Standards, a nationwide effort now transforming K-12 education.

For more information about the English Teaching program, contact Susanne Paterson, program coordinator, at susanne.paterson@unh.edu. Or contact the UNH Manchester Office of Admissions at (603) 641-4150, unhm.admissions@unh.edu.

TESOL Minor (UNHM)

Description

http://manchester.unh.edu/academics/degree-programs/tesol-minor

The Teaching English to Speakers of Other Languages (TESOL) Minor is a set of courses related to teaching English to speakers of other languages. This minor primarily is for students who are interested in teaching English to speakers of other languages, but it is also appropriate for students who are going into social work or other professions that require regular interaction with nonnative English speakers. It also benefits students who want to later pursue ESL certification or an M.A. in TESOL at UNH or another institution.

Furthermore, the TESOL Minor appeals to students who are interested in teaching ESOL in non-K-12 settings, either in the U.S. or abroad. In the U.S. this includes teaching at the post-secondary level, e.g. community colleges, academic enrichment centers at Institutions of Higher Education (IHEs) and at adult learning centers. For students interested in teaching abroad, the TESOL Minor provides a competitive edge over other BS/BA candidates, including prestigious opportunities such as the Fulbright English Teaching Assistant Program. The Minor is also attractive to students who are interested in using the credential to pursue overseas opportunities (e.g., Fulbright, Peace Corps, World Teach), and, in addition, opens up new international job-seeking possibilities.
Requirements for the Teaching English to Speakers of Other Languages (TESOL) Minor at UNH Manchester, students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C-. No more than 8 transfer credits will be accepted.

Required courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 712</td>
<td>Teaching Multilingual Learners</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching (with an ESOL placement)</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 797</td>
<td>Special Topics in Education (related to TESOL)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 20

1 Since 1998, EDUC 712 Teaching Multilingual Learners has been recognized by the Durham English Department as the equivalent of ENGL 715 Teaching English as a Second Language: Theory and Methods

2 Special topics in the past have included: "Language and Culture in Schools & Schooling"; "The Immigrant Experience in Film and Literature"; and "Sociolinguistics and Socioliteracies"

For more information, contact Judy Sharkey, associate professor of education at judy.sharkey@unh.edu or Susanne Paterson, Literary Arts & Studies Program Coordinator at susanne.paterson@unh.edu.

General Studies (GENSTUD)

The Associate in Arts in General Studies offers students academic flexibility in a program that combines the foundations of a liberal education and elective courses that satisfy personal interests.

http://manchester.unh.edu/academics/degree-programs/general-studies

Programs

- General Studies (A.A.) (p. 343)

Faculty

http://manchester.unh.edu/directory/all

General Studies (A.A.)

http://manchester.unh.edu/academics/degree-programs/general-studies

Description

The associate of arts in general studies offers students academic flexibility in a program that combines the foundations of a liberal education and elective courses that satisfy personal interests. The A.A. in general studies is the first two years of a baccalaureate program and all 400-level courses transfer to and fulfill the University’s Discovery requirements. Students who earn an A.A. in general studies have a foundation for continued study in any major while they develop problem-solving skills, cognitive skills, and learning techniques that are vital to a lifetime of learning. Many students begin their college study in the A.A. general studies program. Depending on personal interests and academic goals, students may choose to apply to a baccalaureate degree program prior to completion of the A.A. degree.

Requirements

To graduate with an associate of arts degree in general studies, students must complete 64 credits, earn a minimum cumulative GPA of 2.0, and fulfill two types of requirements: University Discovery Program and degree requirements. The program includes nine courses from the Discovery Program curriculum. Working with their advisers, students enhance their program of study with elective courses where they can explore their interests and possible baccalaureate degree majors. The last 16 hours of credit must be UNH courses completed following admission and matriculation, unless permission is granted to transfer part of this work from another institution.

The A.A. general studies program includes the following course requirements:

Discovery Foundations

Two writing-intensive courses, one of which must be ENGL 401, First-Year Writing

One course in quantitative reasoning (must be completed within the first 32 credits)

One Inquiry or Inquiry attribute course (must be completed within the first 25 credits)

Discovery Categories

Two courses from two of the following categories (one must be a lab course):

- Biological Sciences
- Physical Sciences
- Environment, Technology and Society
- One course in Historical Perspectives
- One course in World Culture or Fine and Performing Arts
- One course in Social Science
- One course in Humanities

Completion of the Interdisciplinary Core Requirement (may also fill the Humanities category requirement)

HUMA 411 Humanities I
or HUMA 412 Humanities II

Elective courses

Total Credits: 20

For more information, contact the Office of Admissions at (603) 641-4150 or unhm.admissions@unh.edu.

History (HIST)

Travel through time in our History program, where you’ll learn to use the past to understand the present — and shape the future. Guided by distinguished faculty, you’ll explore the political, social, economic and cultural forces that shape our everyday lives.

As a history major, you’ll learn to analyze conflicting evidence, to find cause and effect, to express yourself effectively and to ask relevant
questions. Through careful observation and evaluation of information, you'll seek explanations for human events, past and present.

You'll have the opportunity to study the breadth of human experience, and acquire the skills in critical reading and writing that form the foundation of an educated life — and lead to a rewarding career.

http://manchester.unh.edu/academics/degree-programs/history

Programs

- History Major (B.A.) UNHM (p. 344)
- History Minor (UNHM) (p. 344)
- Public History Minor (p. 345)

Faculty

History Faculty (http://manchester.unh.edu/academics/degree-programs/history/#unhstyleCollapsePane73)

History Major (B.A.) UNHM

http://manchester.unh.edu/academics/degree-programs/history

Description

The study of history is an essential element of a liberal arts education. The history major develops both an awareness of the past and the tools to express one's knowledge. Study of the past gives meaning to the present, increasing understanding of the political, social, economic, and cultural forces that influence contemporary life.

The study of history may encompass all of human culture and society, and UNH Manchester’s history program allows great latitude in the subjects that students may select as their focus. In fact, the study of those subjects is often best pursued through an interdisciplinary approach, something we encourage.

The student who majors in history will not only have the opportunity to study the breadth of human experience, but will also acquire the most important and broadly applicable skills conferred by a liberal-arts education: critical thinking, independent research, and effective writing skills. Students of history learn to analyze conflicting evidence; to find cause and effect; to express themselves clearly; to ask relevant questions; and to seek out their own answers. In explaining human events, they come to value careful observation and balanced, informed evaluations of the information at hand. Those are the skills that characterize effective, productive individuals in any and all walks of life.

Colloquium during the senior year. Between those gateway and capstone courses, History majors take eight additional history courses. A minimum of three of those must be 600-level or above. A student’s area of concentration is comprised of either four or five of those eight courses; all courses within that concentration must be either 500 or 600 level. No more than two HIST 695 Independent Study courses may be put toward the ten-course requirement, and only one HIST 695 Independent Study course may be put toward the (three-course) 600-level requirement. No more than two 400-level courses may be counted toward the major. The program must be planned in consultation with an adviser.

The distribution of required courses for the major is as follows:

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>HIST 797</td>
<td>Colloquium</td>
<td>4</td>
</tr>
</tbody>
</table>

Concentration

Five courses numbered 500 and above centered around a nation, region, time period, interdisciplinary theme, or other subject approved by a faculty adviser.

Complementary Category

At least three history courses from outside the area of specialization

Total Credits

40

1 Fulfills the Discovery Program capstone requirement for history majors and is taken during the senior year.

2 Two of these courses may be in another program, if the student's adviser approves.

A particular feature of the history program at UNH Manchester is the opportunity to do internships for academic credit. These internships, which enable students to work in museums, historical societies, government agencies, archives, and other institutional settings, are arranged with the help of the faculty.

A typical first-year program consists of at least two history courses (e.g., HIST 500 Introduction to Historical Thinking, HIST 435 Origins of European Society, HIST 410 Historic Survey of American Civilization, etc.); ENGL 401 First-Year Writing; three to five Discovery Program requirements; and/or electives.

For more information about the history program, contact Robert Macieski (robert.macieski@unh.edu), program coordinator, at (603) 641-4135, the UNH Manchester Office of Admissions at (603) 641-4150 or unhm.admissions@unh.edu.

History Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/history-minor

Description

An excellent complement to any degree, a History minor helps you build a foundational understanding of the political, social, economic and cultural forces that influence human life.

Requirements

To earn a minor in history, students must complete 20 credits with no individual grade lower than C- and a 2.0 grade-point average in minor
University of New Hampshire

345 courses. Students may take any five history courses (HIST), two of which must be 500 level or above. Up to 8 transfer credits may be used toward the history minor.

For more information, contact Robert Macieski (robert.macieski@unh.edu) at 603-641-4135.

Public History Minor

http://manchester.unh.edu/academics/degree-programs/public-history-minor

Description

The public history minor is designed to provide students with the skills to work in the public as an historian. Public historians work in museums, archives, libraries, historic associations, historic houses, parks, zoos, arboretums, businesses, corporations, and in public planning of urban and environmental landscapes. Public historians work on translating historical research to the broad public audience.

Requirements

The minor is composed of five courses of 4 credits each, including an introduction to public history course and an internship, HIST 691 Internship, at a local historical site.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>HIST 595</td>
<td>Explorations</td>
<td>4</td>
</tr>
<tr>
<td>Select 8 credits of public history courses approved by minor supervisor at 500/600 level</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>HIST 691</td>
<td>Internship</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 20

For more information, contact Robert Macieski (robert.macieski@unh.edu), minor supervisor, at (603) 641-4135.

Homeland Security (HLS)

Preparing innovative, dynamic problem-solvers for a safer tomorrow

Fully available on both campuses - Durham and Manchester, our Homeland Security program gives you the tools to defend, protect, act and react to threats small and large, from bioterrorism to data breaches to natural disasters. Built upon the expertise and advice of homeland security professionals across the nation, this program empowers you to think, plan and respond to today’s most relevant security issues.

As a student in our program, you will be learning from faculty who are experts in the field. You’ll work independently and collaboratively to find solutions to complex problems in areas like:

- information security
- corporate and physical security
- intelligence systems and structures
- environmental security
- strategic management and decision making and
- emerging security models

YOUR COMPETITIVE ADVANTAGE

In four years, students graduate with a Homeland Security degree as well as a second major or two minors. This flexible curriculum allows you to specialize your education around your interests, and gives you a competitive advantage when applying for jobs or graduate schools. Interested in foreign affairs? Add a major in Politics & Society (http://manchester.unh.edu/academics/degree-programs/politics-society), or minors in Political Science (http://manchester.unh.edu/academics/degree-programs/political-science-minor) and Politics & The Economy (http://manchester.unh.edu/academics/degree-programs/politics-economy-minor). If you enjoy computer science, get an additional B.S. in Analytics and Data Science (http://manchester.unh.edu/academics/degree-programs/analytics) or Computer Information Systems (http://manchester.unh.edu/academics/degree-programs/computer-information-systems). Business-savvy? Double-major in Business (http://manchester.unh.edu/academics/degree-programs/business), or minor in Entrepreneurship (http://manchester.unh.edu/academics/degree-programs/entrepreneurship-minor) and Communication Arts (http://manchester.unh.edu/academics/degree-programs/communication-arts-minor).

You will apply your classroom learning through the senior capstone, where you’ll work alongside industry professionals in agencies like FEMA, N.H. Homeland Security & Emergency Management, Fidelity Investments or the Seabrook Station Nuclear Power Plant.

Our students graduate with the skills needed to lead strategic planning, build emergency management and continuity plans, and to perform organization-wide security and risk assessments. In this highly employable industry, you’ll be prepared for success in graduate school or careers in fields as diverse as critical infrastructure protection, environmental and human security, intelligence, cybersecurity and more.

http://manchester.unh.edu/academics/degree-programs/homeland-security

Programs

- Homeland Security Major (B.S.) (p. 345)
- Homeland Security Minor (p. 346)

Faculty

Homeland Security Faculty (http://manchester.unh.edu/academics/degree-programs/homeland-security/#unhstyleCollapsePane235)

Homeland Security Major (B.S.)

http://manchester.unh.edu/academics/degree-programs/homeland-security

Description

The Homeland Security Program at UNH is fully available on both campuses - Durham and Manchester. It provides students the tools to defend, protect, act, and react to a variety of threats, including threats from small- and large-scale attacks of violence and terrorism, to technological hazards or catastrophic natural disasters such as hurricanes, tornadoes, and earthquakes.
The Homeland Security Program is built around the expertise and advice of subject matter experts from around the nation. Its proven curriculum includes practical experiences, service-learning opportunities, and consulting opportunities that empower students to manage programs and lead people. It provides students with an impressive array of tools including how to do strategic planning, how to build emergency management and continuity plans, how to perform an organization-wide security and risk assessments, and how to design and evaluate exercises. The curriculum is flexible and includes the ability to either obtain two minors or to double major within four years. Ultimately, the homeland security program empowers students to be successful on the job market or in graduate school.

Homeland security is a broad field providing students with many graduate school opportunities and career paths in the public sector (e.g., local, state or federal government), the private sector, or the military. Students will find diverse and rewarding career opportunities in cyber security/information assurance; intelligence analysis; civil or Foreign Service; diplomatic security; law enforcement at the local, state or federal level; emergency and disaster management; immigration; border and transportation security; policy making; corporate security; risk management; critical infrastructure protection; human security; and more.

### Requirements

Students must complete 128 credits to graduate. All courses within the major must be completed with a grade of C- or above, and an overall GPA of 2.0 or above in major courses.

#### Core Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 410</td>
<td>Introduction to Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 415</td>
<td>Fundamentals of Corporate Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 455</td>
<td>Introduction to Cybersecurity</td>
<td>4</td>
</tr>
<tr>
<td>HLS 480</td>
<td>Professional Skills in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 510</td>
<td>Fundamentals of Emergency Management</td>
<td>4</td>
</tr>
<tr>
<td>HLS 515</td>
<td>Critical Infrastructure Security and Resilience</td>
<td>4</td>
</tr>
<tr>
<td>HLS 520</td>
<td>Homeland Security Law and Policy</td>
<td>4</td>
</tr>
<tr>
<td>PS 505</td>
<td>Political Violence and Terrorism</td>
<td>4</td>
</tr>
<tr>
<td>or POLT 570</td>
<td>Counterterrorism: Nation states' responses to terrorist activity</td>
<td>4</td>
</tr>
<tr>
<td>or SOC 656</td>
<td>Terrorism</td>
<td></td>
</tr>
<tr>
<td>HLS 580</td>
<td>Environmental and Human Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 610</td>
<td>Exercise Design and Evaluation in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 650</td>
<td>Intelligence Systems and Structures in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>or POLT 568</td>
<td>Introduction to Intelligence</td>
<td></td>
</tr>
<tr>
<td>HLS 760</td>
<td>Strategic Planning and Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>or POLT 562</td>
<td>Strategy and National Security Policy</td>
<td></td>
</tr>
<tr>
<td>HLS 770</td>
<td>Internship in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>or HLS 799</td>
<td>Thesis in Homeland Security</td>
<td></td>
</tr>
<tr>
<td>HLS 790</td>
<td>Capstone in Homeland Security</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 56

1. May be used to fulfill Discovery Social Science (SS) requirement.

2. May be used to fulfill Discovery Environment, Technology, and Society (ETS) requirement.

### Complimentary Block of Courses

In addition to the core HLS courses, students must complete 40 additional credits in one of five ways:

1. two minors;
2. a minor and a "coherent block"/self-designed concentration approved by the HLS coordinator;
3. a second major;
4. an associate's degree transferred in to UNH;
5. some other combination of coursework with consent of the HLS program coordinator.

For additional information about the Homeland Security program on either campus, contact program coordinator, James Ramsay at james.ramsay@unh.edu or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

### Homeland Security Minor

http://manchester.unh.edu/academics/degree-programs/homeland-security-minor

#### Description

The minor in homeland security (HLS) is fully available on both campuses - Durham and Manchester. It is designed to provide a professional experience to students not majoring in homeland security, but who are interested in aspects of the discipline. Students not majoring in homeland security will see how homeland security issues, challenges, and tools are related to their specific major and how homeland security can be used to embellish their careers.

#### Requirements

The minor requires five courses. Students must earn grades of at least C- in each course and an overall GPA of 2.0 in minor courses. Transfer students may transfer up to two courses, subject to the approval of the HLS program coordinator. Courses taken on a pass/fail basis may not be used for the minor. No more than 8 credits to satisfy major requirements may be used in the minor.

### Required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 410</td>
<td>Introduction to Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 455</td>
<td>Introduction to Cybersecurity</td>
<td>4</td>
</tr>
<tr>
<td>or HLS 415</td>
<td>Fundamentals of Corporate Security</td>
<td></td>
</tr>
</tbody>
</table>

Select three of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 510</td>
<td>Fundamentals of Emergency Management</td>
<td></td>
</tr>
<tr>
<td>HLS 515</td>
<td>Critical Infrastructure Security and Resilience</td>
<td></td>
</tr>
<tr>
<td>HLS 520</td>
<td>Homeland Security Law and Policy</td>
<td></td>
</tr>
<tr>
<td>PS 505</td>
<td>Political Violence and Terrorism</td>
<td></td>
</tr>
<tr>
<td>or HLS 760</td>
<td>Strategic Planning and Decision Making</td>
<td></td>
</tr>
<tr>
<td>or HLS 562</td>
<td>Strategy and National Security Policy</td>
<td></td>
</tr>
<tr>
<td>HLS 770</td>
<td>Internship in Homeland Security</td>
<td></td>
</tr>
<tr>
<td>or HLS 799</td>
<td>Thesis in Homeland Security</td>
<td></td>
</tr>
<tr>
<td>HLS 650</td>
<td>Intelligence Systems and Structures in Homeland Security</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 20
For more information about the Homeland Security minor on either campus, contact James Ramsay, HLS program coordinator, at james.ramsay@unh.edu.

Humanities (HUMA)
Shaping insightful thinkers through liberal arts exploration

Channel your curiosity about the human condition with our highly interdisciplinary Humanities program. With self-designed concentrations and faculty mentorship, you'll develop the intellectual, analytical and communication skills that will set you apart in any industry.

As a humanities major, you'll sharpen your abilities in analysis and critical thinking through exploration of diverse works of art, music, literature, history, philosophy and the sciences. Let your interests fuel your studies with self-designed concentrations, from the social and ethical implications of genetic engineering to the examination of a historical period through literature, arts and more.

With the personalization to tailor your degree to the future you want, the skills and knowledge you'll gain will help you reach your career goals.

http://manchester.unh.edu/academics/degree-programs/humanities

Programs

• Humanities Major (B.A.) (p. 347)
• Humanities Minor (UNHM) (p. 347)

Faculty

Humanities Faculty (http://manchester.unh.edu/academics/degree-programs/humanities/#unhstyleCollapsePane73)

Humanities Major (B.A.)

http://manchester.unh.edu/academics/degree-programs/humanities

Description

The UNH Manchester humanities program is an interdisciplinary study of the human condition, past and present. The program is based on careful examination of substantial works from a variety of disciplines and is intended to develop intellectual skills, specialized knowledge, and breadth of understanding. It provides students with a broad foundation of knowledge and skills in the liberal arts combined with a coordinated, self-designed program of studies in an area of individual student interest.

The program attracts highly motivated students who wish to assume significant responsibility for the content and direction of their studies. Humanities students develop skills of analysis, critical assessment, and effective communication as they study diverse works of art, music, literature, history, philosophy, and the sciences. Individually designed programs may cover the full range of student interests: for example, the social and ethical implications of genetic engineering or the examination of an historical period through study of its literature, arts, history, philosophy, and sciences. Students complete their major with two capstone seminars. The first, HUMA 795 Study of Creativity, explores the nature of creativity through the lives and works of individuals such as Leonardo da Vinci, Kathe Kollwitz, Mozart, Freud, Einstein, and Georgia O’Keeffe. The second seminar, HUMA 796 Study of Contemporary Issues, explores current social and political issues with a focus on developments in public policy, science, and business, and their impact on social values.

Humanities majors find employment in a wide range of fields or pursue graduate study in subjects such as law or education. Skills and knowledge developed through the major are important in virtually all social and career responsibilities. A humanities major or minor can also complement work in other majors such as elementary or secondary education, business, communications, or computer information systems.

Requirements

Program of Study

For the humanities major at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and students must complete 40 credits with a minimum grade of C in each course in the major. The required courses for the humanities major are:

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>or ENGL 419</td>
<td>Introduction to Literary Analysis</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 411</td>
<td>Humanities I</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 412</td>
<td>Humanities II</td>
<td>4</td>
</tr>
</tbody>
</table>

Discovery Program Capstone Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMA 795</td>
<td>Study of Creativity</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 796</td>
<td>Study of Contemporary Issues</td>
<td>4</td>
</tr>
</tbody>
</table>

Self-Designed Concentration

Total Credits

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

1 This is an approved program of study designed by the student in consultation with a faculty adviser. In addition to courses available on the Manchester campus, students may, with prior approval, use courses from area colleges and the University’s Durham campus. The concentration is made up of two humanities courses (HUMA prefix) at the 600 or 700 level and three courses from any relevant discipline at any level.

For more information, contact Phillip Deen (philip.deen@unh.edu); or contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Humanities Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/humanities-minor

Description

The humanities minor is an interdisciplinary program where students can combine humanities courses and courses from other disciplines that form a multidisciplinary theme or topic. The humanities minor is an excellent way to add breadth of perspective to specialized study in particular disciplines. Many professions encourage students to develop skills and knowledge outside their area of professional interest. The humanities minor can meet this objective and make college education a
more enlightening and rewarding experience. Students selecting a minor in humanities should, in consultation with a faculty adviser in humanities, identify a general theme or topic for the minor.

Requirements

To earn a minor in humanities, students must complete 20 credits with no individual grade lower than C in minor courses.

- HIST 500 Introduction to Historical Thinking 1
  or ENGL 419 Introduction to Literary Analysis

- Select at least two courses in the humanities (HUMA) 8
- Select more courses in humanities (HUMA) or choose complementary courses from other disciplines, such as history, English, philosophy, communication arts, politics and society, or business, which contribute to the student's multidisciplinary theme or topic 2

Total Credits 20

1 These courses provide an introduction to the methodology and content of the humanities.
2 Select in consultation with a faculty adviser in humanities.

For more information, contact Phillip Deen at phillip.deen@unh.edu, minor supervisor.

Legal Advocacy

Programs

- Legal Advocacy Minor (p. 348)

Legal Advocacy Minor

Description

http://manchester.unh.edu/academics/degree-programs/legal-advocacy-minor

The Legal Advocacy Minor is a set of courses which is designed to ensure students with an interest in law school have all the skill-sets and several of the field-specific knowledge bases that will help them succeed there. It is also intended to help students contemplating law school develop a clear understanding of what that experience is likely to be, as well as some insight into the nature of professional legal practice. For students who may not intend to pursue graduate study in the law, the Minor sharpens their written, rhetorical, and analytical skills, helping them succeed in a variety of other graduate programs and career paths. In all cases, it is designed to further students’ understanding of how the American legal system, as such knowledge is foundational to being an engaged citizen.

Instructors in the Legal Advocacy Minor include a licensed attorney with six years of trial experience in New Hampshire, a retired Justice of the 4th Circuit Court of New Hampshire, and a former paralegal who has published numerous scholarly articles on the subject of Law & Politics.

Requirements

Students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C. No more than 8 transfer credits will be accepted.

- PS 407 Politics, Law and Contemporary Society 4
- PHIL 412 Beginning Logic 4
- ENGL 694 Special Topics in Creative Writing (Legal Writing and Research) 4

One Interdisciplinary "Breadth" Course 1

- UMST 500 Internship 4

Total Credits 20

1 This course would relate to a law-adjacent specialization of interest to the individual student.

For more information, contact Seth Abramson, Assistant Professor, Literary Arts & Studies, at seth.abramson@unh.edu or Stephen Pimpare, Senior Lecturer, Politics & Society, at stephen.pimpare@unh.edu.

Literary Arts and Studies (LAS)

Shaping the next generation of innovative thinkers and communicators

The Literary Arts & Studies program was uniquely designed with your career in mind. Built upon an analysis of large-scale polls of employers, this program focuses on the five skills considered most important for success in the job market: critical thinking, creative thinking, written communication, oral communication, and the ability to collaborate as part of a team.

With courses in areas from new media journalism to graphic novels, from legal writing to crime fiction, this regionally distinctive program offers a digital-age curriculum that is innovative, entrepreneurial, and cross-disciplinary. You’ll develop career-driven, transferable skills in one of these specialized bachelor’s degree options:

- **Digital Language Arts**: Build high-level skills in critical and creative thinking through the creation and development of digital-age projects in environments from print to virtual reality.
- **Literary Studies**: Explore poetics, literary theory, and literary analysis in print and digital literature.
- **Professional and Technical Communications**: Learn to excel in any professional environment by studying how to communicate and collaborate in specializations like new media journalism, business writing, legal writing, and creative nonfiction.

In any degree option, you’ll have the opportunity to be part of one of two on-campus publications: *The Manchester Independent*, a digital newspaper covering the Greater Manchester area, and *Best American Experimental
Writing, an annual, nationally distributed anthology of innovative literary art.

The Literary Arts & Studies program culminates with real-world experience through upper-level seminars, capstones, and internships that are tailored to your own career ambitions—and focused on the applied skills that employers particularly value.

http://manchester.unh.edu/academics/degree-programs/literary-arts-studies

Programs

- Literary Arts and Studies Major: Digital Language Arts Option (B.A.) (p. 349)
- Literary Arts and Studies Major: Literary Studies Option (B.A.) (p. 349)
- Literary Arts and Studies Major: Professional and Technical Communication Option (B.A.) (p. 350)
- Creative Writing Minor (p. 350)
- English Minor (p. 351)
- Professional Writing Minor (p. 352)

Faculty

Literary Arts & Studies Faculty (http://manchester.unh.edu/academics/degree-programs/literary-arts-studies/#unhstyleCollapsePane73)

Literary Arts and Studies Major: Digital Language Arts Option (B.A.)

Description

http://manchester.unh.edu/academics/degree-programs/literary-arts-studies/digital-language-arts-option

Students in the Digital Language Arts option develop high-level critical and creative thinking skills by planning and constructing innovative, entrepreneurial digital-age projects. By conceptualizing, theorizing, and authoring cutting-edge ideas for both art and business, you'll learn to excel in every type of literacy necessary for success in the digital marketplace. This includes, in addition to conventional print literacy, literacies in visual, audiovisual, digital, transmedia, performative, augmented reality, augmented virtuality, and virtual reality environments.

Requirements

For the Literary Arts and Studies: Digital Language Arts Option at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University's Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the Diversity requirement and the capstone requirement. Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional and Technical Writing, and ENGL 595 Literary Topics. One literary theory/poetics course is required.

PROGRAM REQUIREMENTS

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing)</td>
<td>4</td>
</tr>
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</table>

Development/Extension

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL elective</td>
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Specialization/Practice

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL elective</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 40

1 Must take two sections of ENGL 694 Special Topics in Creative Writing (Experimental Narratives and Introduction to Visual Narrative)
2 Choose 500/600-level ENGL course in literature, literary theory, or creative writing with advisor approval.
3 Capstone course
4 Variable topic seminar colloquium
5 Choose 500, 600, or 700-level ENGL course in creative writing, creative nonfiction, poetics, or appropriate courses in Communication Arts and allied Programs with advisor approval.

For more information, contact program coordinator Susanne Paterson at susanne.paterson@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Literary Arts and Studies Major: Literary Studies Option (B.A.)

Description

http://manchester.unh.edu/academics/degree-programs/literary-arts-studies/literary-studies-option

Students in the Literary Studies option advance their power to analyze keenly and write incisively by studying leading-edge and foundational literary works in print, graphic and digital forms. Gaining a mastery of aesthetics and genre, literary theory and cultural history, our students learn to see how language shapes the world on every scale. Literary Studies students take an array of literature classes as well as core courses in digital language arts and professional and technical communication, making them just the sort of versatile, critically aware graduates prized in workplaces today.

Requirements

For the Literary Arts and Studies: Literary Studies Option at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University's Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the Diversity
requirement and the capstone requirement. Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional and Technical Writing, and ENGL 595 Literary Topics. One literary theory/poetics course is required. Two pre-1800 literature courses are required.

**PROGRAM REQUIREMENTS**

<table>
<thead>
<tr>
<th>Core Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis 4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing 4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing) 4</td>
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<table>
<thead>
<tr>
<th>Development/Extension</th>
<th></th>
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<tbody>
<tr>
<td>ENGL 514W</td>
<td>Survey of British Literature</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>Survey of American Literature</td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
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<td>ENGL elective</td>
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<table>
<thead>
<tr>
<th>Specialization/Practice</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar 2 4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature 3 4</td>
</tr>
</tbody>
</table>

Select two courses of the following: 8

- ENGL 791 English Grammar
- ENGL elective 4

Total Credits 40

1 500 or 600-level ENGL courses in literature, literary theory, or narrative
2 Capstone course
3 Variable topic seminar colloquium
4 500, 600, or 700-level ENGL courses in literature, literary theory, or narrative

For more information, contact program coordinator Susanne Paterson at susanne.paterno@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Literary Arts and Studies Major: Professional and Technical Communication Option (B.A.)**

**Description**

http://manchester.unh.edu/academics/degree-programs/literary-arts-studies/professional-and-technical-communications-option

Students in the Professional and Technical Communications option study to become accomplished digital-age communicators. You’ll not only develop transferable skill-sets in oral and written communication that prepare you to excel in any professional environment, but you’ll also learn to communicate and collaborate in specializations of your choice — including, among others, new media journalism, creative nonfiction, business writing, legal writing and research, and technical writing.

**Requirements**

For the Literary Arts and Studies: Professional and Technical Communication Option at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the Diversity requirement and the capstone requirement. Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional and Technical Writing, and ENGL 595 Literary Topics.

**PROGRAM REQUIREMENTS**

<table>
<thead>
<tr>
<th>Core Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>Introduction to Literary Analysis 4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing 4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing) 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development/Extension</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Business Writing) 4</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing 4</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing 1 4</td>
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</table>

<table>
<thead>
<tr>
<th>Specialization/Practice</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UMST 500</td>
<td>Internship 4</td>
</tr>
</tbody>
</table>

Select three courses of the following: 12

- ENGL 534 21st Century Journalism: How the News Works
- ENGL 791 English Grammar
- ENGL elective 2

Total Credits 40

1 Can be duplicated for credit, provided the topics are different.
2 500, 600, or 700-level ENGL courses in writing, journalism; appropriate courses in Communication Arts and allied Programs; Senior Colloquium.

For more information, contact program coordinator Susanne Paterson at susanne.paterno@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Creative Writing Minor**

http://manchester.unh.edu/academics/degree-programs/creative-writing-minor

**Description**

The Creative Writing Minor is a course of study tailored to the interests of individual creative writers, with an additional focus, in all classes, on oral and written persuasion, imaginative and critical thinking, and collaboration with creative peers. The aim of the Minor is to help students develop a unique approach to language that results in memorable, publishable work. Students are free to author work in any of 36 genres of creative writing, and are encouraged to innovate, experiment, and cross genre lines at will. Because our program is especially focused on interdisciplinarity and multimedia literary art, it is well-suited to those wishing to become “creatives” in the digital age. Even students who do not intend to publish their work will find that the skills developed
through the Minor—including literacies in everything from print to virtual reality, from visual narrative to augmented virtuality—are useful in any profession where creativity and entrepreneurial ingenuity are valued.

Classes in the Creative Writing Minor prize innovation, experimentation, individuality, and creative daring across genres and media, and emphasize collaboration and conceptual reasoning far more than is common in many creative writing courses. A central presumption of the Creative Writing Minor is that the most engaging literary art is reflexive—meaning that not only is there a philosophy of language animating it, but also that its author has drawn from all his or her non-literary interests in developing that philosophy. For this reason, undergraduates in STEM programs are particularly encouraged to study in the Minor; they bring the way they speak, write, and reason in their non-creative writing courses into all of the workshops and theory seminars in this plan of study as well.

The director of the Creative Writing Minor, Professor Seth Abramson (seth.abramson@unh.edu), is the author of many books of cross-genre creative writing and the series editor for Best American Experimental Writing, an annual anthology of experimental poetry and prose published annually by Wesleyan University Press and sponsored by the Literary Arts & Studies program (http://manchester.unh.edu/academics/degree-programs/literary-arts-studies) at University of New Hampshire.

**Requirements**

Students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C-. No more than 8 transfer credits will be accepted.

**Workshop Course**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
</tr>
<tr>
<td>ENGL 526</td>
<td>Introduction to Fiction Writing</td>
</tr>
<tr>
<td>ENGL 527</td>
<td>Introduction to Poetry Writing</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics</td>
</tr>
<tr>
<td>ENGL 623</td>
<td>Creative Nonfiction</td>
</tr>
<tr>
<td>ENGL 625</td>
<td>Intermediate Fiction Writing Workshop</td>
</tr>
<tr>
<td>ENGL 627</td>
<td>Intermediate Poetry Writing Workshop</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing</td>
</tr>
<tr>
<td>ENGL 701</td>
<td>Advanced Fiction Writing Workshop</td>
</tr>
<tr>
<td>ENGL 703</td>
<td>Travel Writing</td>
</tr>
<tr>
<td>ENGL 705</td>
<td>Advanced Poetry Writing Workshop</td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
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<tr>
<td>CA 519</td>
<td>Advanced Screenwriting</td>
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</table>

**Literature & Theory Course**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 531</td>
<td>Introduction to Drama</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature</td>
</tr>
<tr>
<td>ENGL 711</td>
<td>Editing</td>
</tr>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar</td>
</tr>
<tr>
<td>ENGL 795</td>
<td>Independent Study</td>
</tr>
</tbody>
</table>

**Workshop Course OR Literature & Theory Course**

Select one from either of the lists above.

**One Interdisciplinary "Breadth" Course**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMIS 599</td>
<td>Independent Study</td>
</tr>
</tbody>
</table>

**Total Credits**

1. Or any other ENGL or CA course declared a "Workshop" course for the Minor in the course catalog.
2. Or any other ENGL or CA course declared a "Literature & Theory" course for the Minor in the course catalog.
3. This course, chosen in consultation with the faculty advisor for the Minor, relates to an interest of the student outside creative writing that will inform the student's final project in the Minor.
4. This course will culminate in the creation of a significant and distinctive literary work.

For more information, contact Seth Abramson, Seth Abramson, Assistant Professor, Literary Arts & Studies, at Seth.Abramson@unh.edu (seth.abramson@unh.edu).

**English Minor (UNHM)**

http://manchester.unh.edu/academics/degree-programs/english-minor

**Description**

With a minor in English, you can complement your major with five classes from our areas of study. We think you'll find that even subjects that seem far apart have an uncanny way of intersecting.

In our literature courses, you might read and research a play about thermodynamics, even as our writing classes give you an opportunity to study the many genres of creative and occupational writing. English study expands your portfolio of transferable skills while keeping your imaginative faculties in high gear.

Employers from across the professional spectrum are looking for employees with skill-sets that include those of an English minor—for instance, the ability to think critically, parse challenging texts, and express new ideas persuasively and creatively. You’ll be amazed at what an English minor can do for you both personally and professionally.

**Requirements**

For the English minor at UNH Manchester, students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C-.

Two (2) English courses must be taken at the 500 level and three (3) courses must be taken at the 600 or 700 level. ENGL 419 Introduction to Literary Analysis is recommended as one of the five courses.

Students may include in the English minor courses from the Writing Focus, which includes courses in creative writing and journalism.
For more information, contact Susanne Paterson (Susanne.Paterson@unh.edu), Professional Writing minor supervisor, at (603) 641-4115.

Professional Writing Minor

http://manchester.unh.edu/academics/degree-programs/professional-writing-minor

Description

The interdisciplinary minor in Professional Writing will introduce students to various types of professional writing and will provide opportunities for them to develop their writing skills and to practice them in an internship setting.

Requirements

Students must complete 22-24 credits for the minor. Courses must be completed with a minimum grade of C unless otherwise specified, and a 2.0 overall GPA in courses used for the minor is required. A maximum of two transfer courses (3 or 4 credits each) may be applied to the minor. No more than 8 credits used by the student to satisfy major requirements may be used in the minor.

Students should select courses from the following subject areas:

**English Courses**
Select three of the following: 12
- ENGL 501 Introduction to Creative Nonfiction
- ENGL 502 Professional and Technical Writing
- ENGL 534 21st Century Journalism: How the News Works
- ENGL 621 Writing and Reporting the News I
- ENGL 631 Introduction to Digital Reporting

**Communication Arts Courses**
Select at least one of the following: 4
- CA 500 Media Writing
- CA 512 Screenwriting
- CA 514 Fundamentals of Video Production
- CA 542 Social Media for Organizations and Business

**Computing Courses**
Select one of the following: 4
- COMP 411 Introduction to Computer Applications
- COMP 415 Mobile Computing First and For Most
- Other course by permission

**Internship**
Select one of the following: 1-4
- UMST 500 Internship

For more information, contact Susanne Paterson (Susanne.Paterson@unh.edu), English minor supervisor, at (603) 641-4115.

**Neuropsychology (PSYC)**

Explore the human brain to fuel research, innovation and discovery

Channel your curiosity about the human brain and behavior in our innovative Neuropsychology program. Fusing core components of biology and psychology, this program prepares students for an impactful career in the growing field of neuroscience.

You’ll explore the concepts behind normal human behavior, from learning and memory to sensation and perception. You’ll also examine complex neurological conditions like dementia, addiction and mood and movement disorders.

Guided by faculty experts in our cutting-edge labs, you’ll gain the research, analytic and communication skills that will make you stand out in your career — or in your application to graduate or medical school.

http://manchester.unh.edu/academics/degree-programs/neuropsychology

**Programs**

- Neuropsychology Major (B.S.) (p. 352)

**Faculty**

Neuropsychology Faculty (http://manchester.unh.edu/academics/degree-programs/neuropsychology/#unhstyleCollapsePane73)

**Neuropsychology Major (B.S.)**

http://manchester.unh.edu/academics/degree-programs/neuropsychology

Description

Neuropsychology is the study of the human brain and its relationship to behavior. The UNH Manchester program focuses on the biological basis of human functioning in both normal and pathological states (e.g., dementia, depression, etc.) and therefore, prepares students for careers working with individuals with various mental health and neurological conditions. This interdisciplinary program offers a concentration of core and advanced courses in psychology and biology while providing sufficient flexibility for students to customize their education in order to meet specific requirements for their chosen career path, including the health professions.

The neuropsychology program prepares students for a variety of careers within the field of neuroscience, including bachelor-level positions and graduate training in research and health professions. At the bachelor-level, students are prepared for positions in healthcare (e.g., clinical laboratory technologist, psychometrist) and biomedical research (research assistant). The program is also designed to provide the flexibility needed to prepare students for graduate training in the health professions, such as being a physician, physician assistant, psychologist, neuropsychologist, or occupational therapist. Students interested in medical school are able to complete premedical requirements within four years.
Requirements

Students majoring in neuropsychology must complete a minimum of 128 credits and satisfy the University's Discovery Program, and complete 56 credits in the major with a minimum of C- in each course and a 2.0 overall grade-point average in all major requirements. Three courses in the major can be used to fulfill both a major requirement and a Discovery requirement, providing students with more flexibility to customize their education.

Transfer students who elect to major in neuropsychology must complete at least 32 credits in the program at UNH to qualify for the degree in neuropsychology. The department’s academic advisers will determine the distribution of these credits. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the neuropsychology major.

Specific course selections should be discussed with the adviser. Exceptions to the requirements for the major require a petition to the department.

Program Requirements

Core Courses in Psychology and Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>4</td>
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<tr>
<td>&amp; BIOL 414</td>
<td>Principles of Biology II (both with lab)</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I (with lab)</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 531</td>
<td>Psychobiology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 705</td>
<td>Tests and Measurement</td>
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Advanced Courses in Psychology and Biology

Select three of the following: 12

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BSCI 680</td>
<td>Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 735</td>
<td>Neurobiology of Mood Disorders</td>
<td></td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception</td>
<td></td>
</tr>
<tr>
<td>PSYC 713</td>
<td>Psychology of Consciousness</td>
<td></td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior (with lab)</td>
<td></td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Drugs and Behavior</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 736</td>
<td>Attention Disorders</td>
<td></td>
</tr>
<tr>
<td>PSYC 741</td>
<td>Advanced Topics (A [Natural Science], B [Cognition], or D [Biological/Sensory])</td>
<td></td>
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</table>

Advanced Elective in Psychology

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
<td></td>
</tr>
<tr>
<td>PSYC 758</td>
<td>Health Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 762</td>
<td>Counseling</td>
<td></td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Advanced Topics (D [Abnormal/Counseling] or G [Adult Development])</td>
<td></td>
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Capstone Requirement

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 793</td>
<td>Internship (at approved site)</td>
<td>4</td>
</tr>
</tbody>
</table>

1 If used to fulfill SS Discovery requirement, students must take PSYC 511 Sensation and Perception, PSYC 513 Cognitive Psychology, or PSYC 561 Abnormal Behavior.
2 Students can either take BSCI 680 Pharmacology or PSYC 733 Drugs and Behavior for major credit, but not both.

For more information about the neuropsychology program, contact Daniel Seichepine, Ph.D., program coordinator, at Daniel.Seichepine@unh.edu or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Philosophy

Programs

• Philosophy Minor (UNHM) (p. 353)

Philosophy Minor (UNHM)

http://manchester.unh.edu/academics/degree-programs/philosophy-minor

Description

Philosophy is the study of the fundamental nature of truth, existence, beauty, morality, and justice. People study philosophy to understand the basic principles of science, art, and the human condition.

Though this sounds abstract, a background in philosophy is excellent training for any walk of life. Philosophy offers training for a variety of careers by providing a unique combination of life-long skills: analytic and interpretive skills, critical reasoning skills, the enhanced capacity to detect problems and to solve them, excellence in oral and written presentation and defense of one’s ideas, skill at asking probing and central questions about the ideas of others (as well as about one’s own ideas), and skill at effectively understanding, organizing, and evaluating complex systems of thought.

Requirements

A philosophy minor consists of five philosophy courses, completed with a C- or above, one of which must be at the 500-level or higher, (PHIL 495 Tutorial Reading or PHIL 795 Independent Study with special permission only).

For more information, contact Phillip Deen (phillip.deen@unh.edu), minor supervisor, or the Academic Counseling Office (unhm.counseling@unh.edu) at 603-641-4170.
Politics and Society (PS)

Developing agents of change in the classroom and in the field

Drawing on political science, economics, sociology and history, our highly innovative and interdisciplinary Politics & Society program will empower you to solve complex problems and shape the world.

You have the choice to personalize your studies to your particular interests with our concentrated degree options in American Politics & Public Policy, International Studies and Law & Justice. Our program is uniquely positioned to give you the real-world experience you need for the career you want, with vast internship opportunities in government, law, nonprofits and more right at your doorstep.

You’ll be prepared for a career in fields from education to government, diplomacy to business — and for graduate studies in law, political science, public administration, international relations and more.

Accelerated Master in Public Policy (with a Politics & Society B.A.)

The Accelerated Master’s Program gives diligent students the exciting opportunity to complete a B.A. in Politics & Society and a Master of Public Policy in five years by taking graduate-level courses during their senior year. Politics & Society majors have the opportunity to pursue an accelerated Master of Public Policy (MPP) by taking up to 12 credits in approved electives while still undergraduates. No credit toward the major will be given for any course in which the student receives a grade of less than C-. A student must be admitted to the Graduate School before the start of the semester in which the course(s) will be taken in order to receive graduate credit. Once accepted, a student must maintain the minimum 3.2 cumulative grade point average until their undergraduate degree is awarded. A student may apply for early admission using the Graduate School application (http://www.gradschool.unh.edu/apply.php). Students will follow the standard MPP curriculum beginning in the fall following completion of their undergraduate degree.

http://manchester.unh.edu/academics/degree-programs/politics-society

Programs

• Politics and Society Major (B.A.) (p. 354)
• Politics and Society Major: American Politics and Public Policy Option (B.A.) (p. 355)
• Politics and Society Major: International and Comparative Studies Option (B.A.) (p. 356)
• Politics and Society Major: Law and Justice Option (B.A.) (p. 356)
• Global Studies Minor (p. 357)
• Political Economy Minor (p. 358)
• Political Science Minor (p. 358)

Faculty

Politics & Society Faculty (http://manchester.unh.edu/academics/degree-programs/politics-society/#unhstyleCollapsePane73)

Politics and Society Major (B.A.)

http://manchester.unh.edu/academics/degree-programs/politics-society

Description

The bachelor of arts degree in politics and society provides a highly interdisciplinary approach to the study of politics. Students explore the many ways that leaders and citizens, in America and beyond, work in and around governments to solve complex problems, such as poverty and inequality, terrorism, discrimination, global conflicts, refugee crises, human rights violations, crime and climate change.

The major is very flexible and students may concentrate in one of three areas:
American politics & public policy, international & comparative studies, or law & justice.

Students may also substitute two political science courses with sociology, economics or history courses, or may substitute a semester of coursework with an internship in Washington DC through the Washington Center Program. An accelerated Master in Public Policy track is available for eligible students.

Politics and society majors develop essential transferable skills in critical thinking, problem-solving, effective communication, leadership, and the ability to conduct research and data analysis. Coursework emphasizes experiential learning, such as interning at the NH State House, competing in international Model United Nations conferences and service learning at local non-profit organizations (food bank, YWCA, etc.). All students must do at least one internship and at least one independent research project to present at the UNH Undergraduate Research Conference.

Politics and society graduates pursue exciting careers in government, law, non-profit organizations, international affairs, global security, intelligence, journalism and education, and also pursue graduate studies in law, political science, international relations, peace and conflict studies, public policy and public administration.

Requirements

Students must complete 128 credits to graduate, including 44 credits in the politics and society major. Students must maintain an overall cumulative GPA of 2.0 and a cumulative GPA in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH Discovery Program requirements. Up to three courses may be used toward both the politics and society major and UNH Discovery Program requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

Requirements for the Politics & Society B.A. degree

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 401</td>
<td>Politics and Society</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>PHIL 436</td>
<td>Social and Political Philosophy</td>
</tr>
<tr>
<td>POLT 402</td>
<td>American Politics and Government</td>
<td>4</td>
</tr>
<tr>
<td>POLT 403</td>
<td>United States in World Affairs</td>
<td>4</td>
</tr>
<tr>
<td>POLT 595</td>
<td>Smart Politics</td>
<td>4</td>
</tr>
<tr>
<td>PS 701</td>
<td>Senior Project and Interdisciplinary Seminar in Politics and Society</td>
<td>4</td>
</tr>
</tbody>
</table>
Politics and Society Major: American Politics and Public Policy Option (B.A.)

http://manchester.unh.edu/academics/degree-programs/politics-society/american-politics-public-policy-option

Description

This option will appeal to students interested in American government, politics and society. Students learn how leaders and citizens create public policies to address myriad challenges, such as poverty, racism, inequality and crime, and examine how government agencies and nonprofit organizations can more effectively implement these policies. The option prepares students to solve these complex problems through a career in local, state, and federal government, nonprofit organizations, public advocacy and public policy in a broad range of issue areas (e.g., poverty, public health, environmental sustainability, criminal justice, education, etc.).

Requirements

Students must complete 128 credits to graduate, including 44 credits in the politics and society major. Students must maintain an overall cumulative GPA of 2.0 and a cumulative GPA in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH Discovery Program requirements. Up to three courses may be used toward both the politics and society major and UNH Discovery Program requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

Program Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>POLT 401</td>
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<td>American Politics and Government</td>
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<td>POLT 403</td>
<td>United States in World Affairs</td>
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<td>POLT 595</td>
<td>Smart Politics</td>
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<tr>
<td>PS 701</td>
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Select four of the following: 1

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>HIST 406</td>
<td>History of the Modern United States</td>
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<tr>
<td>POLT 500</td>
<td>American Public Policy</td>
<td>2</td>
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<tr>
<td>POLT 502</td>
<td>State and Local Government</td>
<td>4</td>
</tr>
<tr>
<td>POLT 505</td>
<td>American Congress</td>
<td>4</td>
</tr>
<tr>
<td>POLT 506</td>
<td>Parties, Interest Groups, and Voters</td>
<td>4</td>
</tr>
<tr>
<td>POLT 507</td>
<td>Politics of Crime and Justice</td>
<td>4</td>
</tr>
<tr>
<td>POLT 509</td>
<td>Managing Bureaucracy in America</td>
<td>4</td>
</tr>
<tr>
<td>POLT 512</td>
<td>Public Opinion in American Politics</td>
<td>4</td>
</tr>
<tr>
<td>POLT 521</td>
<td>Rights and the Political Community</td>
<td>4</td>
</tr>
<tr>
<td>PS 407</td>
<td>Politics, Law and Contemporary Society</td>
<td>4</td>
</tr>
<tr>
<td>PS 506</td>
<td>Civil Society and Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>PS 507</td>
<td>Justice Law and Politics</td>
<td>4</td>
</tr>
<tr>
<td>PS 508</td>
<td>Supreme Court in US Society</td>
<td>4</td>
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Options

Select four courses 3

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PS 407</td>
<td>Politics, Law and Contemporary Society</td>
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<tr>
<td>POLT 500</td>
<td>American Public Policy</td>
</tr>
<tr>
<td>POLT 507</td>
<td>Politics of Crime and Justice</td>
</tr>
<tr>
<td>POLT 521</td>
<td>Rights and the Political Community</td>
</tr>
<tr>
<td>POLT 522</td>
<td>Dissent and the Political Community</td>
</tr>
<tr>
<td>POLT 560</td>
<td>World Politics</td>
</tr>
<tr>
<td>POLT 509</td>
<td>Managing Bureaucracy in America</td>
</tr>
<tr>
<td>PS 501</td>
<td>Social and Political-Economic Theory</td>
</tr>
<tr>
<td>PS 502</td>
<td>Political Psychology</td>
</tr>
<tr>
<td>PS 503</td>
<td>Political Theory and Historical and Social Context</td>
</tr>
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<td>PS 504</td>
<td>Empire, Democracy and War</td>
</tr>
<tr>
<td>PS 505</td>
<td>Political Violence and Terrorism</td>
</tr>
<tr>
<td>PS 506</td>
<td>Civil Society and Public Policy</td>
</tr>
<tr>
<td>PS 507</td>
<td>Justice Law and Politics</td>
</tr>
<tr>
<td>PS 508</td>
<td>Supreme Court in US Society</td>
</tr>
<tr>
<td>PS 509</td>
<td>Political and Social Change in Developing Countries</td>
</tr>
<tr>
<td>PS 510</td>
<td>Politics of Food</td>
</tr>
<tr>
<td>PS 511</td>
<td>Women and War</td>
</tr>
<tr>
<td>PS 512</td>
<td>People on the Move: Immigration and Refugee Policy in Global Perspective</td>
</tr>
<tr>
<td>PS 514</td>
<td>Model United Nations</td>
</tr>
<tr>
<td>PS 515</td>
<td>New Hampshire Politics in Action</td>
</tr>
<tr>
<td>PS 520</td>
<td>Globalization: Politics, Economics and Culture</td>
</tr>
<tr>
<td>PS 651</td>
<td>Selected Topics Politics and Society</td>
</tr>
<tr>
<td>PS 695</td>
<td>Politics and Society Independent Study</td>
</tr>
<tr>
<td>POLT 701</td>
<td>Courts and Public Policy</td>
</tr>
<tr>
<td>POLT 702</td>
<td>International Relations: Interdisciplinary Approach</td>
</tr>
<tr>
<td>PS 703</td>
<td>Dictatorship and Democracy</td>
</tr>
<tr>
<td>POLT 750</td>
<td>Politics of Poverty</td>
</tr>
</tbody>
</table>

Total Credits: 44

1 Up to TWO SOC, ECN, or HIST courses may substitute for PS/POLT courses, with approval from the program coordinator. Only one 400-level course will be accepted; one course must be 700 level.

2 Four of these six courses may be used toward an option in international & comparative studies, American politics & public policy, or law & justice.

3 Students are not required to choose an area of specialization ("option"). Students who concentrate in a particular area of study must complete four courses in the chosen option for a total of 16 credits. Options are recorded on student transcripts.

For more information, contact program coordinator Melinda Negron-Gonzales at melinda.negron@unh.edu; or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.
Politics and Society Major: International and Comparative Studies Option (B.A.)

http://manchester.unh.edu/academics/degree-programs/politics-society/international-studies-option

Description

This option will appeal to students interested in international affairs, globalization and global conflict and security. Students learn about the democratic and authoritarian political systems of different countries and about the role of governments and non-governmental organizations in addressing challenges that transcend national boundaries, such as terrorism, armed conflict, human rights violations, refugee crises, global poverty, sustainable development and climate change. The option prepares students to solve these complex problems through a career in government, international organizations, diplomacy, intelligence, global development, global security, public advocacy, non-profit organizations and education.

Requirements

Students must complete 128 credits to graduate, including 44 credits in the politics and society major. Students must maintain an overall cumulative GPA of 2.0 and a cumulative GPA in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH Discovery Program requirements. Up to three courses may be used toward both the politics and society major and UNH Discovery Program requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

Program Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 401</td>
<td>Politics and Society</td>
<td>4</td>
</tr>
<tr>
<td>or PHIL 436</td>
<td>Social and Political Philosophy</td>
<td></td>
</tr>
<tr>
<td>POLT 402</td>
<td>American Politics and Government</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

Any POLT or PS course

Total Credits 44

1 Only ONE 400-level course may be used
2 Required course
3 Any POLT or PS course

For more information, contact program coordinator Melinda Negron-Gonzales (http://manchester.unh.edu/faculty/negron-gonzales) at melinda.negron@unh.edu; or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Politics and Society Major: Law and Justice Option (B.A.)

http://manchester.unh.edu/academics/degree-programs/politics-society/law-justice-option

Description

This option will appeal to students interested in law, justice studies and philosophy. Students learn about the structural and procedural aspects of the American legal system, law enforcement and the philosophical
and ideological foundations of America’s justice system. The option prepares students for careers in law, government, legal advocacy and public service.

Requirements

Students must complete 128 credits to graduate, including 44 credits in the politics and society major. Students must maintain an overall cumulative GPA of 2.0 and a cumulative GPA in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH Discovery Program requirements. Up to three courses may be used toward both the politics and society major and UNH Discovery Program requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

Program Requirements

Required Courses

- **POLT 401** Politics and Society 4
- **or PHIL 436** Social and Political Philosophy 4
- **POLT 402** American Politics and Government 4
- **POLT 403** United States in World Affairs 4
- **POLT 595** Smart Politics 4
- **PS 701** Senior Project and Interdisciplinary Seminar in Politics and Society 4

Select four from the following: 16

- **PS 407** Politics, Law and Contemporary Society 1
- **POLT 500** American Public Policy
- **POLT 507** Politics of Crime and Justice
- **POLT 513** Civil Rights and Liberties
- **POLT 520** Politics, Justice, and Morality
- **POLT 521** Rights and the Political Community
- **PS 501** Social and Political-Economic Theory
- **PS 503** Political Theory and Historical and Social Context
- **PS 506** Civil Society and Public Policy
- **PS 507** Justice Law and Politics
- **PS 508** Supreme Court in US Society
- **PS 512** People on the Move: Immigration and Refugee Policy in Global Perspective
- **PS 515** New Hampshire Politics in Action
- **PS 651** Selected Topics Politics and Society (International Human Rights)
- **HIST 600** Explorations (Great Trials) 2
- **HIST 679** Rights Revolution
- **POLT 701** Courts and Public Policy

Electives 3 8

Total Credits 44

1 Required course
2 May substitute HUMA 730 Special Studies (Great Trials)
3 Any POLT or PS course

For more information, contact program coordinator Melinda Negron-Gonzales at melinda.negron@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), 603-641-4150.

Global Studies Minor

Description

http://manchester.unh.edu/academics/degree-programs/global-studies-minor

Globalization is a complex web of interwoven processes that affect virtually all facets of our daily lives, from pop culture to economics, politics to climate and everything in between. Many of the pressing problems of the 21st Century – climate change, environmental sustainability, terrorism, pandemics, etc. – transcend national boundaries and will need to be solved as a global community. The Global Studies minor explores the challenges and opportunities that arise from living in an increasingly inter-connected world and also cultivates cross-cultural awareness by encouraging students to view issues from different cultural perspectives.

The Global Studies minor has four thematic pillars: culture & society, governance & conflict, economics & interdependence, and environment & health.

- Governance & Conflict: explores the challenges of global governance in an increasingly inter-connected world of societies with different political and economic systems; analyzes the causes and effects of conflict and examines techniques for conflict resolution
- Culture & Society: explores the values, norms, art and literature of different cultures around the world and throughout history, and their inter-relatedness
- Environment & Health: explores human security issues, such as food security, health and disease, environmental sustainability and climate change
- Economics & Interdependence: explores the politics, policies and practices of international trade and finance, and the development and effects of economic interdependence

Requirements

All five courses applied to the Global Studies minor must be completed with a minimum grade of C- and an overall GPA of 2.0. Students must take at least three 500-level or above courses to complete the minor.

Required courses

- **PS 520** Globalization: Politics, Economics and Culture 4
- Select four approved courses in at least two of the following thematic pillars: 16
  - **POLT 403** United States in World Affairs
  - **HLS 580** Environmental and Human Security
  - **PS 505** Political Violence and Terrorism
  - **PS 509** Political and Social Change in Developing Countries
  - **PS 511** Women and War
  - **PS 512** People on the Move: Immigration and Refugee Policy in Global Perspective
  - **PS 514** Model United Nations

For more information, contact program coordinator Melinda Negron-Gonzales at melinda.negron@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), 603-641-4150.
Political Economy Minor

Students interested in pursuing a career in government, business, communications, or the law can add a breadth of perspective through the political economy minor.

Requirements

The political economy minor consists of five courses (20 credits total). The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with the political economy minor supervisor, Melinda Negron-Gonzales (melinda.negron@unh.edu), to determine eligibility toward the minor.

Select five of the following, with no more than three from the same designation (e.g., no more than three ECN or three POLT/PS) and no more than three at the 400 level:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECN 410</td>
<td>History of Literary Economics</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
</tr>
<tr>
<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
</tr>
<tr>
<td>ECN 635</td>
<td>Money, Banking and Macroeconomic Activity</td>
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<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
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<tr>
<td>POLT 401</td>
<td>Politics and Society</td>
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<td>POLT 403</td>
<td>United States in World Affairs</td>
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<tr>
<td>PS 500</td>
<td>American Public Policy</td>
</tr>
<tr>
<td>PS 560</td>
<td>World Politics</td>
</tr>
<tr>
<td>PS 567</td>
<td>Politics of Global Resources</td>
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<td>PS 750</td>
<td>Politics of Poverty</td>
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<td>POLT 762</td>
<td>International Political Economy</td>
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<tr>
<td>PS 501</td>
<td>Social and Political-Economic Theory</td>
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<td>PS 509</td>
<td>Political and Social Change in Developing Countries</td>
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<tr>
<td>PS 510</td>
<td>Politics of Food</td>
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<tr>
<td>PS 514</td>
<td>Model United Nations</td>
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<tr>
<td>PS 520</td>
<td>Globalization: Politics, Economics and Culture</td>
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<tr>
<td>PS 702</td>
<td>International Relations: Interdisciplinary Approach</td>
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</tbody>
</table>

Total Credits 20

Substitutions are permitted by permission of minor supervisors, Melinda Negron-Gonzales (melinda.negron@unh.edu) and Tom Birch (tom.birch@unh.edu).

For more information, contact Melinda Negron-Gonzales at Melinda.Negron@unh.edu or Tom Birch at Tom.Birch@unh.edu.

Political Science Minor (UNHM)

Students interested in pursuing a career in government, business, communications, or the law can add a breadth of perspective through the political science minor.

Requirements

The political science minor consists of five courses (20 credits total) that may span the sub-disciplines of American politics, international relations,
comparative politics, political philosophy, and political sociology. Any courses with the political science (POLT) or politics and society (PS) course designations may be used toward the minor. No more than two courses may be taken at the 400 level.

The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with the political science minor supervisor, Melinda Negron-Gonzales (melinda.negron@unh.edu), to determine eligibility toward the minor.

For more information, contact Melinda Negron-Gonzales at Melinda.Negron@unh.edu.

Psychology (PSYC)

Explore the biopsychosocial factors that drive thoughts and behaviors

Explore the science of behavior and mental processes in our Psychology program, bringing classroom learning to life in our research labs and in the field. Guided by faculty who are experts in their disciplines, you’ll develop a broad background in the field — including perceptual, biological, clinical/counseling, and developmental psychology.

Our program prepares you for careers aimed at improving lives ranging from research assistant to mental health worker, social welfare caseworker to teaching. You’ll also foster skills that are attractive and useful in all industries, including critical and logical thinking, data analysis, research, scientific communication and more.

http://manchester.unh.edu/academics/degree-programs/psychology

Programs

- Psychology Major (B.A.) UNHM (p. 359)
- Psychology Minor (UNHM) (p. 360)

Faculty

Psychology Faculty (http://manchester.unh.edu/academics/degree-programs/psychology/#unhstyleCollapsePane73)

Psychology Major (B.A.) UNHM

http://manchester.unh.edu/academics/degree-programs/psychology

Description

Psychology is the scientific study of behavior and mental processes. The UNH Manchester psychology program provides students with a broad background in psychology, introducing them to both the experimental and clinical perspectives in the field.

The psychology program, through its independent study and internship programs, offers opportunities for participation in cooperating New Hampshire mental health, human services, and rehabilitation facilities. Students have worked in hospitals, halfway houses, mental health centers, and other agencies. The department also invites guest speakers to discuss important issues in the field and sponsors a Psychology Club.

Psychology graduates find employment as trained research assistants, mental health aides in a wide variety of human services agencies, social welfare caseworkers, teachers in special education programs, and professionals in government, business, and industry. It is normally expected that students who wish to do professional work in the field of psychology will pursue graduate training at the M.A., M.S., Ph.D., or Psy.D. level.

Requirements

Students majoring in psychology must complete a minimum of 128 credits, satisfy the University’s Discovery Program and foreign language requirements, and complete 44 credits with a minimum of C- in each course and a 2.0 overall grade-point average in all major requirements.

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH/UNH Manchester to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The department’s academic advisers will determine the distribution of these credits. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major.

The courses listed below are offered on the UNH Manchester and/or Durham campuses; specific course selections should be discussed with the adviser. Exceptions to the requirements for the major require a petition to the department.

Program Requirements

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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</tr>
<tr>
<td>PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
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</table>

500-level breadth courses

Group I: Select two courses of the following: 8

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PSYC 511</td>
<td>Sensation and Perception</td>
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<tr>
<td>PSYC 512</td>
<td>Psychology of Primates</td>
</tr>
<tr>
<td>PSYC 513</td>
<td>Cognitive Psychology</td>
</tr>
<tr>
<td>PSYC 521</td>
<td>Behavior Analysis</td>
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<tr>
<td>PSYC 522</td>
<td>Behaviorism</td>
</tr>
<tr>
<td>PSYC 531</td>
<td>Psychobiology</td>
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</table>

Group II: Select two courses of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>PSYC 552</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSYC 553</td>
<td>Personality</td>
</tr>
<tr>
<td>PSYC 561</td>
<td>Abnormal Behavior</td>
</tr>
<tr>
<td>PSYC 571</td>
<td>Pioneers of Psychology</td>
</tr>
<tr>
<td>PSYC 581</td>
<td>Child Development</td>
</tr>
<tr>
<td>PSYC 582</td>
<td>Adult Development and Aging</td>
</tr>
</tbody>
</table>

700-level depth courses (at least three must be taken at UNH)

Group I: Select two courses of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 702</td>
<td>Advanced Statistics and Research Methodology</td>
</tr>
<tr>
<td>PSYC 705</td>
<td>Tests and Measurement</td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
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<tr>
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</tr>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYC 713</td>
<td>Psychology of Consciousness</td>
</tr>
<tr>
<td>PSYC 720</td>
<td>Animal Cognition</td>
</tr>
<tr>
<td>PSYC 722</td>
<td>Behaviorism, Culture, and Contemporary Society</td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior</td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Drugs and Behavior</td>
</tr>
<tr>
<td>PSYC 735</td>
<td>Neurobiology of Mood Disorders</td>
</tr>
<tr>
<td>PSYC 737</td>
<td>Behavioral Medicine</td>
</tr>
<tr>
<td>PSYC 741</td>
<td>Advanced Topics</td>
</tr>
<tr>
<td>PSYC 741W</td>
<td>Advanced Topics</td>
</tr>
</tbody>
</table>

Group II: Select two courses of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 702</td>
<td>Advanced Statistics and Research Methodology</td>
</tr>
<tr>
<td>PSYC 705</td>
<td>Tests and Measurement</td>
</tr>
<tr>
<td>PSYC 755</td>
<td>Psychology and Law</td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Psychology of Crime and Justice</td>
</tr>
<tr>
<td>PSYC 758</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>PSYC 762</td>
<td>Counseling</td>
</tr>
<tr>
<td>PSYC 763</td>
<td>Community Psychology</td>
</tr>
<tr>
<td>PSYC 780</td>
<td>Prenatal Development and Infancy</td>
</tr>
<tr>
<td>PSYC 783</td>
<td>Cognitive Development</td>
</tr>
<tr>
<td>PSYC 785</td>
<td>Social Development</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Advanced Topics</td>
</tr>
<tr>
<td>PSYC 791W</td>
<td>Advanced Topics</td>
</tr>
<tr>
<td>PSYC 793</td>
<td>Internship</td>
</tr>
</tbody>
</table>

**Capstone Requirement (taken in senior year)**

See below

Total Credits 44

1. PSYC 793 Internship: This will count towards fulfilling the capstone and a group II 700 level psychology course. By taking PSYC 793 Internship, the capstone will be considered fulfilled.

2. PSYC 795 Independent Study: Students can designate a 4 credit independent study as their capstone experience. The capstone designation form must be filled out and students will be registered for PSYC 798 Capstone, a 0 credit course to reflect the capstone experience is fulfilled. This can count towards the capstone and as a 402 replacement course.

3. One 700 level course designated as capstone. A capstone designated 700 level course will count towards fulfilling the capstone and a 700 level course. The capstone designation form must be filled out and students will be registered for PSYC 798 Capstone, a 0 credit course to reflect the capstone experience is fulfilled. See guidelines below.

- Meet and discuss with your professor what you will be doing to constitute your Capstone experience. In some cases, it will be an extra assignment; in others it will involve the expansion of existing class work. Your professor will use his/her professional discretion to determine what constitutes as your Capstone experience.
- Fill out the Capstone Designation Form (found in the Psychology office); both you and your professor will need to sign it. Submit the form to the Psychology Department Office.
- The Psychology Department will register you for PSYC 798 Capstone, a 0 credit course so that it reflects on your degree evaluation.

Students who plan to transfer to Durham should consult with their adviser.

For more information about the psychology program, contact Alison Paglia, program coordinator, at alison.paglia@unh.edu or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

**Psychology Minor (UNHM)**

http://manchester.unh.edu/academics/degree-programs/psychology-minor

**Description**

The Psychology minor brings a unique perspective on society and human behavior to your studies and adds a set of skills that makes you stand out to employers in a variety of industries.

**Requirements**

The minor in psychology consists of five psychology department courses (20 credits) including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Select four additional psychology department courses, including at least two courses at the 500 level or above</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Total Credits 20

No more than 4 credits of PSYC 795 Independent Study may be applied to the minor. Each course must be passed with a grade of C- or better, with an overall minimum grade point average of 2.0 for the five minor courses. No pass/fail or credit/fail courses may be applied toward the minor. Under no circumstances can more than 9 transfer credits be applied toward the minor.

For more information, contact Alison Paglia (alison.paglia@unh.edu), minor supervisor, at (603) 641-4103.
Continuing Education, Summer Session, and January Term

Continuing education provides public access to higher education for individuals not formally admitted to a UNH degree program. Taking courses as a non-degree student is an excellent way to prepare for matriculation into a degree program, help advance or change careers, or study a topic of interest.

Non-Degree Student Status

Undergraduate

Undergraduate courses (numbered 200-799) are open to individuals with a high school diploma, GED, or home-schooled secondary education equivalency. Individuals may register for a maximum of 11 credits per semester.

Graduate

Graduate courses (numbered 800-999) are open to individuals with a baccalaureate degree from an accredited college or university. Individuals may register for a maximum of 8 credits per semester.

Full-Time Special Student Status

Undergraduate

Non-degree students who wish to register for 12 or more credits in a single semester must receive formal permission from UNH Undergraduate Admissions. Special tuition and fee rules apply. Please contact UNH Undergraduate Admissions at 603-862-1360 for more information on how to apply.

Graduate

Non-degree students who wish to register for 9 or more credits in a single semester must receive permission from The Graduate School. Students approved for this special status must pay full-time graduate tuition and fees at the time of registration. Please contact The Graduate School at 603-862-9000 for more information on how to apply.

NH Senior Citizen Tuition Waiver

New Hampshire residents who are age 65 or older and are not enrolled in a degree program are eligible to take a maximum of two credit-bearing courses (some exceptions apply) per fiscal year (Summer Session/Fall/January Term/Spring) tuition-free. Please visit http://www.learn2.unh.edu/tuition/seniorcitizens.html for more information.

Pre-Admission Program

The Pre-Admission Program allows students an opportunity to strengthen their academic credentials in preparation for admission to a baccalaureate program by completing coursework that satisfies both general education and introductory-level major requirements. Students complete two semesters in the program, register for up to 12 credits per semester, and then transfer to a baccalaureate program upon successful completion of the outlined criteria. For more information please visit https://admissions.unh.edu/apply/non-traditional-students/how-to-apply/pre-admission-program.

CATS Program

The CATS (Challenging Academically Talented Students) Program is open to highly motivated and academically strong high school juniors and seniors who want to enrich their academic experience with a college-level course. Students may choose from freshman-level courses (400-500 numbered courses). For an application and more information, please visit https://admissions.unh.edu/apply/cats-challenging-academically-talented-students-program.

Prerequisites

Individuals are responsible for meeting all course prerequisites before registering for classes. Visit www.learn2.unh.edu/courses/prerequisites.html for undergraduate and graduate course descriptions and prerequisite information.

Academic Standards and Expectations

A cumulative grade-point average of 2.00 (C grade) is the minimum acceptable level for undergraduate work and 2.67 (B- grade) is the minimum acceptable level for graduate work at the University. The records of non-degree students are examined periodically and academically deficient students may be warned or excluded from registering. All non-degree students are expected to become familiar with and adhere to the current UNH Student Rights, Rules, and Responsibilities available online at http://www.unh.edu/student/rights.

Student Resources

Non-degree students are encouraged to take advantage of the wide range of resources available on campus. Visit www.learn2.unh.edu/resources/ for a complete list of student services and campus resources.

Professional Development and Training

Professional Development and Training, an affiliate office of the Graduate School, serves individuals, businesses, and organizations by offering a wide range of non-credit professional development opportunities throughout the year. Programs are designed to assist professionals in developing new or advanced knowledge and skills in a variety of fields. Training is offered in Durham, Manchester, and Portsmouth, N.H. For more information, visit http://training.unh.edu/.

Summer Session

Summer Session provides a wide range of credit and non-credit courses, institutes, and programs in a variety of term lengths from May to August. From youth-enrichment programs to advanced-level institutes, Summer Session provides educational opportunities for learners of all ages. On-campus housing is available for students enrolled in summer credit courses. Please note: summer credit courses are held to the same academic standards as regular term courses but are typically offered at an accelerated pace. For more information, please visit www.unh.edu/summersession.

January Term

January Term is a three-week learning opportunity held during winter break. Online, on-campus, and study-away credit courses are available in a variety of academic disciplines at both the undergraduate and graduate levels. Because of the intensive course of study, students may register for only one course during January Term. For more information, visit http://unh.edu/januaryterm/.

http://www.learn.unh.edu
Course Descriptions

A
• Accounting and Finance (ACFI) (p. 363)
• Administration (ADMN) (p. 365)
• Administration-UNHM (ADM) (p. 366)
• Aerospace Studies (AERO) (p. 367)
• Africana & American Studies (AFAM) (p. 367)
• Agricultural Mechanization (AM) (p. 367)
• American Sign Language (ASL) (p. 368)
• American Studies (AMST) (p. 368)
• Analytics (DATA) (p. 369)
• Animal Sciences (ANSC) (p. 369)
• Anthropology (ANTH) (p. 370)
• Applied Animal Science (AAS) (p. 370)
• Applied Business Management (ABM) (p. 370)
• Arabic (ARBC) (p. 370)
• Arts/History & Studio (ARTS) (p. 370)

B
• Biochemistry, Molecular & Cellular Biology (BMCB) (p. 370)
• Bioengineering (BENG) (p. 370)
• Biological Science (BSCI) (p. 370)
• Biology (BIOL) (p. 370)
• Biomedical Science (BMS) (p. 370)
• Business (BUS) (p. 370)

C
• Chemical Engineering (CHE) (p. 370)
• Chemistry (CHEM) (p. 370)
• Chinese (CHIN) (p. 370)
• Civil & Environmental Engineering (CEE) (p. 370)
• Civil Technology (CT) (p. 370)
• Classics (CLAS) (p. 370)
• College of Liberal Arts (COLA) (p. 370)
• Communication (CMN) (p. 370)
• Communication Arts (CA) (p. 370)
• Communication Sciences & Disorders (COMM) (p. 370)
• Community & Environmental Planning (CEP) (p. 370)
• Community Leadership (CSL) (p. 370)
• Computer Science (CS) (p. 370)
• Computing Technology (COMP) (p. 370)
• Culinary Arts & Nutrition (CAN) (p. 370)

D
• Decision Sciences (DS) (p. 370)

E
• Earth Sciences (ESCI) (p. 370)
• Ecogastronomy (ECOG) (p. 370)
• Economics (ECON) (p. 370)
• Economics-UNHM (ECN) (p. 370)
• Education (EDUC) (p. 370)
• Electrical & Computer Engineering (ECE) (p. 370)
• Engineering Technology (ET) (p. 370)
• English (ENGL) (p. 370)
• English/Speakers of Other Languages (ESL) (p. 370)
• Environmental & Resource Economics (EREC) (p. 370)
• Exchange (EXCH) (p. 370)

F
• Forest Technology (FORT) (p. 370)
• French (FREN) (p. 370)

G
• Genetics (GEN) (p. 370)
• Geography (GEOG) (p. 370)
• German (GERM) (p. 370)
• Gerontology (GERO) (p. 370)
• Greek (GREEK) (p. 370)

H
• Health & Human Services (HHS) (p. 370)
• Health Management & Policy (HMP) (p. 370)
• History (HIST) (p. 370)
• Homeland Security (HLS) (p. 370)
• Horticultural Technology (HT) (p. 370)
• Hospitality Management (HMG) (p. 370)
• Human Development & Family Studies (HDFS) (p. 370)
• Humanities (HUMA) (p. 370)

I
• Information Technology (IT) (p. 370)
• Integrated Agriculture Management (IAG) (p. 370)
• Integrated Applied Mathematics (IAM) (p. 370)
• Intercollege (INCO) (p. 370)
• International Affairs (IA) (p. 370)
• Italian (ITAL) (p. 370)

J
• Japanese (JPN) (p. 370)
• Justice Studies (JUST) (p. 370)

K
• Kinesiology (KIN) (p. 370)

L
• Languages, Literatures & Cultures (LLC) (p. 370)
• Latin (LATN) (p. 370)
• Life Sciences & Agriculture (LSA) (p. 370)
• Linguistics (LING) (p. 370)

M
• Management (MGT) (p. 370)
• Marine, Estuarine and Freshwater Biology (MEFB) (p. 370)
• Marketing (MKTG) (p. 547)
• Materials Science (MS) (p. 549)
• Mathematics & Statistics (MATH) (p. 549)
• Mechanical Engineering (ME) (p. 555)
• Military Science (MILT) (p. 558)
• Music (MUSI) (p. 559)
• Music Education (MUED) (p. 556)

N
• Natural Resources (NR) (p. 566)
• Navitas non-credit (NAV) (p. 574)
• Neuroscience and Behavior (NSB) (p. 574)
• Nursing (NURS) (p. 575)
• Nutrition (NUTR) (p. 578)

O
• Occupational Therapy (OT) (p. 581)
• Ocean Engineering (OE) (p. 583)

P
• Paul College Business & Economics (PAUL) (p. 585)
• Philosophy (PHIL) (p. 586)
• Physics (PHYS) (p. 590)
• Political Science (POLT) (p. 594)
• Politics and Society (PS) (p. 601)
• Portuguese (PORT) (p. 603)
• Psychology (PSYC) (p. 604)

R
• Race & Ethnic Studies (RES) (p. 608)
• Recreation Management & Policy (RMP) (p. 608)
• Religious Studies (RS) (p. 612)
• Russian (RUSS) (p. 612)

S
• Sign Language Interpreting (INTR) (p. 614)
• Social Work (SW) (p. 615)
• Sociology (SOC) (p. 618)
• Spanish (SPAN) (p. 622)
• Sustainability (SUST) (p. 625)
• Sustainable Agriculture & Food Systems (SAFS) (p. 625)

T
• Technology (TECH) (p. 629)
• Theatre & Dance (THDA) (p. 630)
• Tourism Planning & Development (TOUR) (p. 636)
• TSAS Communication (COM) (p. 627)
• TSAS Mathematics (MTH) (p. 628)
• TSAS Social Science (SSCI) (p. 628)
• TSAS Thompson School Applied Science (TSAS) (p. 629)

U
• UNHM Associate Degree English (ENG) (p. 636)
• UNHM Independent Study (UMIS) (p. 637)
• UNHM Special Topics (UMST) (p. 637)

V
• Veterinary Technology (VTEC) (p. 638)

W
• Women's Studies (WS) (p. 639)

Z
• Zoology (ZOOL) (p. 640)

Accounting and Finance (ACFI)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ACFI 501 - Survey of Accounting
Credits: 4
Survey of basic accounting concepts, including exposure to financial statements, accounting processes, decision making, and budgeting. This course is designed for students pursuing a Business Administration minor or exploring basic accounting. No credit for students who have had ADMN 502. Not for Paul College students.

ACFI 620 - Topics in Accounting
Credits: 4
Special topics; may be repeated. Prereq: ACFI 621 or ACFI 723 depending on topics and junior standing.

ACFI 621 - Intermediate Financial Accounting I
Credits: 4
Examination of the nature and applicability of accounting theory and the conceptual framework of accounting. Development of the capacity to address and resolve issues and problems in financial reporting. Topics include valuation and reporting of current and operating assets, and revenue recognition. Prereq: ADMN 502. Students wishing to repeat ACFI 621 must request and obtain departmental approval.

ACFI 622 - Intermediate Financial Accounting II
Credits: 4
Selected topics within financial reporting such as accounting for leases, pensions, stock options, and deferred taxes. Focus on how and why these issues are accounted for in the manner prescribed by current GAAP.

ACFI 640 - Topics in Finance I
Credits: 2-4
Special topics; may be repeated for a maximum of 8 credits.

ACFI 640W - Topics in Finance I
Credits: 2-4
Special topics approved as Writing intensive may be repeated for a maximum of 8 credits. Topics include: A) Financial Scandals, Upheavals, and Crises.
Attributes: Writing Intensive Course
ACFI 650 - Wildcat Investment Fund
Credits: 2
Students actively manage the Wildcat Fund, a donor-created fund which consists of cash and stocks. During weekly meetings, students present their stock selections to the group and debate the merits of the presented stocks. Trades are then made accordingly. An officer corps is responsible for structuring and coordinating the group. Students in good standing may retake course up to a maximum of 12 credits. Prereq: permission.

ACFI 701 - Financial Policy
Credits: 4
Development of analytical tools and practical skills for recognizing and solving complex problems of business finance. Working-capital management, capital budgeting, cost of capital, capital structure, and dividend policy. Prereq: ADMN 570.

ACFI 702 - Investments Analysis
Credits: 4

ACFI 703 - International Financial Management
Credits: 4
Financial management problems facing multinational firms. Primary focus on effects of currency denominations on financial decisions. Prereq: ADMN 570.

ACFI 704 - Derivative Securities and Markets
Credits: 4
Derivative assets and markets, and their role in business decision-making and portfolio management. Emphasis on practical and theoretical aspects of hedging and speculating using futures and options for both commodities and financial assets, including their market mechanics. Prereq: ADMN 570.

ACFI 705 - Financial Institutions
Credits: 4
Examination of financial institutions and markets. Emphasis on how institutions create value, the regulatory environment under which they operate, and the role of risk management. Prereq: ADMN 570. Only open to BusAdm: Finance majors. Writing intensive.
Attributes: Writing Intensive Course

ACFI 706 - Financial Modeling and Analytics
Credits: 4
The main objective of the course is to bridge the gap between theory and practice by using software applications and real-world data to solve a variety of financial problems. The course is very 'hands-on' and is expected to help students develop skills that are useful in a variety of jobs in finance, accounting, insurance, and real estate. Prereq: ADMN 570.

ACFI 707 - Equity Analysis and Firm Valuation
Credits: 4
This course is intended to provide practical tools for analyzing and valuing a company's equity. Primarily an applications course, it covers several valuation models such as market multiples and free cash flow models, and focuses on the implementation of finance theories to valuation problems. Prereq: ADMN 570.

ACFI 708 - Real Estate Finance
Credits: 4
This course provides an introduction to residential and commercial real estate. Topics include market analysis, cash flows, debt and equity financing, valuation, and real estate investment trusts. Case studies, projects, and real world applications of the concepts learned are significant components of the course. Prereq: ADMN 570 or HMGT 655.

ACFI 709 - Mortgage Banking and Fixed Income Securities
Credits: 4
This course focuses on bonds and the bond market. While the cash flows of bonds are specified, their valuation is particularly challenging given interest rate movements, embedded optionality, and credit risk. As part of an examination of structured products, the course will examine the process of creating, valuing, and trading mortgages. Further, the course demonstrates the skills needed to manage fixed income portfolios in light of both client specific objectives and the market environment. Prereq: ADMN 570 or HMGT 655 and ACFI 702 or permission.

ACFI 720 - Topics in Finance II
Credits: 4
Special topics. Prereq: ADMN 570. May be repeated for a maximum of 16 credits.

ACFI 720W - Topics in Finance II
Credits: 4
Special topics. Prereq: ADMN 570. May be repeated for a maximum of 16 credits. Writing intensive. Topics include: A) Financial Scandals, Upheavals, and Crises.
Attributes: Writing Intensive Course

ACFI 723 - Advanced Managerial Accounting Concepts and Applications
Credits: 4
Builds on the basic managerial accounting course by continuing the theme of accounting as a management tool. Emphasis is on cost accounting as a source of data for measuring and improving the economic condition of the enterprise. Newly evolving management themes are integrated into the traditional topics of planning and control, cost analysis, overhead allocation, transfer pricing, and decision modeling. Prereq: ADMN 503.

ACFI 724 - Auditing
Credits: 4
Philosophy and environment of auditing, with attention to an understanding of the major auditing concepts and objectives and its judgment process. Emphasis on the nature and economic purpose of audits, standards, professional ethics, auditors' legal liability, internal control, and audit evidence. Includes audit procedures, reports, and computer software. Prereq: ACFI 621. Writing intensive.
Attributes: Writing Intensive Course

ACFI 725 - Financial Statement Analysis
Credits: 4
Methods and tools of analysis and interpretation of financial statement data. Use of financial information in a variety of decision making situations including a prediction of corporate earnings, debt ratings, and financial distress; lending decisions; risk analysis; and equity valuations. Prereq: ACFI 621 and senior standing.

ACFI 726 - Introduction to Federal Income Tax
Credits: 4
Federal income tax concepts and law applicable to individuals. Coverage includes taxable income and deductions, passive activities, alternative minimum tax, property transactions and compensation. Prereq: ADMN 502.

ACFI 740 - Topics in Accounting II
Credits: 4
Special topics. Prereq: ACFI 621 or 723, depending on topics, and senior standing.
ACFI 750 - Internships in Accounting  
**Credits:** 1-4  
Accounting fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits. Cr/F.

ACFI 751 - Internships in Finance  
**Credits:** 1-4  
Finance fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits. Cr/F.

ACFI 752 - Independent Studies in Accounting  
**Credits:** 1-4  
Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits.

ACFI 753 - Independent Studies in Finance  
**Credits:** 1-4  
Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits.

ACFI 754 - Honors Seminar in Accounting and Finance  
**Credits:** 4  
Seminar discussions of advanced readings in accounting and finance. For seniors with standing in the honors program.

ACFI 799 - Honors Thesis/Project in Accounting  
**Credits:** 4-8  
Supervised research leading to the completion of an honors thesis or project in accounting; required for graduation from the honors program in administration for students in the accounting option. Prereq: permission of director of undergraduate programs and Accounting and Finance department chair.

**Administration (ADMN)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ADMN 400 - Introduction to Business  
**Credits:** 4  
This course will introduce students to business organizations, the business disciplines and critical issues in contemporary business. The priority will be in having students develop strong intellectual foundations in business, knowledge of core disciplines of business, and an awareness of businesses' role in the economy and in the larger society. The course will include once a week lectures and also small group discussion sessions. The lectures will be organized by the lead PAUL faculty person and include visits and discussions with executives from New Hampshire companies. Writing intensive.  
**Attributes:** Writing Intensive Course

ADMN 403 - Computing Essentials for Business  
**Credits:** 1  
Self-paced course covering the fundamental skills and proficiency of general business software applications. Topics will include word processing and spreadsheet applications. Cr/F.

ADMN 410 - Management Information Systems  
**Credits:** 4  
This course provides an introduction to computer literacy, basic computer hardware and software concepts, business applications of information technology and computer ethics. Hands-on exercises include spreadsheets, databases and web pages. Students registering for ADMN 410 are expected to be able to bring a laptop computer to each class session running the Windows version of Microsoft Office Professional (including Microsoft Access). Prereq: ADMN 403.

ADMN 420 - Business Statistics  
**Credits:** 4  
Introductory coverage of statistical methods for managerial decision-making: probability, descriptive and inferential statistics, and regression. Quantitative techniques common to many introductory statistics courses are covered, but the emphasis is on understanding concepts such as uncertainty, inferences from sample data, and model formulation, and on utilizing these techniques as aids in decision-making. No credit for students who have had ADM 430; BIOL 528; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; PYSC 402; SOC 502. Prereq: ADMN 403; MATH 420 or 424A.  
**Attributes:** Quantitative Reasoning GP 2

ADMN 444 - Business for People, Planet, and Profits  
**Credits:** 4  
Many experts and practitioners have realized that the traditional approaches of government and the non-profit sector will not - alone - be enough to solve the myriad of social and environmental challenges facing the world. Rather than seeing big business as "part of the problem" many are considering how the immense power of the private sector can contribute to addressing social and environmental issues. This course will allow students to explore the growing phenomenon of "socially and environmentally conscious capitalism," a more considered type of capitalism with the potential to be a platform for social and environmental change.  
**Attributes:** Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

ADMN 502 - Financial Accounting  
**Credits:** 4  
Fundamentals of financial accounting concepts and procedures for analyzing economic events and the preparation and use of financial statements. No credit for students who have taken ACFI 501.

ADMN 503 - Managerial Accounting  
**Credits:** 4  
The use of information by managers to (1) determine the cost and profitability of the organization's products or services; (2) plan, control, and evaluate routine operations; and (3) make special non-routine decisions. The demand for managerial accounting information is derived from an integrated treatment of organizational objectives, an orientation to customers, and a focus on activities as the unit of analysis for measurement of cost, quality, and time. Prereq: ADMN 502.
ADMN 570 - Introduction to Financial Management
Credits: 4
The investments, financing, and dividend decisions of the firm in a global setting. Topics include capital budgeting, designating and issuing securities, manager performance evaluation, resolution of agency problems, and working capital management. Open to PAUL majors only. Prereq: ECON 401. Pre- or Coreq: ADMN 420, ADMN 502; ECON 402.

ADMN 575 - Behavior in Organizations
Credits: 4
Behavioral science concepts applied to work settings. Focus on understanding and analyzing individual beliefs, values, goals, perceptions, motivation, commitment, and decision making; group structures and processes (interpersonal skills, communication, conflict resolution, leadership, and team work); organizational control systems (rewards, task design, performance appraisal); outcomes (satisfaction and development of the person as well as the organization); and organizational change. No credit for students who have already had MGT 580. Prereq: ADMN 400, ADMN 403, ADMN 502. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

ADMN 580 - Quantitative Decision Making
Credits: 4
Introduction to the use of quantitative tools in the decision-making process of an organization. Planning and operational problems in the manufacturing and services sectors are emphasized. Topics include forecasting, capacity planning, optimization, project scheduling, simulation and risk analysis, quality, inventory management, and waiting lines. Open to PAUL majors only. Prereq: ADMN 420, ADMN 503.

ADMN 585 - Marketing
Credits: 4
Covers marketing as the process of planning and developing goods and services to satisfy the needs of target customers: consumers, other businesses, institutions. Focus on how marketing contributes to the firm's goals through product planning, pricing, promotion, and distribution policies, through both digital and traditional channels. Open to PAUL majors only. No credit for students who have had MKTG 550 or HMGTC 500. Prereq: ADMN 400 and permission of department chair. Writing intensive.

ADMN 598 - Topics
Credits: 1-4
Special topics; may be repeated up to a maximum of 12 credits. Prereq: permission. Cr/F.

ADMN 685 - Study Abroad
Credits: 16
Open to students studying abroad in the discipline as approved by the department chair and Undergraduate Programs Office. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ADMN 686 - Study Abroad
Credits: 16
Open to students studying abroad in the discipline as approved by the department chair and Undergraduate Programs Office. Special fee. Cr/F.
Attributes: Foreign Culture GP 5

ADMN 700 - PAUL Assessment of Core Knowledge
Credits: 0
One of the learning objectives in the Business Administration Program is that all students will graduate with an understanding of these core knowledge assembled from the various disciplines that contribute courses to the program. We assess this learning as part of our Assurance of Learning Program. The zero credit course provides an administrative mechanism for accomplishing this goal. Permission required. Cr/F.

ADMN 703 - Strategic Management: Decision Making
Credits: 4
Capstone course: Problem-solving, decision-making, and strategic thinking relative to managerial, economic, ethical, legal, political, social, and technological aspects of an organization's environment. Integrates the functional discipline skills within the role of the general manager as leader and chief strategist, organizational builder and doer. Case discussion and analysis, industry and competitive analysis, environmental scanning, industry simulation, strategic audit, stakeholder analysis, values, ethics and social issues management within the public policy process are important course components. Open to PAUL majors only. Prereq: ADMN 570; ADMN 575; ADMN 580; ADMN 585; and senior standing.

ADMN 798 - Topics
Credits: 1-4
Special topics; may be repeated up to a maximum of 12 credits. Prereq: permission.

ADMN 798W - Topics
Credits: 1 or 4
Special topics; may be repeated up to a maximum of 12 credits. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

ADMN 799 - Honors Thesis/Project
Credits: 4-8
Supervised research leading to the completion of an honors thesis or project; required for graduation from the honors program in administration. Prereq: permission of director of undergraduate programs and department chair. Writing intensive.
Attributes: Writing Intensive Course

Administration-UNHM (ADM)

ADM #550 - Business Law
Credits: 4
This course explores the legal environment in which businesses operate and studies the interaction between business and the legal system. Students examine various areas of the law which are integral to operating a business enterprise. Topics include contracts, torts, agency, Uniform Commercial Code, ethical and criminal implications of business actions, property laws, and the legal aspects of different business entities. Business owners, managers, accountants, paralegals, and all those seeking to gain or broaden their general understanding of the legal system should benefit from this course. Prereq: ADM 400. Business Admin majors only.

ADM 685 - Applications in Business Management
Credits: 4
Selected topics. Topics will vary. Barring duplication of subject, may be repeated for credit.

ADM 695 - Independent Study in Business
Credits: 1-4
Independent study exploring a special topic emphasizing the managerial, organizational, strategic, political or economic context(s) within which business decisions are made. Prereq: ADM 400 and permission of instructor. May be repeated for a maximum of 8 credits.
Aerospace Studies (AERO)

AERO 301 - Leadership Laboratory
Credits: 0
Taken by all AFROTC cadets throughout enrollment in AFROTC. Command and staff leadership experiences in cadet corps. Air Force customs and courtesies, drill and ceremonies, career opportunities, and life and work of the junior officer. Student leadership potential developed in a practical, supervised laboratory. Cr/F.

AERO 415 - Foundations of the United States Air Force I
Credits: 2
Mission and organization of today's Air Force as an instrument of the U.S. national defense policy. Customs and courtesies, officer-ship, and communication foundations are discussed.

AERO 416 - Foundations of the United States Air Force II
Credits: 2
Air Force installations, fundamentals of Air Force written and verbal communication, and current events of interest to Air Force Officers are discussed.

AERO 541 - Evolution of United States Air Force Air and Space Power I
Credits: 2
The nature of warfare; development of air power from balloons and dirigibles through World War II.

AERO 542 - Evolution of United States Air Force Air and Space Power II
Credits: 2
Development of air power from post-World War II through the peaceful use of air power humanitarian efforts; and research and development of present and future aerospace vehicles.

AERO 671 - Air Force Leadership Studies I
Credits: 4
An integrated management course emphasizing the individual as an officer/leader in the Air Force. Motivation and behavior, leadership, communication, group dynamics, and decision making in a changing environment. Air Force cases studied.

AERO 672 - Air Force Leadership Studies II
Credits: 4
Organizational and personal values; management of forces in change; organizational power, politics, managerial strategy, quality, and tactics; Air Force cases studied.

AERO 681 - National Security Affairs I
Credits: 4
Focus on the armed forces as part of American society, emphasizing civil-military relations in context of U.S. policy formulation and implementation. Requirements for adequate national security forces; political, economic, and social constraints on the national defense structure; impact of technological and international developments on strategic preparedness; the variables involved in the formulation and implementation of national security policy.

AERO 682 - National Security Affairs II
Credits: 4
Focus on attitudes toward the military, socialization processes, role of the professional military leader-manager, and military justice and administrative law.

AERO 695 - Officer Internship (Air Force)
Credits: 4
Experiential learning through class and field work in a military environment. Written analysis required. Prereq: AERO 671 (maybe taken concurrently). Permission of department chair required. For AFROTC cadets only. Cr/F.

AERO 796 - AFROTC Internship
Credits: 1-4
This internship is an Air and Space Studies program which prepares students for careers as Air Force Officers by providing experiential learning in an AFROTC detachment. History or Political Science majors are preferred. The internship is supervised by an Air Force Officer. By permission only. Prereq: AERO 415 and AERO 416, AERO 541 and AERO 542, and AERO 671 and AERO 672.

Africana & American Studies (AFAM)

AFAM 690 - Study Abroad in Ghana
Credits: 16
Spring semester at the University of Ghana (Legon, Ghana) for juniors and seniors, with coursework available in a wide range of disciplines. Students must be matriculated in a four-year degree program, have a GPA of at least 3.0 have a declared major, and have completed at least 32 hours of credit. Students must attend fall orientation sessions. Consult the Ghana Program Advisor in the Center for the Humanities, Huddleston Hall. Course fee required. Cr/F.

Attributes: World Cultures(Discovery)

AFAM 695 - Independent Study in Ghana
Credits: 1-4
Independent study for students in the UNH program in Ghana.

AFAM 795 - Independent Study
Credits: 1-8
Open to qualified sophomores, juniors, and seniors. May include research project, fieldwork or a relevant internship. To be elected only with permission of the coordinator and with qualified supervision. May be repeated up to a maximum of 8 credits.

Agricultural Mechanization (AM)

AM 451 - Welding/Fabrication Technology
Credits: 4
Processes and procedures of welding including: Shielded Metal Arc Welding (SMAW), Shielded Metal Arc Cutting (SMAC), Oxyacetylene Welding (OAW), Oxy-Fuel Gas Cutting (OFCA), Gas Metal Arc Welding (GMAW), Plasma Arc Cutting (PAC), and Gas Tungsten Arc Welding (GTAW). Welding metallurgy and control of distortion. Special fee. Prereq: permission. 2 lec/2-hr rec.

AM 461 - Internal Combustion Engines I
Credits: 4
Internal combustion engines (spark-ignited and diesel) and their subsystems with emphasis on their design, how they function, preventive maintenance, and troubleshooting. 2 lec/2-hr rec.

AM 462 - Internal Combustion Engines II
Credits: 4
Advanced engine principles and theory. Detailed major failure analysis and overhaul techniques. Prereq: permission, AM 461 or EDUC 461. 2 lec/2-hr rec.
AM 470 - Residential Electricity
Credits: 2
Electrical principles, laws, and installation with emphasis on the "National Electrical Code." While modeled at the residential level, concepts and terminology will be applicable to the commercial and light industrial sectors as well. Concepts and methodologies will be supported with design and when appropriate, hands on application to enhance the learning environment. 2 lec/2-hr rec. (half semester course.)

AM 591 - Studies in Agricultural Mechanization
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member; credit varies depending on the proposed project/research. Areas may include welding, engines, building construction, electricity, or computers.

AM 592 - Studies in Agricultural Mechanization
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member; credit varies depending on the proposed project/research. Areas may include welding, engines, building construction, electricity, or computers.

American Sign Language (ASL)

ASL 435 - American Sign Language I
Credits: 4
Introduction to American Sign Language with emphasis on visual receptive and expressive use of language, as well as providing opportunities for other forms for visual communication such as facial expression, mime, and gesture. Participants develop their skills through videotapes, classroom participation, and readings that cover issues important to the Deaf community. A weekly, one-hour language laboratory is required as part of this course. Limited to 15 students. Special fee. No credit if credit has been received for COMM 533.

ASL 436 - American Sign Language II
Credits: 4
Continuation of ASL 435 and expansion on concepts and principles. Focus on more advanced vocabulary and patterns of grammar; use of space and modulation of signs to denote aspects of time and location; and additional information on Deaf culture. A weekly one-hour language laboratory is required as part of this course. Prereq: ASL 435 or program evaluation. Limited to 15 students. No credit if credit has been received for COMM 733.

ASL 531 - American Sign Language III
Credits: 4
Continuation of ASL 436. Expands on groundwork and grammatical principles established in ASL I and II. Introduces the sociolinguistics aspects of ASL as it functions within the deaf cultural context. Limited to 15 students. Prereq: ASL 436 or program evaluation. Lab.

American Studies (AMST)

AMST 444B - New Orleans: Place, Meaning, and Context
Credits: 4
Course uses literature, essays, film, music, debate, and discussion, to explore the topics of place, history, people, politics, art and literature, and music. Lectures, discussion, assignments, and group projects will touch on issues regarding race, poverty, power, social mobility, gender roles, crime, corruption, energy, and the environment. Special fee. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive
**AMST 444E - Fly Fishing and the American Experience**

**Credits:** 4

The practice of fly fishing may seem like a rather specialized topic for a semester-long course, but it is truly an interdisciplinary pursuit that is based upon a rich literary heritage. The class will begin with readings, while using film, demonstrations, field trips, and service learning, to help define the extent to which fly fishing in America has become intertwined with literature, art, popular culture, biology, environmentalism, and business/technology. On one level, students will learn about fly fishing techniques, stream ecology, and local rivers. And on another level, they will see how the American landscape and ways of thinking have created something quite distinct from its European antecedents. Writing intensive.

**Attributes:** Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

**AMST 501 - Introduction to American Studies**

**Credits:** 4

An introduction to the basic methods used in the interdisciplinary study of history, literature, arts, and other aspects of the life and culture in the United States, with a special focus on a local New England subregion: the Piscataqua river, Manchester, Boston, Portland, and the White Mountains, with an emphasis on the multicultural, multilingual, and multiethnic nature of New England culture. Disciplinary approaches drawn from literature, history, environmental studies, folklore, material culture, art history, architecture, film, anthropology, and sociology. May include guest lectures, field work, trips. Required for students minoring in American studies.

**Attributes:** Humanities(Disc); Literature, Phil, Ideas GP 8

**AMST 501W - Introduction to American Studies**

**Credits:** 4

An introduction to the basic methods used in the interdisciplinary study of history, literature, arts, and other aspects of the life and culture in the United States, with a special focus on a local New England subregion: the Piscataqua river, Manchester, Boston, Portland, and the White Mountains, with an emphasis on the multicultural, multilingual, and multiethnic nature of New England culture. Disciplinary approaches drawn from literature, history, environmental studies, folklore, material culture, art history, architecture, film, anthropology, and sociology. May include guest lectures, field work, trips. Required for students minoring in American studies. Writing intensive.

**Attributes:** Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

**AMST 604 - Landscape and American Culture**

**Credits:** 4

Interdisciplinary study of the perception, representation, and/or construction of nature. Topics vary from year to year and may include: landscapes in nineteenth-century literature and art, colonial mapping of the Americas (traditions of writing and cartography), Native American traditions of land perception, and the twentieth-century emergence of eco-criticism. Writing intensive.

**Attributes:** Writing Intensive Course

**AMST 614 - Native American Studies Topics**

**Credits:** 4

The multidisciplinary study of the histories, cultures, and representations of indigenous peoples. Topics vary and may include Native American/Euro-American interactions under colonialism, the so-called "Era of Assimilation," and contemporary issues of sovereignty. May be repeated for a maximum of 8 credits if the subject matter is different.

**AMST 615 - Asian American Studies Topics**

**Credits:** 4

The multidisciplinary study of Asian American literature, culture, theory, and history. Perspectives may be drawn from gender studies, anthropology, cultural studies, film studies, and medicine. Topics vary and may include the study of contemporary fiction and film, representations of gender, of race and cultural pathologies, and of the ethnic body. May be repeated for a maximum of 8 credits if the subject matter is different.

**AMST 620 - Internship**

**Credits:** 1-8

Supervised internship with a governmental agency, private corporation, philanthropic institution, library, archives, museum, historical society, publishing company, or other institution seeking individuals interested in historical research, community development, or careers in education. Repeatable for a maximum of 8 credits. Permission required. Cr/F.

**AMST 696 - Special Topics**

**Credits:** 4

Focused study of an issue, problem, or theme in American Studies. Topics vary. For example: Black Protest in the 1960's, the rise of consumer culture, domestic art, architecture and suburban planning. Barring duplication of subject, course may be repeated for credit. For details see the coordinator. Prereq: AMST 501, and another AMST course, or permission. Writing intensive.

**Attributes:** Writing Intensive Course

**AMST 697 - Seminar in American Studies**

**Credits:** 4

Open to qualified juniors and seniors, with permission of the coordinator and the instructor. Intensive study of a specialized topic that varies from year to year. Enrollment in the seminar is limited to 15 so that all students can take an active part in the discussion and work closely with the instructor on their papers. Barring duplication of subject, course may be repeated for credit. For details see the coordinator. Prereq: a grade of B or better in AMST 501, completion of at least two other courses in the minor, permission. Not offered every year.

**AMST 795 - Independent Study**

**Credits:** 1-8

Open to qualified juniors and seniors. May include fieldwork or an internship at a museum, library, historical society, etc. To be elected only with permission of the coordinator and with qualified supervision. May be repeated up to 8 cr.

**Analytics (DATA)**

**DATA 557 - Introduction to Data Science and Analytics**

**Credits:** 4

An introduction to data science and analytics. The landscape of analytics, including an overview of industries and sectors using analytics or expected to use analytics in the near future. Data generation, data management, data cleaning, and data preparation. Ethical use of data. Focus on visual and exploratory analysis. Project-based, with an emphasis on collaborative, experiential learning. Programming and statistical software will be used, but previous experience is not required.

**Attributes:** Environment, TechSociety(Disc); Technology GP 3T
DATA 674 - Predictive and Prescriptive Analytics I  
Credits: 4  
A first course in predictive and prescriptive analytics. Supervised learning models including linear models and CART models. Model assessment and scoring methods, including cross-validation. Regularization and model tuning. Unsupervised learning models including k-means clustering. Project-based, with an emphasis on collaborative, experiential learning. Statistical software will be used and programming required. Prereq: MATH 425, COMP 490, DATA 557, or permission of the instructor.

DATA 675 - Predictive and Prescriptive Analytics II  
Credits: 4  
A second course in predictive and prescriptive analytics. Time series analysis and model ensembles. Bootstrapping, simulation, optimization. Monte Carlo methods. Project-based, with an emphasis on collaborative experiential learning. Statistical software will be used and programming required. Prereq: DATA 674 or permission of the instructor.

DATA 690 - Internship Experience  
Credits: 3  
A field-based learning experience via placement in a business, non-profit, or government organization using analytics. Under the guidance of a faculty advisor and workplace supervisor, students gain practical experience solving problems and improving operational processes using analytics. Prereq: UMST 599: Internship and Career Planning Seminar.

DATA 750 - Neural Networks  
Credits: 4  
Artificial neural network models power the recent advances in computer vision, speech recognition, and machine translation. This is a first course on neural networks with a focus on applications in computer vision and natural language processing. Topics will include generic feedforward neural networks, convolutional neural networks for computer vision tasks and recurrent neural networks, convolutional neural networks for computer vision tasks, and recurrent neural networks with application to natural language processing, with other topics to be selected based on the interests of the instructor and the class. Prereq: MATH 425, MATH 545 or MATH 645, COMP 490, or permission of the instructor. Also listed as COMP 750.

DATA 757 - Big Data  
Credits: 4  
A first course in large-scale analytics and data science. Characteristics of big data and the emerging software stack for working with massive datasets, including Hadoop and MapReduce. Algorithms for extracting information from massive datasets. A first course in linear algebra is not a prerequisite, but is recommended. Prereq: MATH 425, DATA 557, or instructor permission.

DATA 790 - Capstone Project  
Credits: 4  
Under direction of a faculty mentor, students work in teams to find solutions to complex real-world problems using analytics. Projects may come from internal or external sources. Students define the problem, obtain the necessary data, develop suitable models and solutions, and present their results. Prereq: Senior standing in Analytics B.S. program.

DATA 796 - Data Analytics Lab Independent Study  
Credits: 4  
This class is a student independent study centered around a faculty-facilitated but student-directed analytic project. The class requires competency in two areas for successful completion: Data collection/cleaning and data mining/analysis. Students will be responsible to apply modern analytical tools and techniques such as predictive modeling, segmentation, network analysis and others to real world problems and data. They will be required to present their findings during the course and at its completion as well as write a formal report of methods and findings with modern data visualizations synthesized throughout.

Animal Sciences (ANSC)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ANSC 401 - Animals and Society  
Credits: 4  
Through an interdisciplinary and historical lens, students delve into the interaction and interdependence of animals and people, the changes and patterns over time, and the resulting implications for the animal industry and the quality of life for animals, people, and the planet. Topics covered include agricultural production, organic farming, sustainability, global agriculture, Community Supported Agriculture (CSAs), research, nutrition, food safety, genetics, animal health, aquaculture, animal welfare, breeding, recreation, companionship, and the reproduction of domestic animals. What are the major changes in meat consumption by humans? What is the effect of these changes on the environment and large and small farm operations? What are the effects of biotechnological research performed on animals for human benefits? What is the difference between animal welfare and animal rights? Why should we care? In what ways does this affect us?  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

ANSC 402 - Horsemanship  
Credits: 3  
For beginning, intermediate, and advanced riders. Lecture and lab (lesson) format. All levels will work on correct position for dressage and combined training with the integration of appropriate theory. All students are required to perform the following tasks independently: properly groom, tack and cool out their horses. Students should allow time before and after lab to do so. For the safety of horse and rider, there is a rider weight limit of 200 pounds for all mounted activities in the UNH Equine Program, including ANSC 402. There are other courses that provide students with opportunities for hands-on experience with horses. Students who exceed the weight limit for ANSC 402 are encouraged to contact Sarah Rigg at sarah.rigg@unh.edu to discuss other alternative courses. Special fee. May be repeated for a maximum of 15 credits. Lab. Prereq: permission.

ANSC 403 - Summer Horsemanship  
Credits: 1  
For beginning and intermediate riders. Basics of balance seat, specializing in basic dressage and combined training. There is no lecture with this summer course. Limited number of students may stable their horses at the University. Special fee. May be repeated for a maximum of 18 credits. Prereq: permission.
ANSC 405 - Theory of Horsemanship
Credits: 2
Principles and theory of horsemanship, dressage and jumping, including biomechanics of the horse and rider, rider position and aids, cross-country jumping and conditioning, and the horse's instincts, senses, behavior and training as they relate to riding. Online only.

ANSC 406 - Careers in Animal Science
Credits: 1
Survey of various areas of animal and veterinary science and opportunities available. Cr/F.

ANSC 411 - Freshman Seminar in Equine Science
Credits: 1
Seminar format class. This introductory level class provides students with an overview of the equine industry, its economic impact and pressures and the job opportunities available. Class also includes investigation of the requirements and options within the UNH Equine Program and exploration of the opportunities and resources available for students. Cr/F.

ANSC 419 - Horse Power
Credits: 4
Students explore the enduring bond between the horse and man and the effect of that bond on civilization by considering: How has the horse and man's use of the horse shaped civilization and contributed to societal change? How has the progress of civilization and societal change affected the horse and its role in society? What does our use of the horse say about us as individuals and as a society? Writing intensive. 2 or 4 credits.

ANSC 421 - Animal Agriculture Today
Credits: 4
This course provides an overview of the scope and diversity of animal agriculture at the global, national and local levels. It also provides an introduction to the animal sciences through which students 1) learn basic animal science terminology 2) acquire an appreciation of the objectives of various animal enterprises and 3) gain understanding of contemporary trends, challenges and opportunities within animal agriculture. Special fee.

ANSC 444A - Animal Ethics: Your Child or Your Pet
Credits: 4
Human attitudes toward other animals are generally divided into five categories: animal exploitation, animal use, animal welfare, animal rights, and animal liberation. While all five categories are examined, this course concentrates on the differences between animal welfare and animal rights. These two categories differ fundamentally on the basis of the ethical or moral status they give animals. Past human societies have justified both the worship of animals and the torture and sacrifice of animals to the gods. Animal rights believers rely on a rights-based philosophy, while animal welfare advocates concentrate on a utilitarian based set of values. Course concentrates on the application of these two ethical philosophies to current uses of animals such as the use of animals in research, the use of animals as food (factory farming), the production and use of transgenic animals, and the use of animals as organ donors for humans (xenotransplantation). Since animal rights is, in itself, not a discipline, students depend on information from other disciplines ranging from moral philosophy and ethics to history to genetics, production agriculture, and ethology. Writing intensive.

ANSC #444B - Horse Power: Transforming and Reflecting Civilization
Credits: 4
Students explore the enduring bond between the horse and man and the effect of that bond on civilization by considering: How has the horse and man's use of the horse shaped civilization and contributed to societal change? How has the progress of civilization and societal change affected the horse and how its role in society? What does our use of the horse say about us as individuals and as a society? Writing intensive. Special fee.

ANSC 500 - Equine Assisted Activities and Therapies
Credits: 4
Comprehensive examination of Equine Assisted Activities and Therapies including types of therapeutic riding and its physical, cognitive, and emotional benefits for clients with a variety of disabilities. Topics include hippotherapy, therapeutic riding, equine-facilitated mental health, youth at risk, therapeutic vaulting, carriage driving, equipment needs/ modifications, special considerations for selecting and training the therapy horse, and the role of the volunteer therapist and instructor. Students have the opportunity to work with horses and riders in the UNH Therapeutic Riding Program during labs, as well as view other programs on mandatory field trips. Special fee.

ANSC 504 - Equine Science
Credits: 4
A fundamental equine science course including anatomy, sports medicine, nutrition and preventative care. Students present oral and written journal reviews on equine science topics pertinent to lecture. Prereq: BIOL 412.

ANSC 507 - Survey of Equine Training Techniques
Credits: 3
Physiological development, control, and education; biting, lunging, driving, and equine gymnastics. Special fee. Lab.

ANSC 510 - Integration of Culture and Agriculture in Ireland: Past, Present, and Future
Credits: 2 or 4
What was the worst natural disaster in 19th century Europe? What characterizes Ireland's agriculture in the 21st century? In this interdisciplinary course, students examine the cultural, historical, political, economical, and religious influences on Ireland's agriculture, fisheries, and forestry. The crowning experience of the course, a 10-day study abroad in late May, provides students with a window to the world as they experience the culture, agriculture, and topography of Ireland. Students will immerse themselves in local history and culture as they tour working agricultural farms, university research facilities, and cultural landmarks. Permission required. Not open to freshmen. Special fee. Writing intensive. 2 or 4 credits.

ANSC 511 - Anatomy and Physiology
Credits: 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and BIOL 412. Special fee. Lab. No credit if credit earned for BMS 507 and BMS 508; ZOOL 518. Not open to freshmen.
ANSC 512 - Anatomy and Physiology
Credits: 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and 412 and ANSC 511. Special fee. Lab. No credit if credit earned for BMS 507 and BMS 508. Not open to freshmen.

ANSC 520 - Classical Dressage Experience in Portugal
Credits: 2
Concentrated study of the Portuguese method of classical dressage at L'Escola De Equitaco De Alcainca 'N Alcainca, Portugal. Affords students the opportunity to ride at a premiere center for equestrian art with a master of classical dressage and to experience the culture of Portugal. Offers full immersion in dressage riding, teaching, and training. Trip takes place over Spring Break. Weekly seminar held prior to departure. Special fee. Prereq: ANSC 402: Horsemanship at I-2 level or above. Permission required. May be repeated up to a maximum of 6 credits.

ANSC 543 - Technical Writing in Animal Sciences
Credits: 2
Emphasis on writing scientific articles and articles for the end user on subjects pertaining to the animal science industry. Students are expected to make several oral presentations. Resume preparation is also included. Prereq: ENGL 401 or equivalent; permission. Writing intensive.

ANSC 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Permission of supervising faculty member required. Cr/F.

ANSC 602 - Animal Rights and Societal Issues
Credits: 4
To explore all aspects of human-animal interaction and welfare, emphasizing social, ethical, biological, historical and economic aspects of animal care and use. (Juniors and seniors only.) Special fee. Writing intensive.

ANSC 609 - Principles of Animal Nutrition
Credits: 4
Applied animal nutrition and nutrient metabolism. Prereq: one year of chemistry; one semester of physiology.

ANSC 612 - Genetics of Domestic Animals
Credits: 4
Application of basic and molecular genetics to the diagnosis and control of inherited diseases of domestic animals and application of quantitative genetics for the improvement of economically important traits of farm animals. Prereq: BIOL 411 or permission.

ANSC 615 - Dairy Farm Internship
Credits: 14
An internship on a commercial dairy farm allowing the student day-to-day management of a herd of Holstein cows health and management (animal and financial) are studied. Homework and monthly exams. Dairy Management majors only. Permission required.

ANSC 620 - Equine Diseases
Credits: 4
Provides an understanding of the normal versus the abnormal equine including recognition of clinical signs of the abnormal equine, diagnosis and treatment options. Knowledge of when to call a veterinarian and how to administer follow up care. Emphasis on preventative health care. Prereq: ANSC 504. Special fee. (Juniors and seniors only.)

ANSC 625 - Diseases of Small Ruminants, Swine, Poultry, and Camelids
Credits: 4
This course focuses on concepts of health and disease as they relate to domestic small ruminants (goats and sheep), swine, poultry, and camels (llamas and alpacas). Basic principles of disease diagnosis, transmission, treatment, and prevention are introduced and applied to specific disease conditions in these species. The course is divided into sections that focus on each group of animals and specific diseases are classified and taught based on the primary body system that is affected. Prereq: AAS 439, ANSC 511, ANSC 512.

ANSC 640 - Principles of Riding Instruction
Credits: 4
Introduction to the principles, theory and practice of Riding Instruction. Includes discussion of styles of learning and instruction as applied to a riding environment, student assessment, skill acquisition, lesson planning, horse selection and principles of group and private riding instruction. Students will use lab time to observe, assist and practice teaching in sections of ANSC 402, which will be matched according to their abilities and interests. Students will prepare for ARIA licensing examinations as part of class. Fall semester only. Lab. Prereq: ANSC 402 at Intermediate 1 or above, or permission. Writing intensive.

ANSC 641 - Principles of Dressage Instruction
Credits: 2
Advanced principles and theory of dressage and advanced concepts in teaching and coaching dressage. Students will use lab time to observe, assist and practice teaching in dressage-only sections of ANSC 402. Students will prepare for ARIA licensing examinations as part of class. Spring semester only. Lab. Prereq: ANSC 640.

ANSC 642 - Principles of Jumping Instruction
Credits: 2
Advanced principles and theory of jumping and advanced concepts in teaching and coaching over fences in the arena and cross-country. Students use lab time to observe, assist and practice teaching in intermediate I and II level sections of ANSC 402. Lab. Prereq: ANSC 640. Offered spring semester of every odd numbered year.

ANSC 643 - Principles of Therapeutic Riding Instruction
Credits: 4
Principles and theory of teaching therapeutic riding, including special considerations of teaching in a therapeutic environment and methods of instruction for individuals with a variety of disabilities. Lab consists of observing, assisting and practice-teaching in UNH Therapeutic Riding Program as preparation for PATH International instructor certification process which is done as part of this course. Spring semester only, biannually, odd numbered years. Prereq: ANSC 640 and ANSC 500.

ANSC 650 - Dairy Industry Travel Course
Credits: 1
Extended field trip to a variety of dairy farms and dairy related businesses in the Northeast with students and faculty from other New England land grants. Includes discussion sessions, case study, problem solving, and journal report. Prereq: permission. May be repeated to a maximum of 2 credits. Special fee.
ANSC 665 - Principles of Horse Trials Management
Credits: 2
Theory and hands-on involvement in the organizational process of managing an event competition. Topics will include budgeting, logistical needs, working with entries, sponsorship, awards, publicity, facilities management, course design and committee management. Students will actively participate in the management and preparation of the UNH Horse Trials, overseeing the committees working in the phases of the event and also performing other responsibilities. 1-credit, half semester course. (During the fall semester, the class will meet for the first half of the semester; during the spring semester, the class will meet for the second half of the semester)

ANSC 694 - Summer Cooperative for Real Education in Agricultural Management
Credits: 4
SCREAM (Summer Cooperative for Real Education in Agricultural Management) is a course in which students perform the work and make financial and management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire summer. SCREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture, and the application of science to the management of a dairy herd. Prereq: upper-class standing, permission.

ANSC 695 - Supervised Teaching Experience
Credits: 1-2
Participants are expected to perform such functions as leading discussion sections, directing and assisting in laboratories, and assisting students with their problems in courses that participants have completed successfully. Enrollment is limited to juniors and seniors who have a minimum 3.00 cumulative average. Prereq: permission of instructor and department chairperson. May be repeated up to a maximum of 4 credits. Cr/F.

ANSC 698 - Cooperative for Real Education in Agricultural Management (CREAM)
Credits: 4
CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture and the application of science to the management of a dairy herd. Two semesters of 4 cr. each are required. Prereq: AAS 425 or permission.

ANSC 701 - Physiology of Reproduction
Credits: 4
Comparative aspects of embryology, anatomy, endocrinology, and physiology of reproduction. Lab.

ANSC 708 - Ruminant Nutritional Physiology
Credits: 3
Anatomy of the ruminant gastrointestinal tract, physiological factors related to rumen function, and microbial and whole-body metabolism of carbohydrates, protein, and lipids. Prereq: BMS 503 and BMS 504 or equivalent.

ANSC 710 - Dairy Nutrition
Credits: 4
Feeding management of dairy cattle. Emphasis on feedstuffs, nutritional requirements, and diet formulation for efficient production and optimum health. Prereq: ANSC 609 or NUTR 750; permission.

ANSC 715 - Physiology of Lactation
Credits: 4
Examines the biological and biochemical influences of the lactation process. Emphasis on the physiological effects of environments, hormones, and nutrition on milk synthesis and secretion, mammary physiology, and maternal response. Prereq: ANSC 701, permission.

ANSC 724 - Reproductive Management and Artificial Insemination
Credits: 4
Focus on goals and fundamentals of reproductive management of horses, dairy and livestock animals, and through actual experience, development of competency in performing modern breeding techniques for equine and bovine reproduction. Permission required. Special fee. Lab.

ANSC 725 - Equine Sports Medicine
Credits: 4
Course focuses on equine anatomy and physiology in relation to athletic performance and injury. Students write an independent paper assessing the use of an equine heart rate monitor on either a UNH or private horse during the semester. (Juniors and seniors only.) Prereq: ANSC 504, 512, 620. Special fee.

ANSC 727 - Advanced Dairy Management I
Credits: 4
Advanced management evaluation of milking procedures, reproduction, genetics, herd health, feeding, housing, and milking systems. Prereq: junior or senior standing; permission.

ANSC 728 - Advanced Dairy Management II
Credits: 4
Advanced management evaluation of record keeping, financial and business management, personnel management, waste management, and marketing. Prereq: junior or senior standing; permission. Special fee. Writing intensive.

ANSC 750 - Collaborative Farm Design and Development
Credits: 4
As a semester long group project, students will design an economically feasible, fully operational, diversified small farm. Students will need to consider site selection, infrastructure, equipment, labor, animal production and health, financing options, marketing and sales, etc. in their design. The final project will be presented in both an oral and a written format. Independent initiative and group collaboration are both integral to success in this project.

ANSC 795 - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equestrian management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. May be repeated up to a maximum of 4 credits. Prereq: permission.
ANSC 795W - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equestrian management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. May be repeated up to a maximum of 4 credits. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

ANSC 796 - Equine Senior Seminar
Credits: 2
This course is geared to prepare graduating seniors for professional work experience, including skills related to job seeking, resume preparation and interviewing for work in the equine field. In addition, students will engage in dialogue regarding current and relevant controversial topics within the equine industry. Through guided group discussion, selected readings and guest speakers, student are exposed to subjects which equine professionals must confront and address within the equine industry. This course serves as a preparation for and pre-requisite to the Equine Capstone Experience, ANSC 797.

ANSC 797 - Equine Capstone Experience
Credits: 4
This course allows students to review critical professional skills, concepts and theories necessary for success within the equine industry and then to demonstrate competence in these areas, to a panel of equine program faculty. Students also coordinate logistics and content of an outreach Equine Education Day. Successful completion allows students to showcase professional skills and abilities to the non-academic equestrian community. Prereq: ANSC 796.

ANSC 799 - Honors Senior Thesis
Credits: 1-4
Independent research culminating with a written honors thesis in A) Genetics; B) Nutrition; C) Management; D) Diseases; E) Histology; F) Light Horsemanship; G) Physiology; H) Cell Biology; I) Microbiology; J) Dairy Management. May be repeated up to a maximum of 8 credits. Prereq: permission. IA. Writing intensive.
Attributes: Writing Intensive Course

Anthropology (ANTH)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ANTH 411 - Global Perspectives on the Human Condition: An Introduction to Anthropology
Credits: 4
By providing a global perspective on the human experience, this course helps us think about the issues that confront students as citizens of the world. Gleaning lessons from cultures past and present this course examines what it means to be human. Whether humans are violent or peaceful-loving, egalitarian or hierarchical is linked to specific ways of life, rather than reflecting a fixed human nature. The course examines the economic, political, and social forces that shape human behavior and the global forces that people around the world currently confront. From an anthropological perspective it addresses pressing social issues such as sustainable development, hunger and poverty, population growth, religion and changing world views, racism, urbanization, co modification, and movements for social co modification, and movements for social justice. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ANTH 411W - Global Perspectives on the Human Condition: An Introduction to Anthropology
Credits: 4
By providing a global perspective on the human experience, this course helps us think about the issues that confront students as citizens of the world. Gleaning lessons from cultures past and present this course examines what it means to be human. Whether humans are violent or peaceful-loving, egalitarian or hierarchical is linked to specific ways of life, rather than reflecting a fixed human nature. The course examines the economic, political, and social forces that shape human behavior and the global forces that people around the world currently confront. From an anthropological perspective it addresses pressing social issues such as sustainable development, hunger and poverty, population growth, religion and changing world views, racism, urbanization, co modification, and movements for social co modification, and movements for social justice. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ANTH 412 - Broken Pots and Buried Cities: Adventures in Archaeology
Credits: 4
Traces the history of archaeology’s most spectacular finds and how those moments of adventure and glory developed into a scientific discipline. Provides an introduction to the methods used by archaeologists to recover, analyze, and interpret data in their ongoing effort to understand humanity through the analysis of those small things left behind.
Attributes: Social Science (Discovery); Social Science GP 7

ANTH 415 - The Human Story: Evolution, Fossils and DNA
Credits: 4
This course uses an evolutionary approach to investigate human biological and bio-cultural variation in time and space. Through a study of the basics of population genetics, an evaluation of our closest living relatives, nonhuman primates, and an exploration of the biological and cultural pathways traversed by our ancestors to become modern Homo sapiens, students learn the depth and complexity of the human story. Laboratory exercises dealing with human genetics, hominin fossils, and evolution are integrated with lectures to give students hands-on learning experience. No credit earned if credit received for ANTH 413.
Attributes: Biological Science(Discovery); Biological Science GP 3B
ANTH 440A - Honors/Medicine and Culture: Science, Technology and the Body
Credits: 4
This course takes a comparative, cross-cultural approach to global medicine. Through critical readings, multimedia presentations, class discussions, and expository writing, we consider how techno-scientific developments, transnational flows, environmental transformations, and historical inequities shape how we know and experience our bodies. Key course topics include controversies surrounding new medical technologies, the intersections between Western and non-Western medical systems, and innovative responses to chronic global diseases.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

ANTH 444 - The Lost Campus: The Archaeology of UNH
Credits: 4
In this course, students are active participants in the systematic documentation and examination of the University of New Hampshire’s cultural heritage resources. Students are introduced to the practice and process of archaeology through lectures, readings, assignments and hands-on archival research and archaeological fieldwork. Students learn the foundational methods of archaeology including survey, mapping, documentation, excavation, artifact identification, artifact interpretation, and presenting results to the public.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery)

ANTH 450 - Introduction to Race, Culture, and Power
Credits: 4
Race, culture, and power intersect at a social space where those in that space experience differing opportunities and access to social and economic privileges, resources, and power. This course explains the way race functions today as a social and cultural category to justify systematic inequality and differences in power and to obscure the functioning of the global economy. The course draws on emerging literature on Blackness, Whiteness, and Minorities and on analyses of the differential implementation of social welfare policies in the United States. (Also listed as INCO 450.)
Attributes: Literature, Phil, Ideas GP 8

ANTH 500 - Peoples and Cultures of the World
Credits: 4
A) North America; B) South America; C) Middle East and North Africa; D) Sub-Saharan Africa; E) Asia; F) Oceania; G) Caribbean; Z) Other. Characteristic ecological, historical, and socio-cultural factors in the major ethnographic regions of the globe. Analysis of selected societies and institutions. Offered in the following sections as staff is available and student needs dictate. North America: Study of the economy, society, religion, art, and ideas of North American Indians from pre-colonial times to the present. South America: A survey of the indigenous cultures and selected studies of the relationship between environment and culture. Changes in culture and social organizations since the 16th century will be considered where historical data permit. Middle East and North Africa: The role of ecological, social, cultural, and historical factors in shaping Middle Eastern and North African culture today. Special attention will be paid to family, values, and religion; to nomadic, village, and urban ways of life; and to issues of unity, diversity, colonialism, and culture change. Sub-Saharan Africa: Study of Sub-Saharan economy, society, and culture from pre-colonial times to the present. South Asia: Emphasis on India, Sri Lanka, and Nepal. Traditional and changing South Asian cultures, including caste, family, economy, and religious traditions of Hinduism and Buddhism. Southeast Asia: Geographical, historical, ethnic, and socio-cultural factors characteristic of the region. Impact of Indian, Chinese, Islamic, and European civilizations. Analysis of selected indigenous social, political, economic, and religious institutions. Oceania: Study of the economy, society, religion, art, and ideology of Pacific Island cultures from pre-colonial times to the present. Caribbean: The history and contemporary situation of diverse cultures of the Caribbean are examined using ethnography, music, and film. The mixture of cultural roots from Africa, Europe, and Asia are investigated and the dynamic and fluid nature of these cultures is stressed. Race as an experience of oppression and resistance is discussed.
Attributes: World Cultures(Discovery); Foreign Culture GP 5
ANTH 500W - Peoples and Cultures of the World
Credits: 4
A) North America; B) South America; C) Middle East and North Africa; D) Sub-Saharan Africa; E) South Asia; F) Southeast Asia; G) Oceania; I) Caribbean; Z) Other. Characteristic ecological, historical, and socio-cultural factors in the major ethnographic regions of the globe. Analysis of selected societies and institutions. Offered in the following sections as staff is available and student needs dictate. North America: Study of the economy, society, religion, art, and ideas of North American Indians from pre-colonial times to the present. South America: A survey of the indigenous cultures and selected studies of the relationship between environment and culture. Changes in culture and social organizations since the 16th century will be considered where historical data permit. Middle East and North Africa: The role of ecological, social, cultural, and historical factors in shaping Middle Eastern and North African culture today. Special attention will be paid to family, values, and religion; to nomadic, village, and urban ways of life; and to issues of unity, diversity, colonialism, and culture change. Sub-Saharan Africa: Study of Sub-Saharan economy, society, and culture from pre-colonial times to the present. South Asia: Emphasis on India, Sri Lanka, and Nepal. Traditional and changing South Asian cultures, including caste, family, economy, and religious traditions of Hinduism and Buddhism. Southeast Asia: Geographical, historical, ethnic, and socio-cultural factors characteristic of the region. Impact of Indian, Chinese, Islamic, and European civilizations. Analysis of selected indigenous social, political, economic, and religious institutions. Oceania: Study of the economy, society, religion, art, and ideology of Pacific Island cultures from pre-colonial times to the present. Caribbean: The history and contemporary situation of diverse cultures of the Caribbean are examined using ethnography, music, and film. The mixture of cultural roots from Africa, Europe, and Asia are investigated and the dynamic and fluid nature of these cultures is stressed. Race as an experience of oppression and resistance is discussed. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ANTH 501 - World Archaeological Cultures
Credits: 4
The development of prehistoric cultures worldwide offered in the following sections: A) North America; B) Mesoamerica; C) South America; D) Near East; E) Europe; F) Asia. North America: from earliest settlement to European contact, includes Eastern Woodlands, The Plains, and the Southwest. Mesoamerica: from earliest cultures through Spanish conquest, includes the Olmec, Maya, and Aztec civilizations. South America: Cultural development from earliest migrations to the Inca Empire. Near East: from earliest agricultural villages to the world’s first civilizations.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ANTH 508 - Anthropology of Internet
Credits: 4
While adopting an anthropological lens in this course we explore how and in what ways digital environment, cyberspace in particular, affects an individual, community, and the state, and how, in turn individuals affect the digital landscape. Focusing on the dynamic interaction between digital environment and humans we will (1) tease out what is "new" about our contemporary moment, (2) clarify changes and continuity that characterize this digital age and its effects on our daily lives, (3) explore virtualitas part of our daily experiences, and (4) learn how in what ways cyberspace becomes a place of personal achievement, dwelling of community-like formations, social control, and politics.
Attributes: Social Science (Discovery); Social Science GP 7

ANTH 509 - Animals, Identity, and Culture
Credits: 4
This course explores the roles of identity and culture in shaping the relationships humans form with other animals. A range of relationships are investigated, including those that figure animals as beings sharing in personhood, as prey, as technologies, as workers, as food, and as family. Inspired by the explosion of new research in multiple disciplines, this course emphasizes cross-cultural and transhistorical variations, while also exploring some of the biosocial features humans share with other animals.

ANTH 511 - Core Concepts in Anthropology
Credits: 4
This course introduces students to the core concepts and paradigms of contemporary anthropology. Students will learn how anthropology approaches the study of family, kinship, community, gender, economic relationships, political systems, religion, social change and globalization. Ethnographic material from a variety of cultures will illustrate the concepts of social structure and the cultural construction of categories such as race and ethnicity. Writing intensive.
Attributes: Writing Intensive Course

ANTH 513 - Ethnographic Methods
Credits: 4
The course introduces students to social science research and differences between quantitative and qualitative research methods, and provides a hands-on experience to develop skills in interviewing, participant-observation, life-history, surveying, socio-linguistics, fieldnotes, and ethics of the research.
Attributes: Inquiry (Discovery)

ANTH 514 - Method and Theory in Archaeology
Credits: 4
Basic method and theory; techniques in recovering and interpreting data; laboratory exercises in ceramic and lithic analysis. Critical evaluation of archaeological literature.
Attributes: Inquiry (Discovery)

ANTH 515 - Anthropology and Contemporary Issues
Credits: 4
Anthropological approaches to current world issues such as racism, poverty, religious movements, revolution, and environmental stress. Selected topics examined in the context of both western and nonwestern societies.
Attributes: Foreign Culture GP 5

ANTH 525 - Anthropology of the Body: Fat, Fitness and Form
Credits: 4
This course surveys the way our human bodies are valued, transformed, experienced and made subject to control in different societies around the world. It explores cultural constructions of fatness and obesity, fitness and sports as sites of politics, economics and social change, and bodily modification and dis-integration in tattooing, injury, biomedical technology, disability, aging, and extreme environments of war and outer space. Uses anthropological and feminist theories and introduces ethnographic methods.
Attributes: Social Science (Discovery); Social Science GP 7
ANTH 550 - Introduction to Forensic Anthropology  
Credits: 4  
This course provides an overview of forensic anthropology, a sub-field of biological anthropology that applies knowledge of skeletal anatomy to problems of medico-legal significance (i.e., identification of human skeletal remains and interpretation of the circumstances surrounding death). This course outlines concepts underlying the recovery and analysis of human remains, the determination of the biological profile (including age, sex, ancestry, and stature), and the interpretation of skeletal trauma and pathology.

ANTH 597 - Special Topics  
Credits: 4  
Occasional and experimental offerings on an entry level. May be repeated for different topics.

ANTH 601 - Topics in Popular Culture  
Credits: 4  
This course explores the anthropology of popular culture using film, novels, and other media as well as widely disseminated texts. The course focuses on myths about culture and human behavior which become part of the global cultural mainstream, and counterposes popular stereotypes with data from cultural anthropology and archaeology. A) Native Americans and Popular Culture B) Archaeology and Popular Culture C) Popular Culture and Physical Anthropology D) Poverty and Popular Culture E) Gender and Popular Culture F) Other. May be repeated but not in duplicate areas.

ANTH 610 - Medical Anthropology: Illness and Healing  
Credits: 4  
How we as humans define sickness and health, our theories of who or what made us ill, our approach to biological processes from birth to death and our search for cures have varied through history and from culture to culture. This course provides and overview of illness and healing beliefs and practices in different cultures both around the world and in the United States. The course examines the practices and belief systems of healers, voodoo priestesses, midwives, Taoist priests, psychiatrists and medical doctors through the same analytical lens. Operates on a seminar format.

ANTH 610W - Medical Anthropology: Illness and Healing  
Credits: 4  
How we as humans define sickness and health, our theories of who or what made us ill, our approach to biological processes from birth to death and our search for cures have varied through history and from culture to culture. This course provides and overview of illness and healing beliefs and practices in different cultures both around the world and in the United States. The course examines the practices and belief systems of healers, voodoo priestesses, midwives, Taoist priests, psychiatrists and medical doctors through the same analytical lens. Operates on a seminar format. Writing intensive.  
Attributes: Writing Intensive Course

ANTH 611 - History of Anthropological Theory  
Credits: 4  
Provides a grounding in the history of social thought in cultural anthropology and sister disciplines from 19th century evolutionism to the present. Course reading is based on primary sources - original essays written by theorists central to the discipline. Assessment is partly based on students' ability to apply theoretical concepts to novel contexts, as well as the ability to evaluate and compare theories on the basis of logic and evidence.

ANTH 612 - Applied Anthropology  
Credits: 4  
Introduces students to the ways anthropological questions, concepts, and methods are applied to real world problems. Students learn how anthropological knowledge and methods can be used in a wide range of disciplines and careers. The course includes experiential learning where students engage with professionals doing work within applied anthropology. Students gain perspective on the practical possibilities in their major and acquire skills to position themselves for future careers.

ANTH 616 - Religion, Culture, and Society  
Credits: 4  
Major anthropological theories of religion; analysis of religious beliefs as symbolic systems and their interrelations with ritual and other social institutions. Detailed study of specific religions. Operates on a seminar format. Writing intensive.  
Attributes: Writing Intensive Course

ANTH 620 - Ritual and Religion of Ancient Mesoamerica  
Credits: 4  
This course examines the religious beliefs and ritual practices of ancient Mesoamerican cultures, such as the Olmec, Maya, and Aztecs. Students learn about the meaning of ritual practices (like human sacrifice and burial rites) and the myths that underlie this mysterious ritual behavior from an archaeological perspective. This class is writing intensive and involves primarily in-class discussion. Students are evaluated based on their participation, oral presentations, and a number of writing assignments. Writing intensive.  
Attributes: Writing Intensive Course

ANTH 625 - Sexuality in Cross-Cultural Perspectives  
Credits: 4  
This course examines the ideologies and practices associated with sexuality from a broad perspective that incorporates diverse case studies from the ethnographic record. Working from the argument that much of human sexual behavior is culturally constructed rather than biologically determined, the course invites students to expand their notion of the "normal" and to consider the human condition from a cross-cultural perspective. Topics discussed include cross-cultural varieties of premarital experience, same-sex sexualities, and heteronormative identities.  
Attributes: Social Science GP 7

ANTH #627 - Urbanization in Africa  
Credits: 4  
Explores the process of urbanization and describes the creation of urban culture in sub-Saharan Africa by investigating the effects of urbanization on socio-economic and cultural conditions. An attempt is made throughout the course to study urbanization and urban life within the context of broader societal, economic, cultural, and political relations in order to understand the dynamics inherent in these processes. Urbanization is discussed in the context of colonialism, post-colonialism, and other social relations of dependency that continue to shape urban life and urban-rural relations.

ANTH #640 - Anthropology of Islam: Muslims’ everyday lives in contemporary communities  
Credits: 4  
This course introduces students to different ways of being Muslim in contemporary world, focusing on Muslim communities residing in Central Asia (post-Soviet independent countries, China, and Afghanistan); the United States and some parts of Europe; and the Middle East and North Africa (MENA).
ANTH 670 - Language and Culture
Credits: 4
Investigates the relationship between language and culture and how their interpenetration produces meaning. Special attention to the issues of class, gender, and ethnicity and the ways in which inequality is maintained through culturally patterned speech styles and associated prejudices. Speech communities in the United States are emphasized.

ANTH 674 - Archaeological Survey and Mapping in Belize
Credits: 4
Involves hands-on training in field reconnaissance, survey and mapping of archaeological sites, and the use of ARCGIS mapping software. This field course takes place in Belize (Central America) and will be of interest to students studying anthropology, geography and geospatial technologies, among others. Special fee.

ANTH 675 - Archaeological Field School Belize
Credits: 8
The Archaeological Field School in Belize is an intensive, four-week summer program focused on the ancient Maya civilization in the eastern Belize River valley in Central America. Project participants will map and excavate archaeological sites and receive hands-on training in field and lab methods. Students will be graded on their participation, their submission of a field notebook, an exam based on readings and nightly lectures, and a final written report based on original field research. Special fee. Majors only.

ANTH 680 - Globalization, Development, and Poverty
Credits: 4
This course considers the phenomenon of globalization, a term that has come into use since the 1980s to describe the ever-intensifying networks of cross-border human interaction which increasingly tie the world together. Tracing the relationship between the increasing interconnectedness of the world, the processes of economic development and change, and world poverty, the course demonstrates that the consequences of globalization are neither the same nor positive in every country. Through the use of case studies of different development processes, students gain an understanding of why and how globalization is creating differential effects in different parts of the world. This course is the first course of a suggested two course sequence, ANTH 680 and ANTH 780. Writing intensive.
Attributes: Writing Intensive Course

ANTH 685 - Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa
Credits: 4
AIDS is spreading rapidly in sub-Saharan Africa. Course explores the factors that are behind this rapid transmission, including poverty, gender inequality, culture and sexuality. Operates on a seminar format. Writing intensive.
Attributes: Writing Intensive Course

ANTH 690 - Ethnographic Field Research
Credits: 4
Explores history, theory, and practice of ethnographic research. Students read and practice such techniques as mapping, taking life histories, compiling genealogies, and analyzing use of space, language, and rituals. Each student also carries out, writes up, and presents an independent research project. Prereq: ANTH 411 or SOC 400; one 500-level or higher anthropology or sociology course; or permission. No credit for students who have completed ANTH 630. Operates on a seminar format. Writing intensive.
Attributes: Writing Intensive Course

ANTH 695 - Globalization and Global Population Health
Credits: 4
This course considers the phenomenon of globalization and its impact on health of populations across cultures and nations. The term globalization has come into use since the late 1980’s to describe the over-intensifying network of cross border human interaction that increasingly ties the world together. At most abstract level, globalization is characterized by vast constant movement of capital goods and jobs across borders usually under decisions made by multinational corporations and global financial lending institutions. Studies show that this process of social change tends to increase economic opportunities but without distributing them equally with deleterious consequences on people’s health. Writing intensive.
Attributes: Writing Intensive Course

ANTH 697 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics. Prereq: ANTH 411 or permission. Operates on a seminar format. Writing intensive.
Attributes: Writing Intensive Course

ANTH #698 - Folklore and Folklife
Credits: 4
Examines the materials and methods used to study folklore and folklife, emphasizing the historical context and development of folklore studies in North America and Europe, field research, performance theory, and other topics. (Also offered as ENGL #732.) Operates on a seminar format. Writing intensive.
Attributes: Writing Intensive Course

ANTH 699 - Senior Thesis
Credits: 4 or 8
Independent work in the library or field; recommended for, but not confined to, majors intending to pursue graduate studies. Contact staff to obtain approval and arrange supervision prior to senior year. 4 or 8 credit 2 semesters; an IA grade (continuous course) given at end of first semester. Writing intensive.
Attributes: Writing Intensive Course

ANTH 699H - Honors Senior Thesis
Credits: 4 or 8
Independent work in the library or field; recommended for, but not confined to, majors intending to pursue graduate studies; required for honors candidates. Contact staff to obtain approval and arrange supervision prior to senior year. 4 or 8 credit 2 semesters, 8 credits required for honors; an IA grade (continuous course) given at end of first semester. Writing intensive.
Attributes: Writing Intensive Course

ANTH 700 - Internship
Credits: 1-4
Provides student with supervised practical experience in anthropology in one of the following areas: A) professional or community support work within an academic or applied anthropology setting; B) teaching; C) museum work; D) archaeological laboratory or fieldwork; E) research on a faculty research project; F) editorial work on a journal or faculty book project. May be repeated up to 8 credits. Prereq: permission.
ANTH 705 - Topics in Mesoamerican Anthropology  
Credits: 4  
Examines the very origins of civilization in the New World by first focusing on the domestication of staple food crops and the development of inequality and carefully tracing the ever increasing socio-political complexity displayed by early Mesoamerican peoples. Includes the successive rises of the Olmec, the Zapotec, the Preclassic Maya and Teotihuacan in an effort to understand the mechanisms driving the development of agricultural intensification, economic specialization, long-distance trade networks, and the institution of divine kingship. Operates on a seminar format, open only to juniors and seniors.

ANTH 730 - Anthropological Thinking on Education  
Credits: 4  
Course introduces the students to key anthropological concepts that, taken together, underpin anthropological thinking on education. The concepts are Culture (Geertz, White), Evolution (Morgan Steward), Function (Malinowski, Radcliffe-Brown), Interpretation (Geertz, Turner), Feminism and Postmodernism (Leacock, Rosaldo) and Process (Bailey, Vincent). The course analyzes and synthesizes them into a conceptual framework by which to understand human behavior, activity, production and reproduction in formal education.

ANTH 740 - Teaching Race  
Credits: 4  
How do we teach about race? What are schools and universities communicating about the meanings of racial ascription, of color and whiteness? How can we best use the power of educational institutions to further the struggles for equality and racial justice? And how can we do this in ways that constructively educate all our students? This course brings together prospective teachers and other students interested in human relations to discuss ways of combining the insights of new scholarship on race with personal experiences and challenges in the classroom to address these questions.

ANTH 750 - Islam and Gender: Gendered Lives of Muslims  
Credits: 4  
This seminar focuses on the lives of Muslims. While critically questioning some existing ideas about and representations of Muslims, it introduces students to practical and historical aspects of gender politics in different Muslim communities.  
Attributes: Writing Intensive Course

ANTH 785 - The Anthropology of Dreams and Dreaming  
Credits: 4  
This course emphasizes the “dream theories” of indigenous societies and how beliefs and practices associated with dreaming are integrated into cultural, ontological, political, economic, and religious systems. Western theories are also examined from within a comparative perspective—from basic Freudian models to contemporary scientific debates about the neurological origin and significance of dreaming. Writing intensive.  
Attributes: Writing Intensive Course

ANTH 795 - Reading and Research  
Credits: 1-8  
A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.

ANTH 796 - Reading and Research  
Credits: 1-8  
A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.

ANTH 797 - Advanced Topics  
Credits: 4  
Advanced or specialized courses presenting material not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Course descriptions on file in the department office during registration. A) Social Organization; B) Economic Anthropology; C) Anthropology of Religion; D) Political Anthropology; E) Social Impact Analysis; F) Cultural Ecology; G) Prehistoric Archaeology; H) Historic Archaeology; I) Cultural Resources Conservation; J) Lithic Analysis; K) Ceramic Analysis; L) Faunal Analysis; M) Human Evolution; N) Human Variations; O) Anthropological Theory. Prereq: ANTH 411 or ANTH 412 (as appropriate)/ or permission. Operates on a seminar format, open only to juniors and seniors. Writing intensive.  
Attributes: Writing Intensive Course

Applied Animal Science (AAS)

AAS 402 - Introduction to Livestock and Poultry Management  
Credits: 2  
Students are introduced to the management of livestock and poultry in small-to-medium sized operations. Students learn basic animal feeding, selection, handling, housing, management and health practices necessary to manage livestock and poultry. Through readings, multimedia presentations, writing and field assignments, students gain insight into the work, commitment and skills necessary to raise domestic farm animals for food and profit.

AAS 421 - Large Animal Behavior and Handling Techniques  
Credits: 2  
Introduction to domestic large animal behavior and handling techniques. Cattle, horses, swine, and sheep are used in this course. Students perform routine health-related procedures and gain valuable hands-on skills and safe animal handling techniques which can be applied to the fields of veterinary medicine, animal research, commercial agriculture, and animal control. 1 lec/1 lab.

AAS 422 - Small Animal Grooming I  
Credits: 2  
Introduction to pet grooming. Course covers the techniques and styles of brushing, grooming, clipping, trimming, and bathing common breeds of dogs and cats. Students perform basic grooming in lab period. Special fee for non-TSAS students. May be repeated to a maximum of 4 credits. 1 lec/1 lab.

AAS 423 - Dairy Selection  
Credits: 2  
Selection techniques used in cattle for purchase, breeding, and genetic improvement through the use of visual evaluation, pedigrees, production, and progeny information. 1 lec/1 lab.

AAS 424 - Animal Law and Regulations  
Credits: 3  
This course covers the practical application and understanding of animal law and regulations. Designed for applied animal science majors the material is relevant for any learner interested in animal protection and welfare. Select current bills, court rulings or animal-related legal movements are reviewed. Practical application topics include: due process, contract law, evidence collection, and courtroom procedures. Focus is on domestic species with limited review of regulations and liability regarding exotic pet keeping.
AAS 425 - Introduction to Dairy Herd Management  
Credits: 4  
The course explores economic, scientific and practical aspects of dairy herd management. The topics covered include history, cattle selection, nutrition, housing, milking, and disease prevention strategies. There are a number of field trips and weekly labs emphasizing management and hands-on experience.

AAS 426 - Equine Conformation and Lameness  
Credits: 4  
The study of conformation as it relates to soundness and performance. Topics include basic unsoundness related to faulty conformation and type evaluation. Special fee.

AAS 428 - Anatomy and Physiology of Domestic Animals  
Credits: 3  
An overview lecture course describing the anatomy (structure) and physiology (function) of domestic animals, focusing on canine, feline, equine, and bovine species. Anatomic and physiologic topics are intertwined as the course progresses through each body system. Relevant species differences are stressed. Focus is on applied concepts appropriate for animal-related careers. Course is designed to be taken along with AAS 428A or AAS 428B for AAS and VTEC majors respectively.

AAS 428A - Anatomy and Physiology of Domestic Animals Lab for AAS majors  
Credits: 1  
Reinforces material presented in AAS 428 lecture and introduces students to the animal body by hands-on study of anatomy. Anatomical relationships and concepts that are important for the care of animals are presented. Comparative anatomy of bovine, equine, feline, and canine species is covered. Some dissection of specimens is required. Course is required of Applied Animal Science majors and is designed to be taken along with AAS 428 lecture.

AAS 428B - Anatomy and Physiology of Domestic Animals Lab for VTEC majors  
Credits: 1  
Reinforces material presented in AAS 428 lecture and introduces students to the animal body by hands-on study of anatomy. Anatomical relationships and concepts that are important for the medical care of animals are presented. The feline species will be the primary anatomical model used. Comparative anatomy of bovine, equine, and avian species will also be covered. Course is required of Veterinary Technology majors and is designed to be taken along with AAS 428 lecture.

AAS 430 - Small Animal Breeds and Behavior  
Credits: 4  
Overview of the development, selection, genetics, and function of specific breeds of companion animals. General dog and cat, as well as breed-specific, behavior is included. 2 lec/1 lab.

AAS 431 - Introduction to Animal Science  
Credits: 4  
Survey of the dairy, equine, livestock, and small animal industries; current issues and related occupational opportunities are presented. Included is assistance in gaining or improving the skills needed to be successful in college. Lecture/Lab or Recitation.

AAS 432 - Introduction to Forage and Grassland Management  
Credits: 3  
Introduction to grasslands of the world and their management. Special emphasis on the identification, production, and utilization of New England forage crops for feeding domestic farm animals. The course includes the selection of local plant species and varieties, including their management and recommended harvesting practices. The course also includes a basic introduction to soils, as well as nutrient and fertility management.

AAS 433 - Small Animal Grooming II  
Credits: 2  
Continuation of AAS 422 Small Animal Grooming I with the addition of on-line canine dermatology and topical therapy basics. Student is assigned more complex breeds to groom and develops more proficiency in scissoring, hand stripping and clipping. Must have taken AAS 422. Special fee for non-TSAS students. 2 lab.

AAS 434 - Equipment and Facilities Management  
Credits: 3  
Operation of agricultural equipment and maintenance of agricultural facilities as found in New England. Development of the essential skills and technical information needed to manage and supervise agricultural facilities and equipment. 2 lec/1 lab.

AAS 436 - Equine Show Preparation and Competition  
Credits: 1  
Course addresses the safe handling and appropriate grooming and clipping of horses as they are prepared for competition. Students will demonstrate horse-handling proficiency while showing their assigned horse in hand. May be repeated to a maximum of 4 credits. Lec/Lab.

AAS 437 - Equine Handling and Care Techniques  
Credits: 4  
Course familiarizes students with different aspects of equine management through a practical and hands-on approach. Topics include selection, fit and care of English tack, bits, grooming, clipping, wound care, safe bandaging techniques, equine behavior, farm layout, basic health care and monitoring, parasite control, and equine transportation. Students will have hands-on experience in the UNH stable. Responsibilities include feeding, cleaning, turnout, and basic care of the University herd.

AAS 439 - Fundamentals of Animal Health  
Credits: 2  
Covers the principles of maintaining animal health by preventing and managing disease via husbandry, immunization, diagnostic testing and treatment. Focus is on domestic species; primarily dogs, cats, horses and cows. Topics include external and internal parasitology, microbiology, immunology including vaccination, and disease treatment. Course is designed to be taken along with the appropriate lab section: AAS 439A for Applied Animal Science majors or AAS 439B for VTEC majors, respectively. No credit earned if credit was received for VTEC 439.

AAS 439A - Fundamentals of Animal Health Lab for Applied Animal Science Majors  
Credits: 1  
Laboratory course to complement lecture course AAS 439. Topics include: 1) laboratory diagnostic testing: internal parasites, external parasites, urine and fecal testing, immunologic testing; 2) preventive care; integrated pest control, vaccinations (including syringe and vaccine handling and administration), and husbandry; 3) safety: zoonotic disease and control of disease transmissions. This lab course is required of Applied Animal Science majors along with AAS 439 lecture.
AAS 439B - Fundamentals of Animal Health Lab for Veterinary Technology Majors
Credits: 2
Laboratory course to complement lecture course AAS 439. Common veterinary diagnostic laboratory tests are covered, such as fecal flotation, urinalysis, complete blood count and blood chemistry, bacterial culture and sensitivity testing, gram staining, and immunologic testing such as ELISAs. Topics include laboratory safety, identification of internal and external parasites, and blood cells, examination of urine sediment, and principles of sample collection. This lab course is required of Veterinary Technology majors along with AAS 439 lecture.

AAS 445 - Veterinary Assisting Techniques
Credits: 4
Course is designed to prepare students to enter veterinary practice as a veterinary assistant. Topics include veterinary pharmaceuticals; animal nursing including record keeping, patient observation, husbandry, and disease control; surgical preparation and assisting including surgical instrumentation, sterilization and patient management; laboratory sample collection and handling; and diagnostic imaging including radiography safety, patient positioning, radiographic film processing and filing, and ultrasound. Required for completion of the veterinary assisting certificate.

AAS 449 - Clinical Animal Nursing Techniques I
Credits: 3
Essential skills and basic background knowledge for the care of small animals, focusing on dogs and cats. Animal handling and restraint, basic nursing skills including physical examination, medicating, bandaging and wellness protocols. 1 lec/1 lab.

AAS 451 - Human/Animal Bond
Credits: 4
Students explore various aspects and perceptions of the human-animal bond through multidisciplinary approaches over time and across cultures. They will critically evaluate the meanings humans ascribe to companion animals. Through movies, video clips, readings, and discussions, students are exposed to historical and contemporary utilization and exploitation of companion animals they may encounter in their professional lives. Class concentrates on "pet" animals (dogs, cats, and to a much lesser extent the horse.)

AAS 525 - Canine Learning Theory and Application
Credits: 4
Canine behavior problems are a major cause of abandonment and euthanasia in dogs. Effective application of canine learning theory can prevent and solve behavior problems and save lives. Student gain a working knowledge of animal learning theory with a focus on training basic obedience commands, prevention and modification of common canine behaviors, effective human communication within a practical canine training session, canine ethology, the business and ethics of dog training, and more. Prereq: AAS 430 or equivalent.

AAS 527 - Companion Animal Diseases
Credits: 2
Common diseases in companion animals discussed system by system; emphasis on canine, feline, equine, and ruminant species. Other species covered based on class interest. Disease pathogenesis, diagnosis, and treatment are covered. Care-based learning includes developing differential diagnosis lists and technician evaluations and interventions. AAS 428 or another Anatomy and Physiology course is strongly suggested as a pre-requisite.

AAS 535 - Animal Nutrition
Credits: 3
The food nutrients, their digestion and absorption, factors affecting value of feeds, feed additives, and nutrient requirements for maintenance and productive functions.

AAS 538 - Equine Handling/Longeinge
Credits: 1
This seven-week intensive course provides students with the opportunity to learn to lunge a variety of University horses in an enclosed arena under private instruction. The emphasis is on safety and welfare of the horse and handler. Proper equipment and fit are addressed along with different training techniques used to improve the horse's quality of movement. Prereq: AAS 436. Applied Animal Science majors given first priority.

AAS 540 - Animal Breeding
Credits: 3
Principles and practices, including the physiology of reproduction, fertility and sterility, artificial insemination, breeding systems, and selection.

AAS 546 - Animal Business Applications
Credits: 4
Survey of the various elements of managing an animal and/or agricultural operation regardless of commodity. Topics include: financial statements, credit and interest, insurance considerations, labor management, marketing, promotions, advertising, and sales. 4 lec. Prereq: AAS 242 or ECON 401.

AAS 547 - Applied Equine Management
Credits: 3
The application of farm and horse management techniques, including stable routine, planning, and design; nutrition; business considerations; and legal responsibilities. Pre- or Coreq: AAS 546.

Credits: 4
Course provides students an opportunity to focus on animal industry relative to specific operational concepts: small business start-up, creating a business plan, enterprise development including opportunity analysis and marketing of ideas, branding and advertising, employee hiring and management, payroll management, inventory management and industry-specific software review for maintaining and analyzing financial statements. Course involves lecture and field study allowing students to examine similar animal business operations in order to enhance practical understanding of topics covered. Prereq: AAS 546.

AAS 550 - Clinical Animal Nursing Techniques II
Credits: 4
Builds on materials presented in AAS 249, Clinical Animal Nursing Techniques I. Covers veterinary imaging modalities including radiographic and ultrasonographic techniques and safety, nursing care of hospitalized patients including fluid therapy, laboratory and exotic animal medicine. Prereq: AAS 449.

AAS 552 - Equine Health Management
Credits: 4
Systems of the horse as they relate to common diseases and lameness. Applied approach to conditioning, care of the sick or lame horse, and preventive care. Prereq: AAS 426 or AAS 437.
AAS 553 - Equine Competition Management
Credits: 2
Students organize and run a combined test competition to be held in April. The class is responsible for mailing entries, handling publicity and advertising, compiling the program, setting the course and dressage ring, and dealing with the public. Proceeds fund seminars available to students and class field trips. May be repeated once. Prereq: AAS 426 or AAS 546.

AAS 558 - Animal Population Medicine and Management
Credits: 2
This course applies material from animal health and disease classes to populations of animals rather than individual animals. Topics include stress and disease management, behavior and ethical problems in animal populations, evaluation of scientific research, and decision analysis. Concepts in epidemiology and statistics are covered. Students design and carry out a statistical analysis on data from a chosen animal population. Prereq: AAS 428, AAS 439, MTH 202.

AAS 563 - Small Animal Grooming III
Credits: 1
Individual supervised grooming experience for students who wish to obtain more technical grooming skills. Must have taken AAS 422 twice or AAS 422 and 433. Cr/F.

AAS 572 - Comparative Equine Operations
Credits: 2
Exploration of national and regional equine farms and related businesses. Using field trips and journals, students will experience and study different farm and business operations. Prereq: AAS 426. 1 lab. May be repeated to a maximum of 2 credits. Cr/F.

AAS 574 - Dairy Cattle Disease Seminar
Credits: 2
Covers principles of the immune response, immunological basis for disease control, and emphasizes management practices to prevent disease and maintain optimal animal health in dairy cattle. Numerous guest lecturers, field and case studies, and emphasis on current topics of interest to the industry.

AAS 575 - Cooperative for Real Education in Agriculture Management (CREAM)
Credits: 4
CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Assumption of complete responsibility for the management and care of this 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision making skills required in production agriculture, and the application of science to the management of a dairy herd. Two semesters of 4 credits each are required. Prereq: AAS 425 or ANSC 409 and ANSC 410 or permission.

AAS 577 - Functional Canine Analysis Practicum
Credits: 4
For students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, and general animal science. Permission required. Course may be repeated up to a maximum of 6 credits.

AAS 579 - Small Animal Care Practicum
Credits: 2
Provides supervised, hands-on experience at the N.H.S.P.C.A. 4 hours/week. Responsibilities include cleaning, feeding, treatment, grooming, socializing and training of shelter animals. Student must receive or show proof of pre-exposure rabies prophylaxis to take the class. Prereq: AAS 422, AAS 428, AAS 430, AAS 439, AAS 449. Special fee required only for first time the course is taken. Lab coat and/or scrubs required.

AAS 591 - Studies
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, or general animal science. Permission required. Course may be repeated up to a maximum of 6 credits.

AAS 592 - Studies
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, or general animal science. Permission required. Course may be repeated up to a maximum of 6 credits.

AAS 593 - Equine Field Operations
Credits: 1-3
Field experience in selected areas of equine care and handling, under supervision of appropriate faculty/staff and outside facilities supervisor. A) Veterinary Clinic; B) Breeding and Foaling; C) Areas of student interest. All field operations done on an individual basis. Four or more hours per week. Students must provide their own transportation. Prereq: AAS 426, 437, 547, and/or permission of instructor and adviser.

AAS 597 - Applied Animal Science Work Experience
Credits: 0
Employment (12 weeks, generally in the summer following the first year) in an approved animal-related position. Cr/F.
Applied Business Management (ABM)

ABM 404A - Introduction to Business I
Credits: 2
This 1/2 semester course introduces students to the nature of the firm, market competition, and management principles. Topics include entrepreneurship, starting a firm, selecting, training and retaining human resources, choosing an appropriate legal structure, and the role of ethics in business. Students will learn basic concepts of economics, study market structures, and engage in competitive analysis of specific firms. Lectures, guest speakers, and case studies used to promote discussion and real-world situations.

ABM 404B - Introduction to Business II
Credits: 2
This course is the second half on Introduction to Business. It introduces basic marketing concepts, including product, pricing, promotional and distribution strategies; applies management principles to operations, information technology, and finance; and examines uses of accounting data and financial statements to evaluate past financial performance and project future performance. A basic business plan is required in an area of the student's interest. Students must take ABM 404A before being eligible to take ABM 404B.

ABM 405 - Small Business Accounting Principles
Credits: 4
Learn the basics of sound bookkeeping practices as they apply to any retail, service, or manufacturing entity. Topics include: debiting and crediting, trial balance, worksheets, ledgers and journals, and checkbook reconciliation. Students perform all of the necessary bookkeeping transactions for an actual business. 3-hr lec/2-hr lab.

ABM 407 - Applied Marketing
Credits: 4
Marketing processes presented through text readings, discussions, and semester-long projects. Topics include market research, target marketing, demographics and psychographics, promotion, advertising and publicity, distribution, and pricing. Focuses on the non-personal aspects of marketing and selling. Sust Agriculture&Food Systems and Applied Business Management majors only.

ABM 506 - Human Resource Management
Credits: 4
The biggest problem most managers face is getting their employees motivated to work at peak performance. This course is designed to teach managers how to motivate employees through proper hiring techniques, performance reviews, training, administering change, working with problem employees, working with unions, and administering pay and fringe benefits. 2 2-hr discussion. Sust Agriculture&Food Systems and Applied Business Management majors only.

ABM 508 - Managerial Accounting
Credits: 4
Students focus on the decision-making aspects of financial management, primarily for internal use by managers. Topics include: cost behavior and control, budgeting, inventory control, capital investments and depreciation, tax strategies, interpretation of financial statements, profitability analysis, case flow management, standard cost accounting, manufacturing accounting and other cost accounting techniques.

ABM 514 - Applied Sales
Credits: 4
Focuses on the process of personal selling and persuasion skills. Students spend considerable time practicing their techniques and working with (and observing) professional sales associates in the workplace. Selling involves the pre-approach, approach, demonstration, handling of objections, and closing the sale and follow-up. Also presents and discusses the roles of the sales manager and related financial elements. 2 2-hr lec-discussion.

ABM 532 - Small Business Law
Credits: 4
Background and understanding of the legal aspects of management, including: contracts, liability and insurance, business law and regulation, employee laws and rights, forms of ownership, tax implications, and other legal matters relevant to successful management.

ABM 540 - Ethics in Business and Society
Credits: 4
A new look at the interface of managerial and ethical issues as they relate to workers, the workplace and the interface between business and society. Brings together concepts such as profit, values, community and, responsibility to consider a paradigm that meets the needs of an organization and the social environment in which it must exist. Helps students identify methodologies for sustaining business in its function as a responsible force for the betterment of wealth and well being in society.

ABM 550 - Business Policy
Credits: 4
Through use of case studies from existing businesses, the organization and execution of a student-run business, students now bring together and apply all they have learned throughout the program. This course also features an Executive Speaker Series and a community service component. This unique and experiential final-semester course allows the individual to see how all of the parts make up the whole and to achieve a higher level of self-confidence, self-esteem, and hands-on abilities. 2 2-hr lec-discussion.

Arabic (ARBC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ARBC 401 - Elementary Arabic I
Credits: 4
This course introduces students to the language of Arabic and the culture of the Middle East. It teaches writing and pronunciation of Arabic letters and words, as well as a number of common phrases, such as greetings and cordial interactions. Both modern standard Arabic and colloquial Egyptian are taught. It also introduces students to basic aspects of Arabic culture and history. Special fee.

ARBC 402 - Elementary Arabic II
Credits: 4
This course builds on skills of learning Arabic acquired in ARBC 401. It continues with the teaching of these skills, which are listening, reading, writing, and speaking. It expands the students' acquisition of grammar, and widens their familiarity with the Middle East culture. It teaches both modern Standard Arabic and colloquial Egyptian. Prereq: ARBC 401 or permission from the instructor. Special fee.

Attributes: Foreign Language Requirement
ARBC 503 - Intermediate Arabic
Credits: 4
This intermediate level course builds on the skills of reading comprehension and the writing and speaking of Modern Standard Arabic that were acquired in first-year Arabic. It takes students to the next level of familiarity with, and the practice of, Arabic. It also puts a heavier weight on using the Egyptian dialect of Arabic in conversation. Prereq: ARBC 402 or permission from the instructor. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Foreign Language Requirement

ARBC 504 - Intermediate Arabic
Credits: 4
This intermediate level course builds on the skills of reading and reading comprehension and the writing and speaking of Modern Standard Arabic that were acquired in Arabic 503. Students begin to read Arabic newspapers, websites, and other simple reading materials. An emphasis on using the Egyptian dialect of Arabic in conversation continues. Prereq: ARBC 503 or permission of the instructor. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ARBC 595 - Arabic Practicum
Credits: 2
Practical use of Arabic language and culture through special projects outside the classroom. May be repeated for a maximum of 4 credits. Prereq: Permission. Special fee.

ARBC 631 - Advanced Arabic I
Credits: 4
This advanced intermediate level course builds on the skills of reading and reading comprehension, and the writing and speaking, of Modern Standard Arabic that were acquired in ARBC 504. Students continue to read Arabic newspapers, websites and other materials, and bring their findings to share in class discussions. An even greater emphasis than in lower levels of Arabic, are placed on acquiring and practicing the Egyptian dialect of Arabic in class conversations. Prereq: ARBC 504 or permission from the instructor. Special fee.

ARBC 632 - Advanced Arabic II
Credits: 4
This advanced intermediate level course builds on the skills of reading and reading comprehension, and the writing and speaking, of Modern Standard Arabic. Students continue to read Arabic newspapers, websites and other materials, and bring their findings to share in class discussions. An even greater emphasis than in lower levels of Arabic, are placed on acquiring and practicing the Egyptian dialect of Arabic in class conversations. Prereq: ARBC 631 or permission from the instructor. Special fee.

Arts/History & Studio (ARTS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ARTS 444 - Mona Lisa to Romeo and Juliet: An Introduction to Renaissance Culture
Credits: 4
What made Renaissance culture tick: who were the pivotal personalities (writers and politicians as well as artists); which are the most typical and which the least typical works produced in Italy and elsewhere throughout Europe? How did viewers think about the art of their time, and in particular how did they respond to the new mass medium of printed images? How connected is our present artistic culture to that of five hundred years ago? When did the Renaissance acquire its fame? Students consider connections between the English and the Italian Renaisances, comparing, for instance, Michelangelo and Shakespeare. Readings include sixteenth-century historical and literary sources as well as art historical essays. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course

ARTS 444B - Art and Money
Credits: 4
This course explores the relationship between art and money from a variety of perspectives. Topics will range from the art market boom in seventeenth-century Holland, to money as subject matter in twentieth-century art. How do we determine the value of art? How do markets influence taste? How do we define authenticity? What is at stake in the opposition between art and money, and can they be reconciled? Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course

ARTS 455 - Architectural Design Studio
Credits: 4
An entry level architectural design studio. Course assignments feature hand drafting, hand rendering, model building, and project presentations while developing skills in verbal, written, and graphic communication. Drafting, hand-rendering, and model making materials and tools are required for this course. Knowledge of CAD or 3-D computer modeling is not required.

ARTS 480 - Introduction to Art History
Credits: 4
Analysis of the central forms and meanings of art history through intensive study of selected artists and monuments. Includes works of architecture, sculpture, painting, and the graphic arts. Topics will vary but might include the Parthenon, Chartres Cathedral, Michelangelo’s Sistine Chapel ceiling, Rembrandt’s self-portraits, Monet’s landscapes, Picasso’s Guernica, Frank Lloyd Wright’s Falling water, Georgia O’Keeffe’s abstractions, ukiyo-e prints, and Benin sculpture.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6
ARTS 487 - Twentieth Century Europe
Credits: 4
This course examines the extraordinary transformations that have swept across Europe in the past century in relation to their impact on art, architecture, photography, film, theatre, and literature. The course structure reflects the interdisciplinary quality of the field of cultural studies in that we examine a range of issues that challenge traditional departmental boundaries. Readings, films viewings, and class discussions focus on specific historical events, such as World War I, World War II, the Holocaust, the Cold War, and Post colonialism, in relation to specific cultural movements, such as expressionism, futurism, surrealism, and existentialism, that have contributed to Europe's identity formation.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ARTS 487H - Honors/Twentieth Century Europe
Credits: 4
This course examines the extraordinary transformations that have swept across Europe in the past century in relation to their impact on art, architecture, photography, film, theatre, and literature. The course structure reflects the interdisciplinary quality of the field of cultural studies in that we examine a range of issues that challenge traditional departmental boundaries. Readings, films viewings, and class discussions focus on specific historical events, such as World War I, World War II, the Holocaust, the Cold War, and Post colonialism, in relation to specific cultural movements, such as expressionism, futurism, surrealism, and existentialism, that have contributed to Europe's identity formation. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ARTS 500 - Topics in Art History
Credits: 4
Art History will be presented thematically. At least three distinct chronological periods will be treated; students will develop research skills and give oral presentations. Topics will vary. "Art Writers: Their Sources and Their Effects; " "Rome from Romulus to the Fascists," "Cults of the Original and Cultures of the Copy." Repeatable up to a maximum of 12 credits with different topics. May count toward the architectural minor if papers take the appropriate emphasis. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ARTS 501 - Introductory Ceramics
Credits: 4
Theory and practice of basic ceramics; includes all methods of basic construction, decoration, glazing, and kiln firing. Emphasis on each individual's perceptual development. Special fee. Lab.

ARTS 525 - Introductory Woodworking
Credits: 4
This course introduces students to the process of designing and building furniture with wood as the primary material. Students think creatively to brainstorm and develop their own, individual designs and use a variety of hand tools, power tools, and machines to build their objects. This course is a prerequisite to upper level woodworking and furniture design workshop courses, which subsequently investigate more sophisticated furniture concepts and woodworking techniques. Special fee. Studio.

ARTS 532 - Introductory Drawing
Credits: 4
This course is an introduction to the basic principles of studio drawing. Students work towards mastering the technical skills to produce drawings from observation, a working knowledge of the historical time line in drawing, and insight into the complexities of the creative process. A variety of materials are explored, pencil, charcoal, ink and collage. Art historical and contemporary drawing practices are shown in lectures and books to amplify the concepts introduced in the daily studio work. Special fee.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

ARTS 532H - Honors/Introductory Drawing
Credits: 4
This course is an introduction to the basic principles of studio drawing. Students work towards mastering the technical skills to produce drawings from observation, a working knowledge of the historical time line in drawing, and insight into the complexities of the creative process. A variety of materials are explored, pencil, charcoal, ink and collage. Art historical and contemporary drawing practices are shown in lectures and books to amplify the concepts introduced in the daily studio work. Special fee.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

ARTS 536 - Introduction Printmaking: Intaglio
Credits: 4
Study of intaglio printmaking techniques, including etching, dry point, and engraving. Prereq: ARTS 532 or permission. Special fee. Lab.

ARTS 537 - Introduction to Printmaking: Lithography
Credits: 4
Study of lithographic processes on stone and aluminum plate. Prereq: ARTS 532 or permission. Special fee. Lab.

ARTS 546 - Painting Design I: Perceptual Painting and Color Theory
Credits: 4
Color is the central formal issue in painting. This course explores in some detail all basic aspects of color, introducing color terms and examining the meaning of color contrast. Students become familiar with the color wheel and perform color-mixing assignments. Ideas about color are related to paintings done in class based on a variety of subjects. Students receive training on the essential vocabulary of color (as well as materials, techniques, etc.). Lectures on great colorist, critiques and outside assignments are also featured as part of the studio routine of this course. Prereq: ARTS 532 Introductory Drawing. Special fee.

ARTS 551 - Introduction to Darkroom Photography
Credits: 4
This studio course introduces the fundamentals of photographic practice. Students learn technical aspects of exposure, developing and printing in the darkroom as they explore and respond to the visual qualities of the medium. The format includes class demonstrations, lab work, field assignments and critiques. Manual 35mm film camera will be provided. Special fee.
ARTS 552 - Introductory Digital Photography
Credits: 4
Introduction to the basic principles and applications of digital photography. The philosophical and technical relationship between camera and computer is an integral part of today's digital literacy needs. Techniques learned correspond to traditional darkroom processes and include creative shooting, editing and image manipulation. The student uses new skills and techniques towards developing a unique artistic vision. Digital camera required (point and shoot or DSLR). Special fee. 
Attributes: Environment, TechSociety(Disc); Technology GP 3T

ARTS 567 - Introductory Sculpture
Credits: 4
Introduces the beginning student to the theory and practice of designing three-dimensional compositions using a series of progressive assignments. The student develops a practical understanding of sculptural elements, including line, form, space, mass, and plane. Multiple materials are explored including clay, plaster, wire and wood. This course is a prerequisite to upper level sculpture workshop courses, which subsequently focus on in-depth investigations of a particular sculptural material. Special fee.

ARTS 574 - Introduction to Architectural History
Credits: 4
Survey of representative buildings from the entire history of architecture with analysis of structure, form, and symbolic content, concentrating on major works such as the pyramids, the Roman Pantheon, the Gothic cathedral, the Renaissance palace, the Baroque church, and the modern skyscraper. In addition to the overarching narrative of architectural history, further topics include materials and building technologies, design theories, aesthetic principles, and the role of the architect in society.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

ARTS 592 - Photography's Brave New Worlds
Credits: 4
Today, we are bombarded by photographs on the Internet, Facebook, Twitter, and Instagram. Indeed, digital photographs seem to have created a "brave new world." However, throughout its history, photography's artistic innovations, technological developments, and creative new uses have transformed the ways in which we navigate the world. This course focuses on photography's game-changing impact on art, science, social reform, popular culture, globalization, and war propaganda from 1839 to the present.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

ARTS 596 - Special Topics in Studio Art
Credits: 4
Introductory level topics to be announced before registration. Topics can be either a lecture or studio course. May be repeated for a maximum of 12 credits with different topics.

ARTS 598 - An Artist's Life
Credits: 4
This course looks at the visual arts from the standpoint of artists. Biographies of artists and their environments are emphasized. Studio methods, professional activities, and ideas of historical and contemporary artists are also studied. The semester includes readings, discussions, and field trips. The course encourages students to develop ideas about the relationship of the visual arts to other disciplines in fine arts, literature and the sciences.
Attributes: Inquiry (Discovery)

ARTS 600 - Internship
Credits: 1-4
Election to take an internship in the following areas within the Department of Art and Art History: (600A) Painting, Drawing, Printmaking, Photography, Sculpture, Woodworking, Ceramics, and Graphic Design; (600B) Art History; (600C) Architecture; and (600D) Museum Work. Cannot be used to satisfy one of three electives in the Studio B.F.A. Program and one of the two electives in the Studio B.A. Program. In art history, it can be taken as an elective above the 11-course major requirement. May be repeated up to 8 credits. Prereq: permission.

ARTS 601 - Ceramics Workshop
Credits: 4
Application of new ceramic materials and techniques, with emphasis on ideas and their expression through form and content. Experimentation encouraged. Specific focus to be announced each semester. May be repeated for a maximum of 16 credits. Prereq: ARTS 501. Special fee. Lab.

ARTS 625 - Wood/Furniture Design Workshop
Credits: 4
In this studio course students learn how to design and build furniture and non-functional objects using a variety of techniques, hand tools, and machines. Emphasis is on challenging and exploring creativity to examine preconceived ideas about what furniture forms should look like while developing a solid understanding of various techniques. May be repeated for a maximum of 16 credits. Prereq: ARTS 525 Introductory Woodworking. Special fee.

ARTS 632 - Intermediate Drawing
Credits: 4
Intermediate Drawing reinforces and builds upon skills developed in Introductory Drawing. Strong emphasis is given to resolving spatial relationships and composition (examination of 2D and 3D space). Line as abstraction, gesture, tonal development, perspective, and drawing from the human figure are important topics of this course. Materials such as graphite, charcoal, ink, and mixed media are covered, as well as the use of different papers. Outside assignments and class critiques play an expanded role. Prereq: ARTS 532 Introductory Drawing. Special fee.

ARTS 633 - Life Drawing
Credits: 4
A continuation of the more formal aesthetic issues introduced in introductory and intermediate drawing with an emphasis on drawing the human figure from life. Prereq: ARTS 532 Introductory Drawing. Lab. Special fee.

ARTS 636 - Printmaking Workshop
Credits: 4
Emphasis on development of the individual's imagery in lithography and/or intaglio, including an introduction to multicolor printmaking. May be repeated for a maximum of 12 credits. Prereq: ARTS 536 and/or ARTS 537. Lab.

ARTS 645 - Water Media
Credits: 4
This course is an introduction to water media; watercolor, gouache, egg tempera, and ink. The students explore the technical and expressive properties of each of these materials. Because water mediums are unique in their portability and adaptability to a variety of environments, the students travel outside of the studio classroom to paint in the UNH greenhouses, insect collection room and in the surrounding landscape. Students must have completed ARTS 546 Introductory Painting. Course may be taken a second time to explore the medium at a higher level. Special fee.
ARTS 646 - Painting Design II: Perceptual Painting and the Individual Artist's Vision
Credits: 4
Students paint in class and begin to consider the character of their own work as artists. Themes related to color development are explored further. Teachers of this course help students understand the stylistic attributes of great artists/mentors. Lectures, demonstrations, outside assignments, and class critiques continue to augment the daily regime of class painting. Other painting media besides oil paint (acrylic, water media) may be featured in the class. May be repeated for a maximum of 8 credits. Prereq: ARTS 546 Painting and Color Theory. Special fee.

ARTS 651 - Photography Workshop
Credits: 4
Individualized projects involving creative methods, including color, manipulative, and documentary techniques. Students provide their own cameras. Prereq: ARTS 551 Photography: Darkroom AND ARTS 552 Digital Photography. May be repeated for a maximum of 16 credits. Lab. Special fee.

ARTS #654 - 17th and 18th Century American Architecture
Credits: 4
Chief architectural styles and significant buildings from the European colonization to the birth of the American republic. A study of religious, public, and domestic architecture and of the settlement patterns of the Spanish, French, Dutch, and English colonies, culminating in the revolutionary classicism of the new republic. Typical works include the California mission church, the New Orleans raised cottage, the Dutch farm house of the Hudson Valley, the plantations of Virginia, and the Boston State House. Field trips. Prereq: one 400- or 500-level art history course. Writing intensive.

Attributes: Writing Intensive Course

ARTS 655 - Nineteenth-Century Architecture: The Architecture of Empire
Credits: 4
Architectural concepts and significant buildings in Europe and America from the Revolutions of the late eighteenth century to the First World War; this course covers religious, civic, commercial, and domestic theories of architecture as well as town planning and urban design during the rise of the modern nation-state and market capitalism. Connections between social and architectural history will be emphasized. Prereq: one 400- or 500-level art history course or permission of the instructor. Writing intensive.

Attributes: Writing Intensive Course

ARTS 656 - Twentieth-Century Architecture: Modern and Contemporary
Credits: 4
From the turn of the century to recent commissions of living architects, this course provides a global view of twentieth-century architecture, covering the major movements along with more radical engagements with architecture. Important formal, technological, and theoretical debates surrounding Modernism will lead to consideration of Post-Modernity and contemporary values of architectural design. Connections between social and architectural history will be emphasized. Prereq: one 400- or 500-level art history course or permission of the instructor. Writing intensive.

Attributes: Writing Intensive Course

ARTS 667 - Sculpture Workshop
Credits: 4
Design and production of sculpture focusing on various materials and techniques and how they relate to composition and content. Emphasis on understanding visual language while developing an individual style. May be repeated for a maximum of 12 credits. Prereq: ARTS 567. Special fee. Lab.

ARTS 674 - Greek Art and Architecture
Credits: 4
Ancient Greece has long been a source of emulation and inspiration. From the legendary Bronze Age palaces of Mycenae and Knossos, through the classical ideals of the city state and its ultimate diffusion through Alexander the Great, this course explores ancient Greek culture through the lens of its surviving art and architecture. We will visit the great temples, urban centers, monuments, buildings, statuary, luxury and everyday objects that Greek society produced as a reflection of its ideals. At the same time, we will consider the legacy of Greek material culture by looking at issues such as cultural heritage, the trade in antiquities, and the adoption of Greek forms in our modern world. Prereq: one 400- or 500-level art history course. Writing intensive.

Attributes: Writing Intensive Course

ARTS 675 - Roman Art and Architecture
Credits: 4
Rome: what started as a handful of huts overlooking the Tiber River would grow into a vast empire spanning the Mediterranean Sea. Roman society would create vibrant and complex works of art and architecture that drew inspiration from the variety of ancient cultures it encompassed. Starting in the 9th century BCE and ending with Constantine, the first Christian emperor in the 4th century CE, this course will survey the artistic and architectural achievements of ancient Rome. We will examine public and domestic architecture, as well as funerary art, painting, portraiture and sculpture in their ancient and modern contexts. Our aim is to understand the development of Roman culture and consider its legacy in the modern world. Prereq: one 400- or 500-level art history course. Writing intensive.

Attributes: Writing Intensive Course

ARTS 677 - Early Medieval Art
Credits: 4
Development of Christian art from 300 to 1000 A.D. Study of the formulation of a new visual language via the intersection of Mediterranean and northern European traditions. Major focus on early Christian catacombs, Byzantine mosaics, insular manuscripts, and Carolingian imperial art. Prereq: one 400- or 500-level art history course. Writing intensive.

Attributes: Writing Intensive Course

ARTS 678 - Romanesque and Gothic Art
Credits: 4
From the fall of the Roman Empire to the fourteenth century, through plague and destruction, glory and honor, heaven and hell, this course tackles the culmination of medieval artistic development, focusing especially on major architectural monuments and their sculptural programs. Treating also the art of tombs, relics, manuscripts, and devotional painting. Connections between social, religious, and art history are emphasized. Prereq: 400- or 500-level art history course or permission of the instructor. Writing intensive.

Attributes: Writing Intensive Course
ARTS 679 - Northern Renaissance Art I
Credits: 4
Painting, sculpture, graphic arts, and manuscript illumination in France, Germany, and the Netherlands in the 14th and 15th centuries. Emphasis on the development of the traditions of Northern naturalism and the emergence in 15th-century Flanders of a distinct Renaissance consciousness, which runs parallel to contemporary trends in Italy. Major figures include the Limbourg brothers, Claus Sluter, Jan van Eyck, and Hugo van der Goes. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 680 - Northern Renaissance Art II
Credits: 4
Painting, sculpture, and graphic arts in Germany and the Netherlands in the 16th century. Emphasis on the encounter of the Northern tradition with the classical and humanistic culture of the Italian Renaissance and on the impact of the Protestant Reformation. Major figures include Bosch, Durer, Holbein, and Bruegel. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 681 - Early Renaissance Art in Italy
Credits: 4
How did Europe recover from the Black Death in 1348? How was it possible for Florence to become the center of western creativity both before and after that catastrophe? How did Renaissance art develop elsewhere during the fourteenth and fifteenth centuries? What was "primitive" about Botticelli? Prereq: ARTS 480, 500, or 574; or instructor permission. Writing intensive.
Attributes: Writing Intensive Course

ARTS 682 - The High Renaissance
Credits: 4
Examines the trajectory from Leonardo to the deaths of Michelangelo and Titian: painting, sculpture, architecture, and works on paper. Prereq: ARTS 480, 500, or 574; or instructor permission. Writing intensive.
Attributes: Writing Intensive Course

ARTS 683 - Baroque Art
Credits: 4
The last period of Italian world prominence in the visual arts, the Baroque witnessed a shift of artistic power toward Spain, France, and the Netherlands. The private collecting of pictures, controversies over the legitimacy of religious images, the exploration of etching, pastels, and monotypes, and the serious pursuit of lesser august subject matter for the visual arts all served to separate Baroque art from its esteemed predecessor, the Renaissance. Bernini, Borromini, Caravaggio, Velazquez, Rembrandt, Rubens, and Poussin are among the artists to be studied. One 400- or 500-level art history or permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

ARTS 684 - Baroque Art in Northern Europe
Credits: 4
Dutch and Flemish painting in the 17th century. Examination of such major figures as Rubens, Rembrandt, Van Dyck, and Vermeer. Attention is also given to the development of the genres and to the many little masters who practiced them. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 685 - Graphic Art of the Renaissance and Baroque Periods
Credits: 4
The availability of paper and the invention of the printing press made it possible for drawings and prints to become fundamental elements in the western artistic tradition. Prints have been called major instigators of the production of secular art and of overtly experimental art. They were the first art made with an elite but relatively broad class of collectors in mind, and--in different examples--the first art that could be owned even by the poor. Examination of anonymous works, works by artists famous only as printmakers, and the printed work by or after Mantegna, Durer, Lucas van Leyden, Raphael, Michaelangelo, Bruegel, and Rembrandt, as well as drawings of the period. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 686 - Eighteenth-Century European Art
Credits: 4
European art of the "long" eighteenth century (1680-1815) experienced radical shifts in aesthetic, social, and political orientation: from the splendors of absolutism to the austere neoclassicism of revolutionary art. This course explores painting and sculpture (and works in other media) in relation to the development of a public sphere, the emergence of individualism, the invention of personal domestic comfort, the introduction of women to artistic power, the scientific revolution, and the birth of global consumer culture. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 687 - Nineteenth-Century European Art
Credits: 4
This course examines the history of European art and visual culture from the late 1780s to 1900. How did visual art respond to the massive social, political, and technological upheavals of the nineteenth century? Topics will include the romanticism of Goya Delacroix, and Gericault; forms of mass spectacle including the panorama and diorama; the realism of Courbet; the invention of photography; Manet, the Impressionists, and Post-Impressionists; and the sculpture of Rodin and Claudel. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 688 - Gauguin to Hitler: Tropical Paradise to Technological Utopia
Credits: 4
An examination of European and American art from Symbolism to Surrealism, from the 1890s to World War II. The course focuses on a series of topics related to the political, social, scientific, and artistic upheavals of the era. Among the topics to be considered are Gauguin and "Primitivism"; Picasso, Cubism, and film; the Bauhaus and Utopian Architecture; Modernist Photography; Surrealism and Freud; and the fate of art under Hitler and Stalin. Writing intensive.
Attributes: Writing Intensive Course

ARTS 689 - Pollock and Pop to Digital Art
Credits: 4
Examines the art and art criticism produced primarily in the United States and Europe in the aftermath of World War II, with some attention on contemporary art elsewhere. An ongoing theme is the construction of national and cultural identities in relation to various artistic movements, including Action and Color Field Painting, Pop Art, Minimalism and Conceptual Art, Earthworks and Sited Sculpture, Feminist Art, New Image Painting, and Digital Art. Writing intensive.
Attributes: Writing Intensive Course
ARTS 693 - American Art
Credits: 4
A chronological survey of American painting and sculpture from the European colonization to the New York Armory Show of 1913, with emphasis on portraiture, narrative, still-life, and landscape painting. Examination of stylistic and thematic developments from the Puritan and Georgian New England portrait, the heroic narrative of the Revolutionary era, the romantic landscape to the realism of the post-Civil War era and the birth of modernism. Typical works include Copley’s Portrait of Paul Revere, Cole’s Course of Empire, Homer’s Fog Warning, Cassatt’s At the Opera, and Eakins’ Max Schmitt in a Single Scull. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 694 - Vision and Modernity: From Panorama to Early Film
Credits: 4
The course examines the emergence of modern visual culture between the end of the 18th century and the beginning of the 20th century. It tracks the development of new technologies and conditions of viewing—from the panorama to photography to early cinema -- and situates those developments in relation to larger social, intellectual, and cultural shifts in our conceptions of subjectivity, collectivity, and the mechanics of optical perception. The visual material at the center of our discussions will include nineteenth- and twentieth-century photographs, as well as paintings, prints, film, and other forms of visual entertainment and ephemera. Prereq: one 400- or 500-level art history course. Writing intensive.
Attributes: Writing Intensive Course

ARTS 695 - Special Topics in Art History
Credits: 4
Topics and prerequisites to be announced before registration. May be repeated with permission of the instructor. Lab. Writing intensive.
Attributes: Writing Intensive Course

ARTS 695I - Problems in Visual Arts/Italy
Credits: 4
Part of the ITAL 685 and ITAL 686 study abroad program held in Italy.

ARTS 696 - Special Topics in Studio Art
Credits: 4
Topics and prerequisites to be announced before registration. May be repeated for a maximum of 12 credits with different topics.

ARTS 697 - Topics in Asian Art
Credits: 4
A thematic study of the major artistic achievements in India, China, and/or Japan from pre-history to the twentieth century. Works of art in various media, including painting, sculpture, ceramics, calligraphy, prints, architecture, and gardens, will be examined in relation to philosophical concepts and to their cultural/historical contexts. May be repeated up to a maximum of 8 credits. Prereq: one 400- or 500-level art history course or permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

ARTS 699 - Museum Studies
Credits: 4
Introduction to the history and practices of American museums, including their purposes, organization, interpretation, policies and practices. Use of the Art Gallery, with occasional visits to other museums and art conservators. This course may not be used by studio art majors and B.F.A. candidates to fulfill the art history requirement. Prereq: two courses in art history or permission. Writing intensive.
Attributes: Writing Intensive Course

ARTS 700H - Honors Seminar
Credits: 4 or 8
Requires successful completion of a written thesis supervised by two faculty advisers (one each from studio and art history faculty) to be reviewed by members of the department honors committee. The art history thesis will involve an original problem in art history and the studio art thesis will examine the student’s own work. Honors students only.

ARTS 732 - Advanced Drawing
Credits: 4
Treatment of more complex compositional problems; application of a broader range of solutions to pictorial problems to reinforce and expand individual concepts of image and technique. May be repeated for a maximum of 12 credits. Prereq: ARTS 632 Intermediate Drawing and ARTS 633 Life Drawing. Lab. Special fee.

ARTS 746 - Painting Design III: Perceptual Painting and Narrative Themes
Credits: 4
Daily class routine remains grounded in practical aspects of color development, technique, and formal mastery. Outside assignments begin to stress narrative motives in a variety of assignments that present the student with opportunities to explore ideas. A higher level of ambition is encouraged in the student/artist. May be repeated for a maximum of 12 credits. Prereq: ARTS 646 Painting and the Artist’s Vision (8 credits). Special fee.

ARTS 791 - Art Education (Elementary)
Credits: 4
Children’s creative growth as revealed through their visual expression. Development of elementary art education programs with emphasis on objectives, methods, materials and techniques to foster creativity. Suggested prereq: EDUC 500.

ARTS 792 - Art Education (Secondary)
Credits: 4
The creative process in the visual arts in relation to the development and skills of middle and high school students in the public schools; mechanics of beginning and maintaining a secondary art program; exploring resources for art education programs on the secondary level. Suggested prereq: EDUC 500.

ARTS 795 - Art Historians and Their Styles
Credits: 4
Intended for students who have had some prior experience of reading art history; this course asks how do art historians formulate their projects and evaluate the results, both of their own work and that of others past and present? What issues do art historians across various specialties currently debate? Not limited to art history majors; studio art and other majors are welcome. Prereq: at least one 600-level or above art history course or equivalent experience. Writing intensive.
Attributes: Writing Intensive Course
ARTS 796 - Independent Study in the Visual Arts
Credits: 1-8
A) Photography; B) Sculpture; C) Drawing; D) Painting; E) Printmaking; F) Water Media; G) Architectural Design; H) Curatorial Assistant; I) Painting in Italy; J) Ceramics; K) Wood Design; L) Art History. Open to highly qualified juniors and seniors who have completed the advanced level courses in the chosen medium. May be repeated to a total of 8 credits. Prereq: permission of department chairperson and supervising faculty member or members. Special fee on some sections.

ARTS 798 - Seminar/Senior Thesis
Credits: 4-8
Readings and discussions oriented toward the intellectual premises of art. Culminates in mounting an exhibition of the student’s work. Required of all students in the B.F.A program. Other advanced students may elect with instructor’s permission. A year-long course; an IA grade (continuous course) will be given at the end of the first semester. Lab. Variable credit; may be repeated to a total of 8 credits. B.F.A. majors must take 8 credits total. Special fee for Photography students.

ARTS 799 - Seminar in Art History
Credits: 4
Topics and prerequisites to be announced before registration May be repeated with permission of instructor. Writing intensive.
Attributes: Writing Intensive Course

Biochemistry, Molecular & Cellular Biology (BMCB)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BMCB 401 - Professional Perspectives in Biochemistry, Molecular and Cellular Biology
Credits: 1
Introduction to the fields of biochemistry, molecular and cellular biology. Explores professional opportunities for BMCB majors. Guest speakers from on- and off-campus present seminars and lead discussions on contemporary issues in subject area. Development of strategies for achieving professional goals. Cr/F.

BMCB 405 - Biotechnology Research Internship
Credits: 2
A 4-week (minimum) experiential learning internship in which students conduct independent laboratory-based research in an area of shared interest with a faculty mentor in the College of Life Sciences and Agriculture. Students gain first-hand experience conducting original research, incorporating direct observation, reflection, evaluation, and discussion. Permission required. Open to high school students only.

BMCB 501 - Biological Chemistry
Credits: 5
Survey of the molecular basis of life with a focus on the mechanisms of biochemical reactions in metabolic pathways, beginning with an overview of functional groups and organic reactions relevant for living organisms. Bioenergetics of carbohydrate, lipid, and nitrogen metabolic pathways. Prereq: CHEM 403 and CHEM 404 or CHEM 411. No credit earned if credit received for BMCB 658 or BMCB 751 and BMCB 752.

BMCB 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Permission required. Cr/F.

BMCB 605 - Eukaryotic Cell and Developmental Biology
Credits: 4
Cell and developmental biology of multicellular eukaryotic organisms. Structure and function of major cellular compartments; mechanisms of cellular communication and dynamics; embryonic development. Special topics: subcellular organization and function; membrane biogenesis; signal transduction; mitogenesis; apoptosis; autophagy; tumor suppressors and cell cycle regulation; cytokinesis; cytoskeletal dynamics; cellular shape and motility; stem cell biology; organogenesis; morphogenesis and patterning. Prereq: BIOL 411 and BIOL 412; CHEM 403 and CHEM 404.

BMCB 656 - General Biochemistry
Credits: 3
Comprehensive, introductory course emphasizing the cellular metabolism and the structure and function of proteins, nucleic acids, carbohydrates, and lipids. Prereq: BIOL 411; CHEM 545 and CHEM 546, or CHEM 542 and CHEM 548, or CHEM 651 and CHEM 652. Coreq: BMCB 659.

BMCB 659 - General Biochemistry Lab
Credits: 2
Structured laboratory experiments that provide training in analytical and preparative techniques fundamental to modern biochemistry and molecular biology. Coreq: BMCB 658. Special fee.

BMCB 659W - General Biochemistry Lab
Credits: 2
Structured laboratory experiments that provide training in analytical and preparative techniques fundamental to modern biochemistry and molecular biology. Coreq: BMCB 658. Special fee. UNHM only. Writing intensive.

BMCB 750 - Physical Biochemistry
Credits: 3
Structure, interactions, and physical-chemical properties of biomolecules. Thermodynamic, kinetic, and spectroscopic methods for the study of proteins and nucleic acids. Prereq: CHEM 547 and CHEM 549 and CHEM 548 and CHEM 550 or equivalent; MATH 424B or equivalent; or permission.

BMCB 751 - Principles of Biochemistry
Credits: 4
In-depth survey of biochemistry: macromolecular structure; structure and function of proteins, nucleic acids, carbohydrates, and lipids; introduction to metabolic pathways. Prereq: CHEM 547 and CHEM 548 or CHEM 651 and CHEM 652; or permission.

BMCB 752 - Principles of Biochemistry
Credits: 4
In-depth survey of biochemistry: metabolism of amino acids, nucleotides, carbohydrates and lipids; macromolecules synthesis and regulation; molecular biology of the eukaryotic cell. Prereq: BMCB 751 or permission.
BMDB 753 - Cell Culture
Credits: 5
Principles and technical skills fundamental to the culture of animal and plant cells, tissues, and organs. Introduction to the techniques of sub-culturing, establishing primary cultures, karyotyping, serum testing, cloning, growth curves, cryopreservation, hybridoma formation and monoclonal antibody production, and organ cultures. Application of cell culture to contemporary research in the biological sciences. Prereq: BMS 503 and 504. Special fee. Lab.

BMDB 754 - Molecular Biology Research Methods
Credits: 5
Theory and application of current technologies to manipulate DNA. Hands-on research experience that includes DNA isolation and quantitation methods, cloning, PCR, DNA sequencing, and analysis of gene products. Prereq: GEN 604. Special fee. Lab. Writing intensive. Attributes: Writing Intensive Course

BMDB 755 - Laboratory in Biochemistry and Molecular Biology
Credits: 5
Application of modern techniques to the characterization and purification of biomolecules, with an emphasis on proteins and nucleic acids. Analysis of enzyme kinetics and basic techniques used in molecular biology. Prereq: BMDB 751 or permission. Special fee. Writing intensive. Attributes: Writing Intensive Course

BMDB 756 - Pharmacology
Credits: 4
Introduction to the basic principles and fundamental concepts of pharmacology, with a focus on molecular mechanisms and pathological basis of therapeutics and their curative effects. Topics include: foundations of pharmacology including pharmacodynamics and pharmacogenomics; drugs affecting other systems; chemotherapeutic drugs. No credit if credit earned for BSCI 680. Prereq: BMDB 751 or permission.

BMDB 757 - Biochemistry of Cancer
Credits: 4
Evaluation of the hallmarks of cancer, including molecular mechanisms of carcinogenesis, roles of oncogenes and dysregulated cell development, function and metabolism, tumor immunology, and the biological basis of cancer therapy. Prereq: BMDB 658 or BMDB 751, or permission.

BMDB 758 - Proteomics for Biological Discoveries
Credits: 4
Large-scale, high throughput study of proteins; characterization of entire set of proteins in a biological sample (proteome); quantification of changes in protein composition, interactions and post-translational modifications; major technology platforms; pharmaceutical and biomedical applications. Develop skills in processing samples from research projects; analysis of mass spectrometric data. Prereq: BMDB 658 or BMDB 751 or permission.

BMDB 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Biochemistry, Molecular and Cellular Biology lectures or labs. May be repeated to a maximum of 4 credits. Permission required.

BMDB 794 - Protein Structure and Function
Credits: 4
Analysis of how the three-dimensional architecture of soluble and membrane proteins contributes to their biochemical function; methods for determining the structure of proteins; protein targeting; mechanisms of enzyme catalysis. Computer resources will be used for protein modeling and structural prediction. Prereq: BMDB 658 or BMDB 751.

BMDB 795 - Investigations in Molecular and Cellular Biology
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required. May be repeated for a maximum of 8 credits.

BMDB 795W - Investigations in Molecular and Cellular Biology
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required. May be repeated for a maximum of 8 credits. Writing intensive. Attributes: Writing Intensive Course

BMDB 799 - Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biochemistry, molecular and cellular biology. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive. Attributes: Writing Intensive Course

BMDB 799H - Honors Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biochemistry, molecular and cellular biology and in the Honors Program. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive. Attributes: Writing Intensive Course

Bioengineering (BENG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BENG 620 - Tissue Engineering Cell Culture Laboratory
Credits: 4
Introduction to culture of mammalian cell lines with applications to bioengineering and biomedical sciences. Techniques and skills include those most relevant to bioengineering and biomedical sciences; basic cell culture, sterile technique, growth and maintenance of cell lines, growth curves, transfection, cryopreservation, and cytotoxicity assays. Inquiry-based final project. Preference given to Bioengineering majors. Also listed as BMS 620.
BENG 755 - Computational Molecular Bioengineering
Credits: 4
Introduction to fundamental concepts in bioengineering with primary emphasis on understanding details of biomolecular structures integrated with molecular modeling, simulation, and visualization techniques. The course will introduce structural details of various biomolecules (proteins, nucleic-acids, sugars, and lipids), followed by concepts in thermodynamics and physical chemistry (such as intermolecular forces, energy, entropy, chemical potential, and Boltzmann's distribution), the applications of which will be discussed in the context of drug-receptor interactions, molecular recognition, biomolecular folding, enzyme catalysis, allosteric communication, diffusion, and transport. The laboratory will include training and learning about advanced simulation and visualization software engines. Preference will be given to bioengineering majors.

BENG 762 - Biomedical Engineering
Credits: 4
Overview of the biomedical engineering through topical studies such as drug delivery and sensors. Discussion of modern engineering methods through primary research sources. Prereq: differential equations and statistics. Writing intensive.
Attributes: Writing Intensive Course

BENG 763 - Bioengineering Design I
Credits: 1
One credit design course covering safety, regulations and ethics for development of bioengineering devices and processes. Topics include product design, benchmarks, design team functioning, marketing and finances. Students produce the following documents during the course: preliminary design, materials and supplies list, project schedule and budget.

BENG 764 - Bioengineering Design II
Credits: 4
Team based laboratory course focuses on developing the project planned in BENG 763. Major report is due at mid-semester after first prototype is completed. A second report is due at the end of the semester to indicate improvements on initial design. Writing intensive.
Attributes: Writing Intensive Course

BENG 766 - Biomaterials
Credits: 4
Fundamental principles of biology and material science, along with latest topics in biomaterials research. Topics include cell biology, wound healing, host response to foreign materials, polymers, hydrogels, diffusion and methods of material characterization. Specific medical applications of biomaterials such as orthopedic and dental implants, heart valves, artificial blood vessels, cochlear and ophthalmic implants and tissue engineering. Laboratory. Students are expected to have some background in chemistry, mathematics, and high school biology. Also listed as CHE 766.

Biological Science (BSCI)

BSCI #405 - Diversity of Life
Credits: 4
Survey of ecology, evolution, genetics, and the diversity of life. Emphasis on basic biological principles. For non-biological science majors. Lecture and lab. Cannot be taken for credit after completion of BIOL 411, BIOL 413, or equivalent. No credit for students who have completed BIOL 405. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BSCI 406 - Human Organism
Credits: 4
Survey of biological chemistry, molecular and cell biology, and major plant and animal systems. Emphasis on basic biological principles. For non-biological science majors. Lecture and Lab. Cannot be taken for credit after completion of BIOL 412, BIOL 414, or equivalent. No credit for students who have completed BIOL 406. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BSCI 410 - Contemporary Health Issues
Credits: 4
This course exposes students to the three major dimensions of health - physical, emotional, and social. Nutrition, infectious diseases, substance abuse and addiction, mental health, sexual health, aging and stress management are among the issues that will be discussed. Students will learn to intelligently relate health knowledge to the social issues of the day.
Attributes: Biological Science(Discovery); Biological Science GP 3B

BSCI 421 - Diseases of the 21st Century
Credits: 4
Provides a basic understanding of several different diseases that may be prevalent over the next century. Treatment and prevention of the disease are also discussed. Students will acquire a basic understanding of the research methodologies underlying several fields within the biological sciences, such as microbiology, immunology, and molecular biology. Agents of biological warfare are also discussed. Prereq: ENGL 401.
Attributes: Biological Science(Discovery); Technology GP 3T

BSCI 422 - Biotechnology and Society
Credits: 4
Provides a basic understanding of genetic engineering. Techniques discussed include cloning, gene transfer, the Polymerase chain reaction (PCR), in vitro fertilization, organ transplants, and paternity testing. Ethical issues involved with each technological advance are examined.
Attributes: Biological Science(Discovery); Technology GP 3T

BSCI 432 - Medical Terminology
Credits: 2
This course is an introduction to medical terminology. The origin, roots, prefixes and suffixes of common scientific and medical terms are examined. Course is totally online and includes assigned online interactive material. Appropriate for biology majors, prePA, premed, and other interested majors.
BSCI 501 - Ethical Issues in Biology
Credits: 4
This course is an introduction to the ethical issues associated with current and future use of biotechnology. Students will think critically about different ethical problems that emerge from scientific research and its applications to medical technology. The focus will be on personal and public policy decision making. Prereq: BIOL 413 and 414 or BIOL 411 and BIOL 412. Writing intensive.
Attributes: Writing Intensive Course

BSCI 502 - The Business of Biotechnology
Credits: 4
Introduction to the terminology and practices of the biotechnology industry, with an emphasis on the business, regulatory, legal, and basic scientific underpinnings of modern biotechnology in the commercial and government sectors.

BSCI 599 - Special Topics in Biology
Credits: 1-4
This course explores and investigates topics in biology that would not normally be covered in other courses in the curriculum. May repeat up to 12 credits.

BSCI 620 - Global Science Exploration
Credits: 4
This course includes a spring break trip abroad investigating living organisms in their natural habitat. Students will participate in pre-trip seminars on the country, local flora, fauna and habitats they will visit. Students will design a project to integrate their personal interests and objections with in-country investigation. Post-trip seminar will focus on preparation of project and its presentation. Prereq: BIOL 413 and 414, or BIOL 411 and 412. Permission required. May be repeated if the spring break trip is to a different country.

BSCI 670 - Clinical Pathophysiology
Credits: 4
This course covers the principles and mechanisms of disease at the cellular, tissue, organ, and system levels, including responses to cell injury, death and adaptation, and inflammation. Acute and chronic disease processes as well as trauma are used to both understand the impact of these processes on body function as well as a means to gain a better understanding of integrative body systems. No credit if credit earned for BMS 794 or UMST 599 Clinical Pathophysiology. Prereq: BIOL 413 and BIOL 414 or BMS 507 and BMS 508.

BSCI 680 - Pharmacology
Credits: 4
This course is designed to cover the concepts of basic pharmacology and drug therapy. It includes examination of the body systems and the related drugs therapy within each system. It explores the basic drug groups, key similarities and differences among drugs in each group. Emphasis is placed on the mechanism of action for each group and how these medications act in relation to normative and pathophysiology. The therapeutic use and adverse effects of drugs as well as understanding recreational drug use will be included. No credit if credit received for UMST 599 Pharmacology. Prereq: BIOL 413 and BIOL 414 or BMS 507 and BMS 508.

BSCI 692 - Evolutionary Medicine
Credits: 4
This course introduces the theory of evolution by natural selection and the influence of evolutionary theory on our understanding of the cause and treatment of human disease. Topics covered include evolutionary theory, natural selection, human evolution, pathogen evolution, evolutionary mismatch, and the evolution of aging, cancer, and reproduction. Prereq: GEN 604 or permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

BSCI 695 - Exploring Biology Teaching
Credits: 1-4
Students assist in teaching labs in undergraduate courses supervised by the lab coordinator/instructor. Responsibilities include facilitating lab endeavors, giving a presentation, and writing a report. Prereq: permission. May be repeated to 4 credits maximum.

BSCI 701 - Senior Seminar I
Credits: 1
To be taken during the last two semesters of the senior year as students complete their Capstone project. Course emphasizes written and oral communication, discussion of current topics in biology, and career guidance. Fall and spring semester. Cr/F.

BSCI 702 - Senior Seminar II
Credits: 1
To be taken during the last two semesters of the senior year as students complete their Capstone project. Course emphasizes written and oral communication, discussion of current topics in biology, and career guidance. Fall and spring semester. Cr/F.

BSCI 735 - Cell Biology
Credits: 4
This course is an upper level biology class that expands on the basic knowledge of cellular structure and function. The focus is on molecular biology and cell signaling. Experiments by preeminent scientists are explored and analyzed. Prereq: BIOL 413 and BIOL 414, CHEM 403 and CHEM 404, or equivalent.

BSCI 737 - Microbial Genomics
Credits: 4
Microbial genomics (primarily bacteria and bacteriophages) and genome-scale approaches to addressing questions in microbial physiology and pathogenesis are the focus of the course. Large-scale sequencing projects, genome structure and evolution, metagenomics, and other challenges in comparative genomics are discussed. Hands-on wet laboratory and bioinformatics projects are included in this laboratory-lecture course. Prereq: GEN 604, BMS 503 and BMS 504. Special fee.

BSCI 740 - Aquatic Microbiology
Credits: 4
Lectures and labs focus on Lake Massabesic and its use as the source of supply as th drinking water for approximately 160,000 New Hampshire residents. The course covers a basic history of the Lake, the importance of watershed protection, EPA regulations, and standards and the various techniques and methods available to analyze water for basic quality. No credit for students who have earned credit for UMST 599 Aquatic Microbiology. Prereq: BMS 503 and BMS 504. Permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course
BSCI 765 - Nucleic Acid Techniques
Credits: 4
Laboratory course focused on application of molecular biology techniques for the extraction, detection, and use of nucleic acids. Emphasis is on recombinant DNA cloning and biochemical techniques in biotechnology. Special fee. Prereq: GEN 604, BMCB 658/659. No credit for students who have received credit for BMS 754, BMS 755, BMS 650, or BMS 714.

BSCI 766 - Protein and Immunologic Techniques
Credits: 4
Laboratory course focused on application of molecular biology techniques for the isolation, quantitation, detection, analysis, and use of proteins. Substantial emphasis on the use of immunoassays and antibodies in protein work. Modern proteomics techniques are also discussed. Emphasis on recombinant protein expression in the field of biotechnology. Prereq: GEN 604, BMCB 658. Credit cannot be received if credit received for BMS 650, BMS 714, BMS 715. Special fee.

BSCI 777 - Molecular Biology and Biotechnology
Credits: 4
The organization, expression, and control of RNA and protein-coding genes in prokaryotic and eukaryotic cells. The focus of the course is on mechanisms of genetics at the molecular level and the application of modern techniques to laboratory biotechnology projects. Prereq: GEN 604, BMCB 658. No credit for students who have received credit for GEN 771. Special fee.

BSCI 792 - Research
Credits: 1-4
Advanced independent research under the direction of a faculty mentor. Content area to be determined in consultation with faculty member. Prereq: permission. May be repeated for up to 8 credits. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Prereq: Permission of Faculty mentor. Cr/F.

BSCI 793 - Internship
Credits: 1-4
Field-based learning opportunities in the biological sciences through placement in the appropriate outside agency, under the direction of a faculty mentor and representative of outside agency. Content area to be determined in consultation with faculty mentor. Prereq: Permission. May be repeated for up to 8 credits. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Cr/F.

BSCI 794 - Clinical Microbiology Internship
Credits: 4
Advanced instruction in clinical bacteriology, mycology, parasitology, and/or virology at a local hospital or reference laboratory. Isolation, identification, determination of antibiotic sensitivities, and modern advanced testing for common pathogens are emphasized. Prereq: BMS 602 and permission of instructor.

BSCI 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty mentor. Content area to be determined in consultation with faculty mentor. Prereq: permission. May be repeated for up to 8 credits. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Cr/F.

Biology (BIOL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BIOL 400 - Professional Perspectives on Biology
Credits: 1
Views scope of biology and explores professional opportunities for biological sciences majors. Guest speakers from on and off campus present seminars and lead discussions on contemporary issues in biology. Departmental and interdepartmental major and option programs and strategies for achieving professional goals are discussed. Required for all first-semester biology majors. Cr/F.

BIOL 408 - Plants and Civilization
Credits: 4
Global experience of human interactions with plants and ways in which plants have contributed to the development and flourishing of human societies. Includes role of plants in providing sustenance, clothing and shelter, quest for spices, and the historical consequences of plant explorations and exploitations, the power to heal or kill, plants in mythology and spiritual endeavors, plants that alter consciousness, plant diseases and human history, plants as energy for society, and the Green Revolution in global change and feeding the world in the future. Special fee.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BIOL 409 - Introductory Botany
Credits: 4
Plants in their natural environments: their structure, function, growth, reproduction, and evolutionary diversity. Special fee. Lab.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BIOL 410 - Principles of Molecular and Cellular Biology
Credits: 3
Introduction to structure and function of cells; tissues and organs; physiological processes; genes and heredity. No laboratory. All COLSA and pre-professional health students should take BIOL 411 (with lab). Prereq: permission required.

Attributes: Biological Science(Discovery)

BIOL 411 - Introductory Biology: Molecular and Cellular
Credits: 4
Introduction to structure and function of cells; tissues and organs; physiological processes; genes and heredity. Required for majors in the biological sciences. Special fee. Lab. Students not permitted to enroll in BIOL 411 and BIOL 412 in the same semester.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery)

BIOL 411H - Honors/Principles of Biology I
Credits: 4
Introduction to structure and function of cells; tissues and organs; physiological processes; genes and heredity. Required for majors in the biological sciences. Special fee. Lab.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery)
BIOL 412 - Introductory Biology: Evolution, Biodiversity and Ecology
Credits: 4
The biology of organisms, including survey of kingdoms, behavior, evolution, and ecology. Required for majors in the biological sciences. Students are not permitted to enroll in BIOL 411 and BIOL 412 in the same semester. Special fee. Lab. 
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery)

BIOL 412H - Honors/Principles of Biology II
Credits: 4
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery)

BIOL 413 - Principles of Biology I
Credits: 4
Lecture and Laboratory introduction to biological principles; cell structure, function, replication, energetics and transport mechanisms; physiological processes; Mendelian, molecular genetics and gene technology. Required for students majoring in the life sciences. Cannot be taken for credit after BIOL 411 or equivalent. Special fee. Lab. 
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery)

BIOL 414 - Principles of Biology II
Credits: 4
Lecture and laboratory survey of the five kingdoms of life; physiology of cells, tissues, organs, and organ systems; evolution; human impact on the biosphere. Required for students majoring in the life sciences. Cannot be taken for credit after BIOL 412 or equivalent. Special fee. Lab. 
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BIOL 416 - Watershed Watch - Research Experience
Credits: 2
This course builds upon the experiences gained while conducting the field and laboratory research from BIOL 415 (Watershed Watch Summer Institute). Students will be expected to integrate the conceptual and hands-on components learned in BIOL 415 into their own independent scientific research projects conducted under the mentoring of a faculty advisor from their college or university campus. Using a seminar format, students will receive additional lecture and reading materials (via distance-learning tools), compare their research progress (e.g., problems and accomplishments) with the progress of other students on other campuses, and will integrate their findings into the larger studies of the Merrimack and Pascotank River watersheds. Ultimately, students will present their results at the UNH Undergraduate Research Conference at the end of April. (IA grading). Prereq: BIOL 415 and instructor approval. May be repeated. 
Attributes: Biological Science GP 3B

BIOL 420 - Introduction to Forensic Sciences
Credits: 4
This course is an introductory survey course in Forensic Sciences. The focus will be on the recognition, collection, preservation, and analysis of physical evidence related to crime scene investigations. Students will be presented with various state-of-the-art techniques utilized in the analysis of physical evidence, with the presumption that students do not necessarily have in-depth scientific or technical backgrounds (e.g., chemistry, biology and/or physics). The goal of this class will be to provide students with an understanding of what criminalistics entails and to prepare them for additional, more in-depth classes in criminalistics or forensic science. Special fee. 
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BIOL 430 - Biology of the City
Credits: 4
This course explores biological systems, functions, and interaction of organisms in an urban environment. Using the campus as our laboratory, the course will progress from exploring the effects of urbanization on biodiversity, biological responses to urbanization, urban forestry, urban agriculture, and conclude with topics in sustainable urban development and conservation. Students in the course will develop an understanding of ecological concepts, problems, and solutions to improving ecological systems of urban areas. 
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BIOL 444A - Biotechnology and Society
Credits: 4
The history and science of biotechnology and genetic engineering of bacteria, plants, and animals including humans. Applications of DNA technology, cloning and genetic engineering to agriculture, biomedicine, industrial products, and environmental problems. Discussion of economic, social, environmental, legal, and ethical issues related to the applications of biotechnology and genetic engineering. No credit for students who have completed BSCI 422 (UNHM). 
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

BIOL 444B - Current Controversial Issues in Biology
Credits: 4
An inquiry into current controversial issues in biology and their scientific and technical bases, but with an emphasis on exploring the various perspectives or beliefs related to each topic and their social and environmental implications. 
Attributes: Biological Science(Discovery); Inquiry (Discovery)

BIOL 495 - Research Experience in Biological Sciences
Credits: 1-2
Hands-on research experience for high school students and UNH freshmen under the supervision of a Biological Sciences faculty member. This independent-study course introduces students to the research process and requires them to undertake a research project that involves laboratory and/or field work. Before a student can register for the course, he/she must meet with a Biological Sciences faculty member who will serve as mentor and supervisor, and the two of them must have a formal agreement on the specific research activities that the student must carry out. Prereq: permission. May be repeated up to a maximum of 4 credits.
BIOL 510 - Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom
Credits: 4
Fungi represent a diversity of both form and function and occupy nearly every habitat and niche on the planet. The fungi have been crucial in early and current scientific discovery as many species are used as model systems in biological sciences for the study of ecology, epidemiology, evolution, genetics, genomics, and physiology. Fungi occupy a number of important niches in natural and man made environments including: human, animal, insect, and plant pathogens, plant symbionts, organic matter decomposers, food source, antibiotic production, and are a crucial component of global nutrient cycling. The most recent use of fungi has been the identification of specific enzymes produced by fungi to degrade lignin substrates for the production of biofuels. This course will introduce students to the wonderful world of fungi in all their diversity and complexity.

BIOL 520 - Our Changing Planet
Credits: 4
Ecosystem interrelations and factors critical to maintain sustainability will be addressed in this course. Environmental issues such as water usage, pollution, and treatment; air and soil quality; fossil fuels and alternative energy sources will be presented. Not for credit if credit earned for ENE 520.
Attributes: Environment,TechSociety(Disc); Technology GP 3T

BIOL 528 - Applied Biostatistics I
Credits: 4
Development of elementary statistical techniques through the analysis of prepared biological data. Continuous and discrete probability distributions, distributions of sample statistics, small-sample theory, regression, correlation, and analysis of variance. No credit for students who have completed ADM 430; ADMN 420; BIOL 555; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

BIOL 541 - General Ecology
Credits: 4
Attributes: Writing Intensive Course

BIOL 544 - Your Genes, Your Life
Credits: 4
This course explores societal, ethical, and legal issues surrounding the human genomics revolution, with a particular focus on biomedical questions. What will it mean to know your complete DNA sequence? If everyone's genome were included in a public database, how should that information be controlled and used? What, ultimately, do our genes encode? We will examine the basis of genetic inheritance, the interaction between genes and environment, and the types of genetic variation that occur between individuals and populations. In the medical realm, we will look at genetic and evolutionary processes underlying diseases such as cancer, and at the role of genomic technology in the drive toward personalized medicine. No credit for students who have completed Biology 404 or BIOL 444A. Writing intensive.
Attributes: Environment,TechSociety(Disc); Technology GP 3T; Inquiry (Discovery); Writing Intensive Course

BIOL 555 - Experimental Design and Analysis Laboratory (EDAL)
Credits: 4
Using hands-on laboratory based inquiry, the course explores the concepts that form the basis of statistical analysis and experimental design. Working in small teams, students examine variability in different types of measurement data and empirically derive probability distributions including Poisson, Chi-square, Normal, Student's t, and F distributions. An intuitive approach to data analysis and hypothesis testing provides students with a conceptual understanding of the basic and advanced statistical analyses including ANOVA, Linear, and Non-Linear Regression, Correlation, Goodness-of-fit, ANCOVA, and MANOVA. Students have an opportunity to become familiar with how these tests are implemented in several popular statistical software packages. The approach used in the course emphasizes development of analytical thinking skills and the application of conceptual understanding to solve new problems. Grading is based on participation in team projects, presentations, mastery of concepts and skills, and written reports. No credit for students who have completed ADM 430; ADMN 420; BIOL 528; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.
Attributes: Quantitative Reasoning(Disc)

BIOL 566 - Systematic Botany
Credits: 4
Scientific basis of plant taxonomy and the identification and classification of major plant families, native trees, shrubs, and wild flowers. Field trips, plant collection. Prereq: BIOL 412 or BIOL 409. Lab. Special fee.

BIOL 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

BIOL 601 - Biology of Plants
Credits: 4
Structural and functional biology of the plant organism, with emphasis on land plants. Evolution of vegetative processes and sexual reproduction/breeding systems. Plant adaptations to environmental challenges. Prereq: BIOL 411 and BIOL 412 or ZOOL 412.

BIOL 695 - Biology Teaching Practices
Credits: 1-4
Students assist in teaching labs in undergraduate biology courses supervised by the lab coordinator/instructor. Responsibilities include facilitating lab endeavors, giving a presentation, and writing a report. Prereq: permission. May be repeated to 4 credits maximum.

BIOL 700 - Current and Controversial Issues in Biology
Credits: 4
This course explores current issues in the biological sciences that are controversial and have a significant impact on individuals and society. Issues related to human population growth, evolution, cloning, synthetic biology, genetically modified organisms, free will, etc. Biology capstone. Only open to Animal Science, Plant Biology, Zoology, Neuroscience, Biology, Marine & Freshwater Biology, and Sust Agriculture& Food Systems majors.
BIOL 701 - Plant Physiology  
Credits: 5  
Structure-function relationship of plants, internal and external factors regulating plant growth and development, plant hormones, plant metabolism, water relations, and mineral nutrition. Prereq: BIOL 409 or SAFS 421 or BIOL 411 and BIOL 412; CHEM 403 and CHEM 404; PBIO 501 or equivalent.

BIOL 702 - Techniques in Plant Physiology and Biochemistry  
Credits: 4  
The course provides hands-on experience with instrumentation and experimental procedures for analysis of plant growth and metabolism. Experiments demonstrate the regulation of plant growth and development in response to environmental and chemical factors, analysis of cellular contents and processes, and use of modern instrumentation for physiological and biochemical studies. The experiments deal with plant water relations, photosynthesis, plant enzymes, enzyme kinetics, use of spectrophotometry, aseptic procedures, and liquid and thin-layer chromatography. Prereq: BIOL 411, BIOL 412 or permission of instructor. Special fee. Lab.

BIOL 704 - Plant-Microbe Interactions  
Credits: 3  
This course provides an overview of the molecular, cellular and biochemical factors underlying the interactions of plants with various microbes, including bacterial fungal, oomycete and viral pathogens, and mutualistic symbionts, such as mycorrhizal fungi and Rhizobium. Unifying themes underlying disease, resistance, and symbiosis are emphasized. Prereq: BIOL 411 and BIOL 412, BMS 503 and BMS 504 or GEN 604.

BIOL 709 - Plant Stress Physiology  
Credits: 3  
Physiological and biochemical mechanisms of plant responses to abiotic stresses, including drought, salt, high and low temperature, visible and ultra-violet radiation, heavy metals, and air pollutants. Current hypotheses, and agricultural and ecological implications are discussed. Prereq: plant physiology; biochemistry; or permission. (Offered alternate years.)

BIOL 711 - Applied Biostatistics II  
Credits: 4  
Design and analysis of biological and ecological research experiments. "Real world" studies used to discuss the identification of hypotheses, appropriate experimental design, and the application of statistical analyses including ANOVA, ANCOVA, correlation and regression, cluster analysis, classification and ordination techniques. Theoretical statistical concepts tailored to consider student's own thesis and dissertation research, allowing statistical problems to be addressed at various stages of the research process. Common computer packages used for analyses. Prereq: BIOL 528; permission.

BIOL 713 - Biochemistry of Photosynthesis  
Credits: 4  
Physiology and biochemistry of photosynthesis in higher plants and microorganisms: light reactions, electron transport, membrane structure and function, carbon assimilation pathways, energy conservation, and metabolic regulation. Agronomic and ecological aspects of photosynthesis are examined. Prereq: plant physiology or biochemistry (Not offered every year.) Special fee.

BIOL 720 - Plant-Animal Interactions  
Credits: 4  
This course will explore interactions between plants and animals and their evolutionary consequences on individual organisms as well as on ecological communities. Readings from the primary literature will serve as case studies to discuss hypotheses related to plant-animal interactions, the methods employed to test these hypotheses, and the conclusions drawn from these experiments. A weekly discussion session will be used as a grant-writing workshop, with activities designed to help students prepare an NSF-style grant as the culminating course project. Prereq: BIOL 411 and BIOL 412.

BIOL 752 - Mycology  
Credits: 4  
Classification, identification, culturing, life histories, and ecology of fungi, from slime molds to hallucinogenic mushrooms; the significance of fungi in human history, from their contributions to the art of bread making and alcoholic fermentation to their destructiveness as agents of deadly diseases of plants and animals. Prereq: BIOL 411 and BIOL 412 or BIOL 409 or equivalent. Special fee. Lab.

BIOL 758 - Plant Anatomy  
Credits: 5  
Anatomy of vascular plants, emphasizing structure and development of basic cell and tissue types, and of the major plant organs. Prereq: BIOL 412 or BIOL 409. Lab. Special fee. (Not offered every year.)

BIOL 795 - Independent Investigations  
Credits: 1-4  
Topics may include teaching practicum in a biological science supervised by a biology faculty member (permission required); research practicum in a biological science supervised by a biology faculty member (permission required); or special topics of current interest in biology. Lecture-discussion format. Prereq: 12 credits of biology or permission. May be repeated to 4 credits.

BIOL 795W - Independent Investigations  
Credits: 1-4  
Topics may include teaching practicum in a biological science supervised by a biology faculty member (permission required); research practicum in a biological science supervised by a biology faculty member (permission required); or special topics of current interest in biology. Lecture-discussion format. Prereq: 12 credits of biology or permission. May be repeated to 4 credits. Writing intensive.  
Attributes: Writing Intensive Course

BIOL 799 - Honors Senior Thesis  
Credits: 2-8  
Independent research requiring a written proposal, a thesis, and a presentation of research results to an audience of faculty and/or students. Intended for biology majors completing biology honors-in-major requirements. Contact biology program coordinator prior to senior year to arrange supervision and obtain permission. 2 consecutive semesters. (4 credit minimum total; 8 credits maximum.) Writing intensive.  
Attributes: Writing Intensive Course

Biomedical Science (BMS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
BMS 401 - Professional Perspectives in Biomedical Sciences  
Credits: 1  
Introduction to the major and the options of Biomedical Sciences. Strategies for successfully achieving academic and professional goals in the biomedical sciences. Professional opportunities for BMS majors are presented. Cr/F.

BMS 402 - Special Topics in Biomedical Sciences  
Credits: 1  
Introduces contemporary research and provides an avenue to explore recent developments in the field of biomedical science. Each semester focuses on a different theme. Cr/F.

BMS 407 - Germs 101  
Credits: 4  
Societal and technological impact of the invisible microbial world on our lives and on the planet. Weekly extra-class activities enable students to use the scientific method of inquiry to explore topics like bacteria that use sunlight to live or use of bacteria in genetic engineering. Presents germs from different perspectives: as living organisms, as human enemies or friends, and as represented in newspapers or on TV. Especially useful for people with microphobia. No credit for BMS or Biology majors. Special fee.  
Attributes: Biological Science(Discovery); Biological Science GP 3B

BMS 408 - Germs 101  
Credits: 4  
Online version of BMS 407. Societal and technological impact of the invisible microbial world on our lives and on the planet. Weekly extra-class activities enable students to use the scientific method of inquiry to explore topics like bacteria that use sunlight to live or use of bacteria in genetic engineering. Presents germs from different perspectives: as living organisms, as human enemies or friends, and as represented in newspapers or on TV. Especially useful for people with microphobia. No credit for BMS or Biology majors. Special fee.  
Attributes: Biological Science(Discovery)

BMS 501 - Microbes in Human Disease  
Credits: 4  
Identification, pathogenesis, epidemiology, treatment, and prevention of medically important microorganisms. The biology of clinically relevant bacteria, viruses, fungi, and parasites is presented in relation to disease progress and host defense mechanisms. Clinical correlations that indicate microbes are causative agents of disease are emphasized. The laboratory introduces techniques for identification of pathogenic microorganisms to reinforce and expand the theoretical content. Special fee. Lab.  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BMS 504 - General Microbiology Laboratory  
Credits: 2  
Practical laboratory training in general microbiology. Topics include safe handling, visualization, and physiological identification of microorganisms with special attention given to aseptic technique. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404 or equivalents. Pre- or Coreq: BMS 503 and BMS 504. Special fee.

BMS 507 - Human Anatomy and Physiology I  
Credits: 4  
Cellular and systematic aspects of the human body. Laboratory exercises utilize preserved specimens, dissectible models, living tissue and computer-aided instruction. Systems covered include: the cell, chemistry, tissues, integument, osseous tissue and the skeleton, muscular tissue and muscles, nerves, the brain, spinal cord, autonomic nervous system, and special senses. No credit earned for ANSC 511 and ANSC 512. Lab. Special fee.  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BMS 508 - Human Anatomy and Physiology II  
Credits: 4  
Cellular and systematic aspects of the human body. Laboratory exercises utilize preserved specimens, dissectible models, living tissue and computer-aided instruction. Systems covered include: endocrine, blood, cardiovascular, respiratory, immune, digestive and metabolism, urinary, acid-base and electrolyte balance, reproductive. Prereq: BMS 507. No credit earned for ANSC 511 and ANSC 512. Lab. Special fee.  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

BMS 560 - Body Fluids  
Credits: 3  
The study of diseases and disorders through the analysis of extra-vascular body fluids. Emphasizes renal anatomy and physiology, and diseases and metabolic disorders affecting renal function.

BMS 561 - Body Fluids Laboratory  
Credits: 1  
Practical experience in the performance and clinical correlation of urinalysis and selected body fluid procedures. Special fee.

BMS 600 - Field Experience  
Credits: 1-4  
Supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credits. Only 4 credits can be used toward the major. Permission required. Cr/F.

BMS 601 - Bacteriology of Food  
Credits: 5  
Lectures and laboratories address modern technical concepts of microbiology, physiology, and biochemistry related to food sanitation. Theoretical and practical approach serves as an integrative experience. Food sanitation is a serious public health issue in the meat, dairy, fish, and water industries. Benefits students seeking employment in public health or sanitary microbiology fields. Topics include food as a substrate for microorganisms, causes of food spoilage, food borne disease outbreaks, public health complications, isolation and identification of food spoiling microorganisms, and essentials for food safety and sanitation. Prereq: BMS 503 and BMS 504 or equivalent. (Not offered every year) Special fee. UNHM only.
BMS 602 - Pathogenic Microbiology
Credits: 3
An introduction to microbial disease, with a focus on bacterial and viral diseases in humans and animals. This course examines the clinical presentation, laboratory diagnosis, and treatment of specific microbial pathogens. Molecular aspects of both microbial infection and host immune response are discussed. Case studies based on real clinical and research microbiology problems are presented. Prereq: BMS 501 or BMS 503 and BMS 504.

BMS 603 - Pathogenic Microbiology Laboratory
Credits: 2
An introduction to morphologic, cultural, biochemical and pathogenic characteristics of microorganisms causing human and animal diseases. Laboratory exercises focus on both classical and modern laboratory diagnostic testing. Prereq: BMS 501 or BMS 503 and BMS 504. Special fee.

BMS 610 - Biomedical Lab Management
Credits: 4
Overview of biomedical laboratory management, including lab operation, compliance, financial management, personnel management, information systems, and leadership. Writing intensive.
Attributes: Writing Intensive Course

BMS 620 - Tissue Engineering Cell Culture Laboratory
Credits: 4
Introduction to culture of mammalian cell lines with applications to bioengineering and biomedical sciences. Techniques and skills include those most relevant to bioengineering and biomedical sciences: basic cell culture, sterile technique, growth and maintenance of cell lines, growth curves, transfection, cryopreservation, and cytotoxicity assays. Inquiry-based final project. Preference given to Bioengineering majors. Prereq: BMS 503 and 504.

BMS 623 - Histology: Microscopic Cellular Structure and Function
Credits: 4
Cellular structure, function, and physiology, as well as the interactions between cells in different organ systems, are examined at the microscopic level. Digital microscopic images are utilized to examine the cellular structure of all organ systems and the interactions between cells in these organs. Prereq: ANSC 511 and ANSC 512 or BMS 507 and BMS 508. Hybrid course with online lab.

BMS 635 - Preceptorial in Prehospital Care
Credits: 2
Practice and evaluation of prehospital care. Understand the roles of different provider levels in a healthcare setting. Students participate in ambulance activities, then discuss assessment and treatment of patients in the prehospital setting. Licensure by the New Hampshire Board of EMS required before course start date. Prereq: KIN 684 and KIN 685 or equivalents. May be repeated for a maximum of 4 credits. Cr/F.

BMS 640 - Phlebotomy Theory
Credits: 2
Theory and demonstration of procedures involved in blood collection with an emphasis on safety and professionalism. Hands-on practice of selected techniques. Special fee.

BMS 641 - Phlebotomy Clinical Internship
Credits: 1-2
Students obtain experience and proficiency in routine blood collection techniques at a health care facility (80 to 120 hours). Prereq: BMS 640. Special fee. Cr/F.

BMS 642 - Clinical Immunology and Serology
Credits: 2
Innate and specific immunity in the context of chemical and cellular responses to antigenic challenge. Also introduces the immunologic basis of autoimmunity, immune proliferation and deficiency, and hypersensitivity. Current clinical analytical methodologies and diagnostic criteria used to identify, differentiate and/or monitor these responses and conditions included. Prereq: BIOL 411 and BIOL 412 or BMS 507 and BMS 508 or ANSC 511 and ANSC 512.

BMS 643 - Clinical Serology Laboratory
Credits: 2
Performance, interpretation and application of serological techniques for the diagnosis of immune system disorders. Special fee.

BMS 644 - Clinical Hematology
Credits: 3
Human blood cell physiology in both health and disease. Includes benign and malignant conditions of red blood cells and white blood cells.

BMS 645 - Clinical Hematology Laboratory
Credits: 2
Analysis of whole blood for cellular components with special emphasis on differentiating benign from malignant processes, as well as cellular identification by morphologic characteristics and cytotoxic staining. Special fee.

BMS 646 - Clinical Hemostasis
Credits: 1
Introduction to hemostasis through evaluation of platelets, blood vessels, coagulation factors and fibrinolysis, including dysfunction and disease states. Pre- Coreq: BMS 644 or permission.

BMS 650 - Molecular Diagnostics
Credits: 4
Fundamental principles of molecular technology and techniques used in clinical laboratories such as nucleic acid extraction, DNA amplification, sequencing and hybridization, gel electrophoresis, and chromosome analysis. Prediction an detection of human disease (infectious disease, cancer, and other inherited disease), identity testing, molecular epidemiology, pharmacogenetics, and ethical issues. Previous knowledge of genetics and biochemistry lab techniques is highly recommended.
Attributes: Environment, Tech Society (Disc); Technology GP 3T

BMS 655 - Human and Animal Parasites
Credits: 3
Introduction to the parasitic process in humans and different animals indigenous to domestic and foreign areas of the world. Topics include epidemiology, infection, control, genetics, immunology as well as global economic consequences. Prereq: BMS 503-504.

BMS 656 - Immunohematology
Credits: 3
The immunology of blood, including blood group systems and the critical role they play in safe transfusion medicine. Additional topics include blood collection, component use, transfusion reactions, and transfusion-transmitted infections.

BMS 657 - Blood Banking Laboratory
Credits: 1
Hands-on experience in clinical blood banking practices including blood typing, antibody screening an identification, cross matching, and confirmatory testing. Special fee.
**BMS 658 - Medical Biochemistry**  
**Credits:** 3  
Use of body fluids to assess specific disease states including the pathophysiology of the disease, pre-analytical issues, analytical methodologies, and instrumentation. Topics include the biochemistry of analytes (amino acids, proteins, enzymes, tumor markers, non-protein nitrogen metabolites, carbohydrates, lipids, electrolytes, blood gases, etc.), clinical endocrinology, toxicology and therapeutic drug monitoring. Prereq: BMCB 658 and BMCB 659; BIOL 528 or equivalent.

**BMS 659 - Clinical Chemistry Laboratory**  
**Credits:** 2  
Measurement of blood analytes such as proteins, glucose, electrolytes, and cholesterol, etc. Screening for drugs in urine and evaluation of clinical significance in human specimens. Principles of spectrophotometry, immunoassay, point-of-care testing, chromatography, mass spectrometry, electrophoresis, automation, and ionic selective electrodes, with emphasis on instrumentation, quality control, and pre-analytical and analytical issues. Special fee.

**BMS 696 - Independent Study**  
**Credits:** 1-6  
In-depth studies under faculty supervision. Prereq: approval of the faculty. May be repeated up to a maximum of 16 credits. Cr/F.

**BMS 699 - Independent Study in Biomedical Science**  
**Credits:** 1-6  
In-depth studies under faculty supervision. Permission required. Cr/F.

**BMS 699W - Independent Study in Biomedical Science**  
**Credits:** 1-6  
In-depth studies under faculty supervision. Permission required. Writing intensive. Cr/F.

**BMS 702 - Endocrinology**  
**Credits:** 4  
Structure and function of vertebrate endocrine systems through the lens of physiology, biochemistry, and cell and molecular biology, with special reference to mammals. Current investigations of the body’s major endocrine glands, such as the brain, thyroid, pancreas, adrenals and gonads, as regulators and integrators of biological systems. BMCB 605 recommended. Prereq: BMCB 658 or BMCB 751.

**BMS 703 - Infectious Disease and Health**  
**Credits:** 4  
Principles underlying the nature of infectious disease agents, including representative parasites, fungi, bacteria, viruses, and prions. Established pathogens and emerging human and animal disease agents; will highlight zoonotic diseases. Will include epidemiology, pathogenesis, host immune response, disease transmission, treatment, and control. Weekly review and discussion of current world disease events using the Program for Monitoring in Emerging Infectious Diseases (ProMED) as a resource. Prereq: BMS 503 and BMS 504.

**BMS 704 - Pathologic Basis of Disease**  
**Credits:** 4  
Principles and mechanisms of disease at the cellular and tissue levels, including responses to cell injury, death and adaptation, inflammation, circulatory disturbances, disorders of the immune system, and neoplasia. ANSC 511 and ANSC 512 or BMS 507 and BMS 508 recommended.

**BMS 705 - Immunology**  
**Credits:** 3  
An introduction to the fundamental mechanisms of the immune system with applications in basic research, medicine and public health. Topics include the mechanisms of induction, regulation, and expression of the cellular and humoral immune responses, antigen-antibody reactions, immunogenetics, immunopathologies, and immunodeficiencies. Coreq: BMS 715 for BMS:MM majors only. Prereq: BMS 503 and BMS 504.

**BMS 706 - Virology**  
**Credits:** 3  

**BMS 707 - Virology Laboratory**  
**Credits:** 3  

**BMS 711 - Toxicology**  
**Credits:** 4  
Examination of mechanisms by which chemicals and other toxicants produce adverse effects in biological systems. Consideration of toxicant exposure and absorption, systemic and cellular distribution and metabolism, altered cellular mechanisms, and systemic and organ-specific effects of toxicity. Case-based discussions of toxicants affecting humans and other species in environmental and clinical contexts. Prereq: BMCB 658.

**BMS 712 - Grand Rounds**  
**Credits:** 2  
Interactive presentation and observation of disease through pathological examination of animals submitted to the NH Veterinary Diagnostic Lab for necropsy. Discussion of underlying pathogenesis of diseases and disorders. Examination of archived gross and digital tissue specimens. Integrates aspects of anatomy, physiology, microbiology, immunology, and other core sciences as well as medical ethics and social issues. Intended for those in pre-professional medical, dental, pharmacy, veterinary and biomedical fields. Prereq: BMS 507 and BMS 508 or ANSC 511 and ANSC 512. May be repeated up to a maximum of 4 credits.

**BMS 715 - Immunology Laboratory**  
**Credits:** 2  
This applied immunology laboratory course highlights both historic and current methodologies important for elucidation and diagnosis of immune function. Techniques used to study phagocytosis, antibody production, immunodiffusion, and T-cell function will be introduced. Applications of the antibody technologies to other scientific disciplines (ELISA, immunofluorescence microscopy, immunoblotting, etc.) will also be covered. Prereq: BMS 503 and BMS 504. Special fee.

**BMS 716 - Public Health: Food- and Water-borne Diseases**  
**Credits:** 4  
How and why food-borne and water-borne agents (virus, protozoal, bacterial and toxic material) are still prevalent within our society with a focus on the roles of government, disease and epidemiology, and sources of anthropogenic pollution. Field trips to wastewater plant and/or drinking water plant, town meetings and/or public policy hearings. Prereq: BMS 503 and BMS 504. Special fee. Lab. Writing intensive.

**Attributes:** Writing Intensive Course
BMS 718 - Mammalian Physiology  
Credits: 4  
Advanced study of the systems that control mammalian functions with emphasis on cellular and molecular mechanisms. Includes the nervous, muscular, cardiovascular, renal, gastrointestinal, and endocrine systems. Prereq: at least one semester of animal/human physiology, or one semester of anatomy and physiology. Permission required. Writing intensive.  
Attributes: Writing Intensive Course

BMS 719 - Host-Microbe Interactions  
Credits: 4  
An examination of the way microorganisms interact with their hosts, with an emphasis on the pathogenic and commensal organisms of humans. Course material is introduced via reading, analysis and group presentations of primary scientific literature. Students are not only introduced to different types of host-microbe interactions, but different methods, systems and model organisms used to study these interactions. Prereq: BMS 501 or BMS 503 and BMS 504; GEN 604.

BMS 720 - Mycology, Parasitology, and Virology  
Credits: 3  
Theoretical basis of the pathogenesis, epidemiology, and diagnosis of fungal, parasitic, and viral infections. Prereq: BMS 602 and BMS 603.

BMS 721 - Mycology, Parasitology, and Virology Laboratory  
Credits: 2  
Practical experience in medical mycology and parasitology diagnostic techniques. Isolation and identification of mycological and parasitological specimens. Principles and practices of proper specimen collections, analysis, and interpretation of results. Special fee.

BMS 730 - Ethical Issues in Biomedical Science  
Credits: 4  
An examination of the importance of scientific integrity in the biomedical sciences. Students are introduced to the ethical issues that scientists must be familiar with when conducting research. Issues include scientific record keeping, authorship and peer review, conflicts of interest, use of animals and humans in research, and recombinant DNA technology. Class is discussion-based, encouraging both an appreciation of established guidelines and an opportunity to critically examine them. Prereq: BIOL 411; GEN 604; BMS 503 and BMS 504. Writing intensive.  
Attributes: Writing Intensive Course

BMS 740 - Human Microbiome  
Credits: 4  
The human microbiome is a new, rapidly growing field of microbiology that has already made important contributions to the understanding of human health. This laboratory course utilizes current research methodology to investigate the microbiome of the human skin. Students gain hands-on experience in PCR, genomics, bioinformatics, and modern clinical identification techniques. They also generate primary data to make their own contribution to this important field of research. Prereq: GEN 604; BMS 501 or BMS 503 and BMS 504. Special fee. Lab.

BMS 750 - Case Studies  
Credits: 1-5  
Analysis of patient case studies are analyzed in up to four different areas: microbiology, hematology, clinical chemistry, or immunohematology. Correlation of patient history with clinical presentation and interpretation of clinical laboratory results. Learn to interpret given information, recognize abnormal results and their clinical significance, generate etiologic possibilities, and determine the best diagnosis for the patient condition including appropriate treatment and recommended follow-up testing. Writing intensive. Microbiology case studies. 2 credits. Prereq: BMS 602 and BMS 603; BMS 720 and BMS 721. Hematology case studies. 1 credit. Prereq: BMS 644 and BMS 645. Medical Biochemistry case studies. 2 credit. Prereq: BMS 658 and BMS 659. Immunohematology case studies. 1 credit. Prereq: BMS 656 and BMS 657.  
Attributes: Writing Intensive Course

BMS 751 - Advanced Clinical Microbiology Internship  
Credits: 5  
Instruction and clinical practice of microbiology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of proper specimen collection, clinical diagnosis testing, and interpretation of results. Special fee.

BMS 751W - Advanced Clinical Microbiology Internship  
Credits: 5  
Instruction and clinical practice of microbiology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of proper specimen collection, clinical diagnosis testing, and interpretation of results. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

BMS 752 - Advanced Hematology Internship  
Credits: 5  
Instruction and clinical practice of hematology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of special hematology procedures including diagnostic staining, advanced hemostasis studies, and evaluation of blood cells in disease states.

BMS 752W - Advanced Hematology Internship  
Credits: 5  
Instruction and clinical practice of hematology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of special hematology procedures including diagnostic staining, advanced hemostasis studies, and evaluation of blood cells in disease states. Writing intensive.  
Attributes: Writing Intensive Course

BMS 753 - Advanced Immunohematology Internship  
Credits: 5  
Introduction and clinical practice of immunohematology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced blood-banking procedures, including antibody identification, and component therapy.

BMS 753W - Advanced Immunohematology Internship  
Credits: 5  
Introduction and clinical practice of immunohematology related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced blood-banking procedures, including antibody identification, and component therapy. Writing intensive.  
Attributes: Writing Intensive Course
BMS 754W - Advanced Clinical Chemistry Internship
Credits: 5
Instruction and clinical practice of clinical chemistry related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced laboratory analysis of body fluid chemistries. Enzymology, isotopes, hormones, blood gases, and toxicology. Theory, operation, evaluation and maintenance of automated chemistry systems. Writing intensive.
Attributes: Writing Intensive Course

BMS 763 - Clinical Immunohematology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee.

BMS 761W - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee. Writing intensive.
Attributes: Writing Intensive Course

BMS 762 - Clinical Hematology Internship
Credits: 20
Advanced instruction in hematology and hemostasis at a local hospital or reference laboratory. Specialized tests such as automated cell counts, cytochemical analyses, and specialized hemostasis are covered. Special fee.

BMS 754 - Advanced Clinical Chemistry Internship
Credits: 5
Instruction and clinical practice of clinical chemistry related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced laboratory analysis of body fluid chemistries. Enzymology, isotopes, hormones, blood gases, and toxicology. Theory, operation, evaluation and maintenance of automated chemistry systems. Writing intensive.

BMS 761 - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee.

BMS 764 - Clinical Chemistry Internship
Credits: 20
Advanced instruction in clinical chemistry at a local hospital or reference laboratory. Analysis of carbohydrates, proteins, enzymes, lipids, hormones, electrolytes, blood gases, and drugs. Special fee.

BMS 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Biomedical Science lectures or labs. May be repeated up to a maximum of 4 credits. Permission required.

BMS 759H - Senior Honors Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biomedical sciences. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive.
Attributes: Writing Intensive Course

BMS 796 - Biomedical Research Internship
Credits: 4-16
Advanced instruction/participation in some aspect of biomedical research at an off-campus location. Student designs program of study with research supervisor and BMS faculty advisor. Permission required. May be repeated up to a maximum of 16 credits.

BMS 799H - Senior Honors Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biomedical sciences and in the Honors Program. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive.
Attributes: Writing Intensive Course

BMS 755W - Advanced Clinical Chemistry Internship
Credits: 5
Instruction and clinical practice of clinical chemistry related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced laboratory analysis of body fluid chemistries. Enzymology, isotopes, hormones, blood gases, and toxicology. Theory, operation, evaluation and maintenance of automated chemistry systems. Writing intensive.

BMS 752W - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee. Writing intensive.
Attributes: Writing Intensive Course

BMS 760 - Clinical Hematology Internship
Credits: 20
Advanced instruction in hematology and hemostasis at a local hospital or reference laboratory. Specialized tests such as automated cell counts, cytochemical analyses, and specialized hemostasis are covered. Special fee.

BMS 751W - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee. Writing intensive.
Attributes: Writing Intensive Course

BMS 765 - Clinical Immunohematology Internship
Credits: 20
Advanced instruction in clinical immunohematology at a local hospital or reference laboratory. Pre-transfusion testing, donor screening, phlebotomy and component therapy emphasized. Special fee.

BMS 766 - Clinical Chemistry Internship
Credits: 20
Advanced instruction in clinical chemistry at a local hospital or reference laboratory. Analysis of carbohydrates, proteins, enzymes, lipids, hormones, electrolytes, blood gases, and drugs. Special fee.

BMS 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Biomedical Science lectures or labs. May be repeated up to a maximum of 4 credits. Permission required.

BMS 795W - Investigations in Biomedical Science
Credits: 1-8
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply knowledge and techniques of the major to a specific problem or question. Permission required. May be repeated up to a maximum of 8 credits.

BUS 400 - Introduction to Business
Credits: 4
Introduces the study of business: examines the origins and development of American business, its place in a global economy, and its legal and ethical roles in modern society. Includes an overview of the functional areas of business such as finance, marketing, and organizational behavior. Designed for business majors as well as for students considering a major in business.

BUS 410 - Introduction to Entrepreneurship
Credits: 4
This course explores the structure and framework of entrepreneurial endeavors, both inside and outside of the business world. Questions to be addressed include: What is entrepreneurship? What is opportunity recognition and selection? How can you create and define connective advantage? How can you think about people in the entrepreneurial context? How can you garner support (financial and other) for an entrepreneurial venture? What do you do when nothing works as planned?

BUS 413 - Business Communication
Credits: 2
The principles of business communication relate to people in business or students planning a career in business. The course includes the study of the mechanics, form, style, and content of business letters, memos, e-mails, reports, proposals, and presentations.
BUS 430 - Introduction to Business Statistics
Credits: 4
The use of statistical methods for managerial decision making. Emphasis is on understanding concepts, including inferences from sample data and model formulation, as aids in decision-making. Lab: Using class-focused statistics problems, designed to provide opportunity to develop course-specific problem solving strategies; to adapt from mathematical to statistical thinking; to analyze and communicate significance and meaning of numerical outcomes; to develop course-specific test taking prowess. No credit for students who have received credit for BIOL 528; ADMN 420; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

BUS 453 - Leadership for Managers
Credits: 4
This course provides the critical element of analytical and intellectual examination and reflection of certain core issues in the practice of leadership. These objectives are achieved through open discussion, honest self-assessment, experiential exercises, and observation of real-life leadership practice. What is valued in this course are honest relationships and dialogue, risk-taking, dedication to the topic of leadership, initiative, and exploring the confusion and gray areas involved in these topics. Prereq: BUS 400. Only open to Business Admin majors.

BUS 455 - Management of Human Resources Management
Credits: 4
This course emphasizes the development of skills for dealing with selected aspects of human resource management. It aims to enhance the students' ability to apply theoretical concepts and alternative approaches for dealing with common issues concerning the human side of the enterprise. The course is geared to serve the needs of line and staff administrators in supervisory positions. Thus, it strives to train students and facilitate the development of better understanding of human resources issues as they relate to other managerial functions, organizational behavior, and the ability of managers and the organization to achieve prescribed goals. Prereq: ADMN 400 or permission of instructor.

BUS 492 - American Business History
Credits: 4
This course explores the historical development of American business institutions from the colonial era to the present. Thematic units organize the material focusing in turn on the most significant developments in the American business environment. The goal is a cumulative understanding of the development of the system. A great deal of our discussion and reading centers on the interaction of market operations and social values and how these interactions influenced the business environment at different times. It is the study of business in the context of past times that makes this course different from a course in business methods or institutions. Through the study of the past students develop their critical thinking and writing skills.

BUS 520 - Training and Development
Credits: 4
Students interested in career options in training and development of human resources development learn some of the theoretical bases, core practices, competencies, and issues of this professional field, as well as considerations for global training and development. They are exposed to research and discoveries on skills ans knowledge related to training and adult learning, and models for effective training. They learn the most current trends and issues in international training and development, including the push for management and leadership training for intercultural understanding. Prereq: BUS 400, BUS 455, or permission from instructor.

BUS 532 - Introduction to Financial Accounting
Credits: 4
Fundamental concepts of accounting and their impact on the business world and society as a whole. Emphasis on the recording of economic transactions, and preparation and analysis of financial statements. No credit for students who have had ACFI 501, ACFI 502, ADMN 502.

BUS 533 - Introduction to Managerial Accounting
Credits: 4
Emphasizes how organizational managers use accounting information to support their functions of planning, control, and decision making. Examples taken from corporations, small business, and not-for-profit organizations. No credit for students who have received credit for ACFI 503, ADMN 503. Prereq: BUS 532.

BUS 535 - Federal Taxation
Credits: 4
Introduction to the basics of the federal income tax rules for individuals. Basic concepts in federal taxation include gross income, exclusions, adjusted gross income, deductions, exemptions, and credits. Additional tax concepts included are cash and accrual methods, passive loss rules, and like-kind exchange. No credit for taking BUS 710 (Federal Taxation) or BUS 675 (Special Topic Federal Taxation).

BUS 565 - Selling and Sales Management
Credits: 4
The sales and selling management (SSM) course covers both the strategies, and the tactics, of selling, from the wide-ranging perspectives of sales people and customers. Management topics include: motivation and behavior, sales methodologies, channel optimization, recruiting and selecting representatives, training, compensation, and evaluation. Class also covers in-depth through the class practice sales tactics such as: prospecting and sales call planning, communicating the sales message, negotiating for win-win situations, overcoming objections, closing the sale, and follow-up management. Reflecting the nature of practice selling, the SSM course is offered in a short series of longer days. Prereq: none, but BUS 400 or BUS 610 is encouraged. No credit earned if credit earned for BUS 675 if listed as Selling and Sales Management.

BUS 600 - New Venture Creation
Credits: 4
An opportunity for students to identify and create a new business venture via a business plan. Elements of a business plan are examined as well as review of the other entrepreneurial course that move up the minor. Prereq: BUS 410, BUS 453, BUS 550, BUS 565.

BUS 601 - Financial Management
Credits: 4
Study of investment, finance, and dividend decisions of the business firm. Topics include capital budgeting, designing and issuing securities, management of working capital and evaluating manager performance. Prereq: completion of Introductory Business Core or permission.
BUS 603 - Intermediate Financial Accounting I  
Credits: 4  
The first of two in-depth financial accounting courses. Course provides student with the in-depth understanding of the theory, conceptual framework, and development of generally accepted accounting principles giving them the knowledge necessary to properly account for and present information in financial statements prepared for external users. Topics include the income statement, the statement of cash flows and balance sheet with an emphasis on asset accounts. Prereq: BUS 532 and BUS 533. No credit if credit received for BUS 675 Intermediate Accounting I.

BUS 610 - Marketing Principles and Applications  
Credits: 4  
Studies the process of planning and distributing goods and services to the marketplace. Topics include product planning, pricing, promotion, and distribution. Emphasis on the application of marketing principles to real world business cases. Prereq: BUS 400, ECN 412.

BUS 615 - Intermediate Financial Accounting II  
Credits: 4  
The second of two in-depth financial accounting courses. Course provides students with an in-depth understanding of the theory, conceptual framework, and development of generally accepted accounting principles giving them the knowledge necessary to properly account for and present information in financial statements prepared for external users. Topics include time value of money, current and non-current liabilities, leases, deferred taxes, retirement benefits, stockholders equity, earning per share, accounting changes and errors, and statement of cash flows. No credit if credit received for BUS 675 Intermediate Accounting. Prereq: BUS 532, BUS 533, BUS 603.

BUS 620 - Organizational Behavior  
Credits: 4  
Applications of behavioral science concepts to work settings. Topics include worker incentives and perceptions toward work, group versus individual decision making, conflict resolution, interpersonal and leadership skills, and the study of other behaviors relevant to effective managing of a business organization. Prereq: Completion of Introductory Business Core or permission. Writing intensive.  
Attributes: Writing Intensive Course

BUS 629 - Adv Managerial Accounting  
Credits: 4  
Further develop the basic managerial accounting knowledge base and skill set. Emphasis on the cost accounting concepts and techniques used to produce the information needed to make both planning and control decisions as well as cost analysis, overhead allocation, transfer pricing, and decision making. Prereq: BUS 532; BUS 533. No credit if received for BUS 675 Intermediate Accounting.

BUS 630 - International Management  
Credits: 4  
This course introduces students to the world of international business and management by studying cultural influences, government, and business structures in our global economy. Students also learn about trade relations, international finance and legal and labor agreements. Also covered, are topics on information needs, production systems, marketing and promotion, and career planning. Prereq: an international business course. Only open to Business Administration majors.

BUS 635 - Entrepreneurial Application through Enactus  
Credits: 3  
This is a three credit project driven course aimed at teaching students an understanding of free enterprise through the application of economic activities within the community. In addition, students will have special topic sessions on leadership, time management, public speaking, project management, and fundraising. Emphasis on teamwork. Course is open to all students who have junior or senior level standing, in and out of the business program. Prereq: junior or senior level standing. Special fee. Course may be repeated to a maximum of 12 credits.

BUS 640 - Business Communication and Conflict  
Credits: 4  
This course is designed to give students a comprehensive view of communication, its scope and impotence in business, and the role of communication in establishing a favorable outside the firm environment as well as an affective internal communications program. The various types of business communication media are covered. This course also develops an awareness of the importance of succinct written expression to modern business communication. Prereq: Completion of Introduction to Business Core and BUS 455; or Approval by instructor.

BUS 660 - Employment and Labor Law  
Credits: 4  
This course includes a study of the organizational rights of employees and unions and the governance of the use of economic force by employers and unions. Also studied is the duty to bargain collectively, the manner in which collective bargaining is conducted, and the subjects to which it extends, as well as the manner in which collective bargaining agreements are administered and enforced. The relationship between a union and its members is also treated. Prereq: Completion of Introduction to Business Core and BUS 455.

BUS 661 - Integrated Marketing Communication  
Credits: 4  
Integrated Marketing Communications (IMC) is a fast evolving field in business and marketing. This course covers the full spectrum of planning, budgeting, data collection and analysis, creative tools and models, including perspectives on both Business to Consumer and Business to Business, IMC. Special emphasis for: cultural, lifestyle ans ethnic sensitivity, global versus individual country tactics, and the fast evolving techniques of social and mobile marketing. All of the above are in the context of building brands and customer loyalty. Prereq: BUS 400 and BUS 610. No credit earned if credit earned for BUS 675 or BUS 685 if listed as Marketing Communication.

BUS 663 - Services Marketing and Operations Management  
Credits: 4  
This course is designed to prepare students for NH business and marketing careers by understanding the issues, challenges, and terminology inherent in industries as diverse as health care, construction, education, professional and technical offices, transportation, information and publishing, tourism, retailing, etc. Case studies are used throughout the term. We study many of these sectors, both as academicians and as consumers, to build a portfolio of understanding across divergent sectors. Students learn about services marketing strategies and management models that: increase customer satisfaction, improve customer retention and create dominant service brands that can create a competitive advantage for firms in any given industry. Prereq: BUS 400; BUS 610. No credit if credit earned for BUS 675 or BUS 685 if listed as Services Marketing.
BUS 665 - International Marketing Strategy Management
Credits: 4
The primary missions of the International Marketing Strategy Management (IMSM) course are to help students to: (1) develop understanding and knowledge of the important role international marketing plays in business (2) develop and improve global thinking, problem solving and integrative skills in a case based context (3) learn and apply the varying tools and models for evaluating when, where are how international marketing investments should be made. (4) understand and implement special approaches for cultural and ethnic differences in taste and attitudes, including trade legalities and regulations. Prereq: BUS 400 and BUS 610. No credit if credit earned for BUS 675 or BUS 685 if listed as International Marketing.

BUS 675 - Special Topics in Business Administration
Credits: 1-4
Provides students with an opportunity to explore a topic in business administration such as marketing, management, finance, or accounting. Topics will vary. Barring duplication of subject, may be repeated for credit. Prereq: Completion of Introductory Business Core or permission.

BUS 685 - Applications in Business Management
Credits: 4
Selected topics. Topics will vary. Barring duplication of subject, may be repeated for credit.

BUS 690 - Business Program Internship
Credits: 1-4
Supervised internship practicum within the private, public or non-profit sector. Focus is for the student to gain valuable insights into both professional and managerial positions, applying their college knowledge to a variety of roles and projects, influencing their career trajectory through ‘real world’ experience. Can be taken multiple times for credit, with credit varying from 1-4 hours based on time spent on the internship. For the 16 credit concentration, up to 4 BUS 690 credits can be applied. Credits beyond will be applied to general credits. Does not substitute for the internship required as part of the Business Capstone Course BUS 750 - Business Internship Senior Seminar. Offered, Fall, Spring and Summer. Cr/f.

BUS 691 - VITA Internship
Credits: 1-4
Internship for the application/completion of the basics of federal income tax rules for individuals. Must have previously completed Federal Taxation course (BUS 535, 710, BUS 675).

BUS 695 - Independent Study in Business
Credits: 1-4
Independent study exploring a special topic emphasizing the managerial, organizational, strategic, political or economic context(s) within which business decisions are made. Prereq: ADM 400 and permission of instructor. May be repeated for a maximum of 8 credits.

BUS 701 - Business, Government and Society
Credits: 4
Examines relationships between business and its broader social, political and economic contexts. Topics include business ethics, social responsibilities, the impact of globalization, the impact of government policies, and how business influences government. Prereq: BUS 620 or permission. Writing intensive.
Attributes: Writing Intensive Course

BUS 705 - Business Ethics
Credits: 4
Analysis of ethical issues that arise in contemporary business practice, both domestically and locally. Topics will include ethical issues concerning labor practices, marketing, financial services, environmental practices, human rights, and emerging technologies. Students will be taught to recognize, analyze, and address ethical challenges as they arise in their careers. Consideration will also be given to public policies and global ethics codes that inform business decision-making. Writing intensive.
Attributes: Writing Intensive Course

BUS 715 - Forensic Accounting
Credits: 4
This course will develop the students' understanding of what forensic accounting is and how it pertains to both civil and criminal matters. The participant in this course will gain a basic understanding of the characteristics of forensic accounting, the tools used in this area and the applications in the business world today, including financial statement and tax fraud, bankruptcy, divorce, identity theft, organized crime and litigation services. Pre- or Coreq: BUS 720.

BUS 720 - Auditing
Credits: 4
Introduction to the basics of auditing and other assurance services theory and practice. It provides an overview and understanding of the public accounting profession and the professional auditing standards. The class also integrates auditing material with previous financial and managerial accounting course. Prereq: BUS 532, BUS 533, BUS 603, BUS 615, BUS 629. No credit if credit received for BUS 675 Auditing.

BUS 725 - Financial Statement Analysis
Credits: 4
This course will examine: financial reporting, the quality of accounting information, and US GAPP and IFRS. The flexibility which is built into GAAP will be examined, noting how firms may take advantage of this flexibility to manipulate financial information while staying within the bounds of the rules for proper reporting. Also examined will be the relationships found within the reported numbers by comparing various elements of the financial statements. Prereq: BUS 720.

BUS 750 - Business Internship Seminar
Credits: 4
A seminar course in which students report on and discuss their business internship experiences. Selected group readings and written and oral student presentations. Prereq: ADM 620 and senior standing or permission. Special fee.

BUS 755 - Co-op Program
Credits: 1
This is a program that enables students to integrate classroom learning with practical, professional, experience in their field of study. Students majoring in professional and liberal arts programs experience the working world through an educationally managed agreement between the employer, the student, and the institution. Students need to have a minimum 3.0 cumulative GPA and have junior or senior level status.

BUS 760 - Applied Senior Project
Credits: 4
An independent study research project involving an in-depth exploration into a business topic chosen in consultation with a faculty member. Designed for students with extensive prior work experience. Prereq: BUS 620 and senior standing or permission. Special fee.
Chemical Engineering (CHE)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CHE 400 - Chemical Engineering Lectures
Credits: 1
Introduces the profession, the process engineer as designer and problem solver, and the goals of the chemical engineering/ENE-IP curriculum. Lectures by faculty and practitioners. Introduction to computer skills, engineering ethics, safety, and careers in chemical/environmental (IP) engineering. Field trips. Cr/F.

CHE 410 - Energy and Environment
Credits: 4
Attributes: Physical Science(Discovery); Technology GP 3T

CHE 410H - Honors/Energy and Environment
Credits: 4
Attributes: Physical Science(Discovery); Technology GP 3T

CHE 501 - Introduction to Chemical Engineering I
Credits: 3
Systems of units; material balances and chemical reactions; gas laws; phase phenomena.

CHE 502 - Introduction to Chemical Engineering II
Credits: 3
Energy and material balances for systems with and without chemical reactions; design case studies.
Attributes: Inquiry (Discovery)

CHE 601 - Fluid Mechanics and Unit Operations
Credits: 3
Continuity, momentum, and energy equations; laminar and turbulent flow in pipes; rheology. Applications to flow in porous media, filtration, and fluidization.

CHE 602 - Heat Transfer and Unit Operations
Credits: 3
Thermal properties of materials, steady-state and transient conduction and convection; radiation; applications to heat exchangers and process equipment.

CHE 603 - Applied Mathematics for Chemical Engineers
Credits: 4

CHE 604 - Chemical Engineering Thermodynamics
Credits: 3
Volumetric and phase behavior of ideal and real gases and liquids; cycles; steady-flow processes; chemical equilibrium.

CHE 612 - Chemical Engineering Laboratory I
Credits: 3
Selected experiments in fluid mechanics, heat transfer, and unit operations. Writing intensive.
Attributes: Writing Intensive Course

CHE 614 - Separation Processes
Credits: 3
Adsorption, Chromatography, Membrane Separations, Liquid-liquid, Extraction and Crystallization, requires junior level studies in chemical engineering or permission.

CHE 651 - Biotech Experience/Biomanufacturing
Credits: 4
Course begins by introducing students to the proteins and companies of biotechnology and to current good manufacturing practices. For remainder of the course, students use cell culture of bacteria, mammalian and yeast cells to produce human proteins using the tools and manufacturing standards, operating procedures of biotechnology, including upstream and downstream processing of proteins, and quality control of protein production. Permission required. Also listed as ANSC 651 and MICR 651.

CHE 695 - Chemical Engineering Project
Credits: 1-4
Independent research problems carried out under faculty supervision.

CHE 696 - Independent Study
Credits: 1-4
Prereq: permission of the adviser and department chairperson; granted only to students having superior scholastic achievement.

CHE 703 - Mass Transfer and Stagewise Operations
Credits: 3
Diffusion in gases, liquids, and solids; design and analysis of distillation, absorption, and other stagewise equipment and operations.

CHE 705 - Fossil Fuels and Renewable Energy Sources
Credits: 4
Processing and refining of coal, crude oil, natural gas, tar sands and shale oil. Biomass co-combustion, biofuel extraction, impediments to widespread utilization. Exploration of environmental issues with energy generation and consumption. Lab.

CHE 706 - Electrochemical Methods for Energy Applications
Credits: 4
Fundamentals and applications of thermodynamics of eletricochemical processes; kinetics of electrochemical reactions; electrocatalysis basics and current technologies for batteries, supercapacitors and fuel cells. Prereq: CHEM 683, CHEM 684.
CHE 707 - Chemical Engineering Kinetics  
Credits: 3  
Use of laboratory data to design commercial reactors. Continuous, batch, plug-flow, and stirred-tank reactors for homogeneous and catalytic multiphase reactions.

CHE 708 - Chemical Engineering Design  
Credits: 4  
Introduction to cost engineering. Application of acquired skills to design of chemical processes. Individual major design project required. Safety for industrial processes. Lab. Writing intensive.

Attributes: Writing Intensive Course

CHE 709 - Fundamentals of Air Pollution and Its Control  
Credits: 4  

CHE 712 - Introduction to Nuclear Engineering  
Credits: 4  
Development of nuclear reactors; binding-energy; radioactivity; elements of nuclear reactor theory; engineering problems of heat transfer, fluid flow, materials selection, and shielding; environmental impacts.

CHE 713 - Chemical Engineering Laboratory II  
Credits: 3  
Selected experiments in mass transfer, stagewise operations, thermodynamics, and kinetics. Writing intensive.

Attributes: Writing Intensive Course

CHE 722 - Introduction to Microfluidics  
Credits: 4  
Fundamentals and applications of microfluidics; scaling laws; microfabrication technology; hydrodynamics and electrodynamics; interfacial phenomena; capillary effects and diffusion; microvalves; micropumps; lab-on-a-chip systems; biochips. Prereq: fluids mechanics course or permission of instructor.

CHE 724 - Corrosion  
Credits: 4  
Fundamentals of corrosion processes in industrial and environmental settings; thermodynamics, kinetics, and mass transport in local corrosion cells; protection by electrochemical, chemical, surface modification or barrier methods; instrumental methods in corrosion science. Lab.

CHE 744 - Chemical Engineering Laboratory II  
Credits: 4  
Dynamic behavior of chemical engineering processes described by differential equations; feedback control concepts and techniques; stability analysis. Lab. (Also listed as ENE 752.)

CHE 761 - Biochemical Engineering  
Credits: 4  
Immobilized enzyme technology, microbial biomass production, transport phenomena in microbial systems, biological reactor design, process instrumentation and control, applications in separation and purification processes. Lab.

CHE 762 - Biomedical Engineering  
Credits: 4  
Overview of the biomedical engineering through topical studies such as drug delivery and sensors. Discussion of modern engineering methods through primary research sources. Prereq: differential equations and statistics. Writing intensive.

Attributes: Writing Intensive Course

CHE 766 - Biomaterials  
Credits: 4  
Fundamental principles of biology and material science, along with latest topics in biomaterials research. Topics include cell biology, wound healing, host response to foreign materials, polymers, hydrogels, diffusion and methods of material characterization. Specific medical applications of biomaterials such as orthopedic and dental implants, heart valves, artificial blood vessels, cochlear and opthalmic implants and tissue engineering. Laboratory. Students are expected to have some background in chemistry, mathematics, and high school biology. Also listed as BENG 766.

Chemistry (CHEM)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CHEM 400 - Freshman Seminar  
Credits: 1  
An introduction to the chemistry profession. Talks and workshops on the career of a chemist in academia, industry, medicine, law, teaching and government. Required for chemistry majors. May be repeated. Cr/F.

CHEM 403 - General Chemistry I  
Credits: 4  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 405. Required for chemistry majors.

Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

CHEM 404 - General Chemistry II  
Credits: 4  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Required for chemistry majors. Special fee. Lab. Prereq: CHEM 403 and 403L.

Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

CHEM 404H - Honors/General Chemistry II  
Credits: 4  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Required for chemistry majors. Special fee. Lab. Prereq: CHEM 403 and 403L. Honors course is designed for students who have enrolled in the honors degree program. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 402. Prereq: CHEM 403.

Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P
CHEM 405 - Chemical Principles for Engineers  
**Credits:** 4  
Basic principles; atomic structure, bonding, equilibria, and thermodynamics. Prerequisite: one year of high school chemistry, algebra, and knowledge of logarithms. Cannot be taken for credit if credit received for CHEM 403 and CHEM 404. Required for chemical engineering, mechanical engineering, electrical and computer engineering, environmental engineering: industrial majors. Not applicable for credit for majors in chemistry or biochemistry.  
**Attributes:** Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P  

CHEM 409 - Chemistry and Society  
**Credits:** 4  
Elementary survey of chemistry; integrates principles and applications. For students who do not intend to take any other chemistry courses and those interested in satisfying a general education science requirement. Not a prerequisite for any other chemistry courses. (Not offered every year.) Chemistry majors are excluded from taking this course.  
**Attributes:** Physical Science(Discovery); Physical Science GP 3P; Inquiry (Discovery)  

CHEM 411 - Introductory Chemistry for Life Sciences  
**Credits:** 4  
Fundamental and pragmatic aspects of chemistry, particularly as a foundation for nutritional biochemistry. Includes basics of bonding, acid/base behavior, reaction energy, intermolecular forces, stoichiometry, and equilibrium. High school chemistry not required. This course is not a replacement for CHEM 404 and is not an acceptable pre-requisite for CHEM 404. Special fee. Only open to the following majors: Dairy Management, Wildlife & Conservation Biology, Zoology, Nutrition, Nutr: Dietetics, Nutr: Nutrition & Wellness, Sust Agriculture & Food Systems, and Environmental Horticulture.  
**Attributes:** Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P  

CHEM 413 - General Chemistry Lecture I  
**Credits:** 3  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponents, and logarithms required. Special permission required. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, CHEM 403, CHEM 405, or CHEM 409.  

CHEM 414 - General Chemistry Lab I  
**Credits:** 1  
Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, CHEM 403, CHEM 405, or CHEM 409. Not open to Chemistry majors.  

CHEM 415 - General Chemistry Lecture II  
**Credits:** 3  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponents, and logarithms required. Cannot be taken for credit if credit received for CHEM 402 or CHEM 404. Prerequisite: CHEM 403 or CHEM 413.  

CHEM 416 - General Chemistry Lab II  
**Credits:** 1  
Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 402 or CHEM 404. Prerequisite: CHEM 403 or CHEM 414. Not open to Chemistry majors.  

CHEM 444A - Fire and Ice  
**Credits:** 4  
Embody a focus on the perception, movement, creation, understanding, and everyday use of heat. Examines historical evolution and controversy regarding the concept of heat across physical and life sciences.  
**Attributes:** Physical Science(Discovery); Technology GP 3T; Inquiry (Discovery)  

CHEM 444B - Symmetry in Nature, The Arts, and Daily Life  
**Credits:** 4  
The elements of symmetry and its occurrence and role in nature (bilateral symmetry in butterflies and animals; cylindrical symmetry in trees and volcanoes; helical symmetry in shells, proteins, and DNA; the role of symmetry in design of medicines); its role in art and design (textiles, advertising); and in our lives (design of houses, chairs, scissors). The course is non-mathematical and is open to students having little background in science. Writing intensive.  
**Attributes:** Physical Science(Discovery); Technology GP 3T; Inquiry (Discovery); Writing Intensive Course  

CHEM 444G - Green Goggles  
**Credits:** 4  
In this course, we investigate the principles and practice of Green Chemistry. Green Chemistry is the field of science that uses a principle-based approach to design (or redesign) chemical reactions and processes to make them more sustainable. In exploring green chemistry, many of the fundamental concepts of a general chemistry course are investigated in order to understand how chemists “green” chemical reactions. A service learning project is a major component of this course, where students reach out to the community at large and practice discovering the world through their new “green goggles”. Online technology is incorporated in this course to further disseminate student projects and work.  
**Attributes:** Physical Science(Discovery); Technology GP 3T; Inquiry (Discovery)  

CHEM 444O - The Story of Oxygen  
**Credits:** 4  
The course will deal with a single element - oxygen. We will examine the role that oxygen compounds play in the atmosphere, including the ozone layer, global warming, and smog. In addition, the history of oxygen can be seen as emblematic of the development of chemistry from the mystical philosophy of alchemy to a quantitative science. We will discuss the development of chemistry by considering the history of our understanding of the element.  
**Attributes:** Physical Science(Discovery); Physical Science GP 3P; Inquiry (Discovery)  

CHEM 496 - Freshman Independent Study  
**Credits:** 1-8  
Independent study for students who have not had organic chemistry. Designed for students who wish to pursue independent study topics, but do not have the experience to pursue lab research. Cannot be counted toward the major. (Not offered every year.)
CHEM 501 - Peer-led Team Learning in Chemistry  
Credits: 2  
Initial experience as peer instructional leader. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students. Permission required. Prereq: CHEM 403 or CHEM 404.

CHEM 502 - Advanced Peer-led Team Leadership in Chemistry  
Credits: 1  
Development and assessment of leadership skills. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students. Permission required. Prereq: CHEM 403 and CHEM 501.

CHEM 503 - Mentoring for Peer Team Learning  
Credits: 1  
Experienced leaders mentor a new leader in implementation of PLTL model, including initial co-leading and observational formative assessment. Mentors report on mentee development, visit other experienced leaders, and provide a final evaluation. Mentors lead their own weekly group and assist part-time in the PLTL leader meetings. Prereq: CHEM 501.

CHEM 517 - Quantitative Analysis  
Credits: 4  
Combines lecture, laboratory, and in-class problem solving to study solubility, acid/base, redox, and complexation reactions and their application for quantitative chemical measurements. Prereq: CHEM 404 or CHEM 405. Lab.

CHEM 518 - Quantitative Analysis Laboratory  
Credits: 1  
Volumetric methods with an emphasis on technique; separations; and selected instrumental methods such as potentiometry, spectrophotometry, atomic absorption, and gas chromatography. Prereq: CHEM 404 or CHEM 405. Special fee.

CHEM 545 - Organic Chemistry  
Credits: 3  
Introductory study of carbon compounds for those who desire a brief terminal course. This course is a one semester course only. CHEM 545 and 546 are not applicable for pre-med, pre-vet, pharmacological majors or minors requiring a year long course of organic. CHEM 545 and CHEM 546 cannot be used to meet semester 1 of the year long-organic course (CHEM 547 or CHEM 651). Prereq: CHEM 403 and CHEM 403L and CHEM 404 and CHEM 404L or CHEM 405. CHEM 545 and CHEM 546L are co-requisites and must be taken together.

CHEM 546 - Organic Chemistry Laboratory  
Credits: 2  
Introductory study of carbon compounds for those who desire a brief terminal course. Prereq: CHEM 404 or CHEM 405. Special fee. Lab.

CHEM 547 - Organic Chemistry I  
Credits: 3  
Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for chemistry and biochemistry majors. Prereq: CHEM 404; CHEM 405; and CHEM 547/ or permission. Students receiving credit for CHEM 547-548 may not receive credit for either CHEM 545 or CHEM 651 and CHEM 652. Only listed majors allowed: Chemistry (BS), Chemistry (BA), Bchmmolcebio, and Biochemistry.

CHEM 548 - Organic Chemistry II  
Credits: 3  
Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for chemistry and biochemistry majors. Prereq: CHEM 404; CHEM 405; and CHEM 547/ or permission. Students receiving credit for CHEM 547 and CHEM 548 may not receive credit for either CHEM 545 or CHEM 651 and CHEM 652. Only listed majors allowed: Chemistry (BS), Chemistry (BA), Bchmmolcebio, and Biochemistry.

CHEM 549 - Organic Chemistry Laboratory  
Credits: 2  
Special fee. Lab.

CHEM 550 - Organic Chemistry Laboratory  
Credits: 2  
Special fee. Lab.

CHEM 574 - Chemistry Across the Periodic Table  
Credits: 4  
Ninety-eight elements form the building blocks of every substance on Earth-they are elegantly organized into what we now call The Periodic Table. This course will discuss the structure/property/reactivity patterns inherent in The Periodic Table, their origins according to the quantum mechanical model of the atom, and how they are manifest in current research advancements and modern applications of main group element chemistry, transition metal chemistry, and the chemistry of solids and materials. Prereq: CHEM 404 or CHEM 405.  
Attributes: Inquiry (Discovery)

CHEM 651 - Organic Chemistry I  
Credits: 3  
Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Prereq: CHEM 404; CHEM 405; or permission. Students receiving credit for CHEM 651 and CHEM 652 may not receive credit for either CHEM 545 or CHEM 547 and CHEM 548.

CHEM 652 - Organic Chemistry II  
Credits: 3  
Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Prereq: CHEM 404; CHEM 405; and CHEM 651/ or permission. Students receiving credit for CHEM 651 and CHEM 652 may not receive credit for either CHEM 545 or CHEM 547 and CHEM 548.

CHEM 652A - Organic Chemistry II  
Credits: 3  
Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Prereq: CHEM 404; CHEM 405; and CHEM 651/ or permission. Students receiving credit for CHEM 651 and CHEM 652 may not receive credit for either CHEM 545 or CHEM 547 and CHEM 548.  
This course is for Chemical Engineers only.

CHEM 653 - Organic Chemistry Laboratory  
Credits: 2  
Special fee. Lab.

CHEM 654 - Organic Chemistry Laboratory  
Credits: 2  
Special fee. Lab.
CHEM 683 - Physical Chemistry I
Credits: 3
Topics may be chosen from: properties of gases, liquids, and solids; thermochemistry, and thermodynamics; chemical equilibria; reaction rates; quantum chemistry and spectroscopy. Prereq: CHEM 404 or CHEM 405; MATH 426. Pre- or Coreq: PHYS 402 or PHYS 407. Coreq: CHEM 685 and CHEM 686.

CHEM 684 - Physical Chemistry II
Credits: 3
Topics may be chosen from: properties of gases, liquids, and solids; thermochemistry, and thermodynamics; chemical equilibria; reaction rates; quantum chemistry and spectroscopy. Prereq: CHEM 404 or CHEM 405 and CHEM 683; MATH 426. Pre- or Coreq: PHYS 402 or PHYS 407.

CHEM 685 - Physical Chemistry Laboratory
Credits: 2
Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Prereq: CHEM 404 or 405; MATH 426. Pre- or Coreq: PHYS 407 or PHYS 402. Coreq: CHEM 683 and CHEM 684. Special fee.

CHEM 686 - Physical Chemistry Laboratory
Credits: 2
Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Prereq: CHEM 404 or 405; MATH 426. Pre- or Coreq: PHYS 407 or PHYS 402. Coreq: CHEM 683 and CHEM 684. Special fee.

CHEM 689 - Independent Study
Credits: 1-4
For exceptional students. Individual reading, writing, or laboratory work carried out under the tutelage of a faculty member. May be used to replace specific required courses in chemistry. Prereq: approval of the adviser and department chairperson. Credits to be arranged.

CHEM 698 - Seminar
Credits: 1
Student reports on topics of interest. Prereq: CHEM 548 or CHEM 652; CHEM 684. Writing intensive.
Attributes: Writing Intensive Course

CHEM 699 - Thesis
Credits: 4
Yearlong investigation in a selected topic, with background and experimental investigation. For chemistry majors who have completed CHEM 548, CHEM 684, and CHEM 762. Required for B.S. majors. Strongly recommended for B.A. chemistry majors. Prereq: 2.50 average and approval of department chairperson. Permission required. Lab. Two semesters of 4 credits each are required. Writing intensive.
Attributes: Writing Intensive Course

CHEM 708 - Spectroscopic Investigations of Organic Molecules
Credits: 3
Identification and structural analysis of chemical compounds by selected instrumental methods. Typical topics include proton and carbon-13 NMR spectroscopy, IR and UV spectroscopy, and mass spectrometry.

CHEM 755 - Advanced Organic Chemistry
Credits: 3
Methods of synthesis and determination of structure, including stereochemistry of complex organic compounds. Prereq: CHEM 548 or CHEM 652 or equivalent. Coreq for CHEM majors: CHEM 756.

CHEM 756 - Advanced Organic Chemistry Laboratory
Credits: 2 or 3
Synthesis and structural determination of complex organic compounds, techniques for the separation, determination of purity, and identification of compounds by spectroscopic and chemical means. Coreq for CHEM majors: 755. Special fee.

CHEM 762 - Instrumental Methods of Chemical Analysis
Credits: 2 or 3
Theory, instrumentation, and application of methods such as atomic absorption, coulometry, emission spectrophotography, gas and liquid chromatography, polarography, potentiometry, IR and UV-VIS absorption spectrophotometry, and mass spectrometry to chemical analysis. Prereq: CHEM 406 or CHEM 517; CHEM 684 as a pre- or co requisite; or permission.

CHEM 763 - Instrumental Methods of Chemical Analysis Laboratory
Credits: 2 or 3
Experimental parameters, error analysis, and applications of the methods covered in CHEM 762. Special fee.

CHEM 774 - Inorganic Chemistry
Credits: 3
Basic theoretical concepts and their applications to inorganic reactions and compounds. Prereq: organic chemistry; physical chemistry; or permission.

CHEM 775 - Inorganic Chemistry Laboratory
Credits: 2
In-depth instruction of selected techniques of synthesis and characterization of inorganic compounds. Emphasis on the analysis and presentation of results and experiment planning. Includes open-ended and collaborative projects. Special fee.

CHEM 776 - Physical Chemistry III
Credits: 3
Application of quantum theory to atomic electron structure, molecular structure, and spectroscopy. Advanced topics in physical chemistry. Prereq: CHEM 683-684. Special fee.

CHEM 795 - Special Topics
Credits: 2-4
New or specialized topics not covered in regular course offerings. May be repeated to a maximum of 4 credits. Prereq: permission.

Chinese (CHIN)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CHIN 400 - Conversational Chinese
Credits: 4
This course, for students with no previous training in Chinese, is designed to promote conversational skills in the target language. Communicative strategies are developed within the context of cultural components. Topics include those which enable students to function in China in everyday situations (e.g., food, leisure activities, transportation, business exchanges, tourism, and daily life). This course does not satisfy the foreign language requirement. It may be repeated for up to a maximum of 8 credits. Special fee.

CHIN 401 - Elementary Chinese I
Credits: 4
Aural-oral practice in meaningful contexts of the fundamental vocabulary and grammar of Mandarin Chinese. Reading and writing in Romanization (pinyin) and in Chinese characters. Special fee.
CHIN 402 - Elementary Chinese II
Credits: 4
Aural-oral practice in meaningful contexts of the fundamental vocabulary and grammar of Mandarin Chinese. Reading and writing in Romanization (pinyin) and in Chinese characters. Special fee.
Attributes: Foreign Language Requirement

CHIN 410 - Communicative Chinese for the Professions
Credits: 4
A skill-based course for students who wish to focus on the Chinese language in relation to the health fields, business, law, tourism, and social service. Helps students develop a practical understanding of China through communicative activities in specific fields. Does not satisfy the foreign language requirement. Special fee.

CHIN 420 - Summer Experience in China
Credits: 4
This course is designed to let students experience the Chinese language and culture first hand. It is conducted in China each summer. Students first travel to Beijing, Xian, Chengdu and Shanghai for about a week with a faculty. They then need to learn the basic Chinese conversation for two and a half weeks at Chengdu University. Students can choose to take either elementary or intermediate Chinese in Chengdu.

CHIN 425 - Introduction to Chinese Culture
Credits: 4
Taught in English. Aspects of the political, social and cultural life of China through readings, discussion, papers, and film. Strongly recommended for students planning an Asian Studies minor. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

CHIN 503 - Intermediate Chinese I
Credits: 4
Continuation of CHIN 401-402. Conducted entirely in Chinese, with work on listening comprehension, speech, reading, and writing of Chinese characters, with increasing attention to reading contemporary Chinese texts. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

CHIN 504 - Intermediate Chinese II
Credits: 4
Continuation of CHIN 401-402. Conducted entirely in Chinese, with work on listening comprehension, speech, reading, and writing of Chinese characters, with increasing attention to reading contemporary Chinese texts. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

CHIN 521 - Chinese Literature in Translation
Credits: 4
Representative works of master Chinese writers reflecting themes of 20th century China. Lu Hsun, Shen Ts'ung-Wen, Bei Dao, and others. Lectures, discussion, and readings in English. Special fee.

CHIN 631 - Advanced Chinese Conversation and Composition I
Credits: 4
Advanced spoken and written Chinese to attain aural-oral fluency. Advanced reading and composition. Prereq: CHIN 504 with a grade of C or better or permission of the instructor. Special fee.

CHIN 632 - Advanced Chinese Conversation and Composition II
Credits: 4
Advanced spoken and written Chinese to attain aural-oral fluency. Advanced readings and composition. Prereq: CHIN 631 with a grade of C or better or permission of instructor. Special fee.

CHIN 686 - Spring Semester in Chengdu China
Credits: 16
*Discovery World Cultures fulfilled by length of time in county*. The program provides a unique opportunity to study abroad in Chengdu, China during the spring semester. It enables upper-level students in the Chinese language program as well as students in other colleges to spend a full semester immersed in another language and culture. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

CHIN 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be taken only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

Civil & Environmental Engineering (CEE)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CEE 400 - Introduction to Civil Engineering
Credits: 4
Introduction to the civil engineering profession: structural, geotechnical, water resources, materials, and environmental. Overviews the civil project process including the creative design process, teamwork, bidding and construction. The relationship between civil engineering works and society including ethics, earthquakes, failures, successful signature structures, current events, and professional licensure. The production of professional engineering documents including writing tasks and calculations sets. Campus resources, the University system, and relationship between required curriculum, student objectives, and the civil engineering profession. Introduction to spreadsheet software, data analysis, and probability and statistics.
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

CEE 404 - Surveying and Mapping
Credits: 4
Attributes: Writing Intensive Course

CEE 420 - Environmental Engineering Lectures I
Credits: 3
Introduces the profession, the environmental engineer as planner, designer, problem solver, and interdisciplinary team player; and the goals of the environmental engineering curriculum. Lectures by faculty and practitioners. Introduction to computer skills required for environmental engineering. Engineering ethics.
CEE 444 - Housing - Everyone Needs a Place to Live  
Credits: 4  
A discussion of residential housing, whether from the larger societal view or from the viewpoint of an individual, involves more than just the concepts associated with engineering. In order for the discussion to be complete, one needs to include legislative issues, economic issues, land issue, energy issues and environmental issues along with a variety of engineering issues (construction, transportation, water, materials, environmental controls, etc.). Thus a major focus of the course will be to provide a student with an appreciation of breadth and complexity of the issues associated with providing housing.  
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

CEE 500 - Statics for Civil Engineers  
Credits: 3  
Introduction to statics with emphasis on civil engineering topics; two and three dimensional force systems; static equilibrium; friction; analysis of trusses and beams; centroids; and moment and shear diagrams for flexural members. Prereq: PHYS 407. Pre- or Coreq: MATH 426.

CEE 501 - Strength of Materials  
Credits: 3  
Strength of materials with emphasis on civil engineering applications. Virtual work; work and energy relationships; analysis of members subjected to flexure, torsion, and axial loads; stresses and strains; and stability of columns. Prereq: CEE 500 or ME 525.

CEE 502 - Project Engineering  
Credits: 3  
Techniques for financial analysis, and operation and management of engineering systems, engineering economics, material take-offs, estimating, scheduling, modeling physical systems, and decision-making. CEE major or permission.

CEE 520 - Environmental Pollution and Protection: A Global Context  
Credits: 4  
Introduces environmental science and engineering and the anthropogenic causes of environmental change. Emphasizes the causes, effects, and controls of air, water, and land pollution. The political, ecological, economic, ethical, and engineering aspects of environmental pollution and control are discussed. Field trips. Writing intensive.  
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Writing Intensive Course

CEE 620 - Fundamental Aspects of Environmental Engineering  
Credits: 4  
Application of fundamental concepts of mass balance in treatment processes. Physical, chemical, and biological aspects of pollution control, and design concepts for operations and processes used in environmental engineering are discussed. Concepts of engineering ethics are presented. Students participate in a design project that involves an oral presentation and written report. Prereq: CHEM 404, CEE 650, CEE 520; or permission. Writing intensive.  
Attributes: Writing Intensive Course

CEE 626 - Field Experience  
Credits: 1  
Based on appropriate career-oriented work experience in environmental engineering. Student can get one credit for field experience. A written final report is required as well as permission of student’s adviser.

CEE 627 - Internship  
Credits: 2  
Off-campus work in the environmental engineering field for on-the-job skill development. Needs to be supervised by an environmental engineering faculty member; and a proposal for the internship must be submitted and have permission of the ENE faculty prior to the start of the internship. Prereq: permission. IA (continuous grading).

CEE 635 - Engineering Materials  
Credits: 4  
Structural properties and applications of the various materials used in civil engineering projects, including steel, cement, mineral aggregates, concrete, timber, and bituminous materials. Microstructure and properties of common metals, plastics, and ceramics. Prereq: CEE major or permission, CEE 501 or ME 526. Lab. Writing intensive.  
Attributes: Writing Intensive Course

CEE 650 - Fluid Mechanics  
Credits: 4  
Properties of fluids, fluid statics, continuity, momentum and energy equations, resistance to flow, boundary layer theory, flow in open channels and piping systems, dimensional analysis, similitude, drag, and lift. Laboratory exercises on measurement of fluid properties, energy principles, flow resistance, discharge measurements, momentum, hydropower, groundwater flow, and settling of spheres. Prereq: PHYS 407, CEE Hydrology major; or permission. Lab. Writing intensive.  
Attributes: Writing Intensive Course

CEE 665 - Soil Mechanics  
Credits: 4  
Soil classification and physical properties. Permeability, compressibility, consolidation, and shearing resistance are related to the behavior of soils subjected to various loading conditions. Prereq: CEE 635, CEE 650, CEE major; or permission. Lab.

CEE 680 - Classical Structural Analysis  
Credits: 3  
Analytical stress and deflection analysis of determinate and indeterminate structures under static and moving loads by classical methods. Prereq: CEE 501, CEE major; or permission.

CEE 700 - Building Information Modeling  
Credits: 3  
Building Information Modeling (BIM) is the process of generating and managing project data during its life cycle by integrating 3D multidisciplinary drawings with dynamic scheduling and visualization. BIM provides a digital representation of project data to facilitate the exchange of information beyond the standard two dimensional plan set. This course introduces students to the fundamentals of model creation, scheduling, material take-offs, visualizations, and animations that improve the communication of information to potential clients. Pre- or Coreq: TECH 564. Open to CEE and EnvEngr:MunicipalProc majors only.

CEE 702 - Issues in Engineering Practice and Management  
Credits: 3  
Non-technical professional engineering topics including: participation in multidisciplinary teams, interpersonal and human resources skills, verbal and written communication skills, project management, marketing, ethics, professional licensure, professional liability, and contract administration. Prereq: seniors only; juniors with permission.
CEE 703 - Residential Construction
Credits: 3
Introduces innovations in residential design. Investigates heat loss, electrical usage, green energy alternatives, and construction procedures. Addresses private and subdivision construction and mortgage financing for residential properties. Considers planning, zoning and soil usage codes applicable to residential zoned areas. Each student prepares a set of construction drawings for a private home, and a subdivision layout.

CEE 704 - Transportation Eng & Planning
Credits: 3
Fundamental relationships of traffic speed, density, and flow applied to public and private modes of transport. Principles of demand forecasting and urban systems planning. Prereq: permission.

CEE 705 - Introduction to Sustainable Engineering
Credits: 3
This course begins with exploration of the precept that we live in, and must design engineering works for, a world with a finite supply of natural resources and with limited life support capacity. Tools for sustainability engineering are the focus of the course, which includes life cycle analysis and life cycle impact analysis, the metrics and mass and energy flow analyses used in the field of industrial ecology, and environmental management systems.

CEE 706 - Environmental Life Cycle Assessment
Credits: 3
This course teaches knowledge and hands-on-skills in conducting environmental life cycle assessment (LCA), which is a widely used technique by industries, academics, and governments. Students will learn to use popular LCA software (e.g. SimaPro), apply proper LCA techniques, critically analyze LCA results, and provide client-oriented suggestions during this course. Class time is primarily devoted to a combination of lectures and computer labs.

CEE 719 - Green Building Design
Credits: 3
This course gives an overview of green designs and sustainable practices in building construction. We will cover technical topics and requirements of a nationally recognized rating system (LEED), with a specific focus on Green Building Design and Construction. Students are introduced to basic building designs and systems related to sustainability. Additionally, they learn about green design topics such as site plans, water and energy efficiency, material and resources usage, environmental quality and renewable energy source. As an outcome of the course, students are able to assess and incorporate green technologies and designs into building projects.

CEE 720 - Solid and Hazardous Waste Engineering
Credits: 3
A thorough examination of the problems that exist in hazardous and solid waste management are presented in terms of the current regulations and engineering approaches used to develop solutions. Topics include risk-based decision making, transport and fate of contaminants, and the fundamental physical, chemical, and biological concepts, which make up the basis for technological solutions to these waste management problems. Case studies are used throughout the course to highlight key concepts and provide real-world examples. Pre- or Coreq: CEE 620 or permission.

CEE 721 - Environmental Sampling and Analysis
Credits: 4
Theory of analytical and sampling techniques used in environmental engineering. Topics include potentiometry, spectroscopy, chromatography, automated analysis, quality control, sampling design, and collection methods. Methods discussed in lecture are demonstrated in labs. Prereq: CHEM 404 and CEE 620 or permission. Lab.

CEE 721W - Environmental Samp & Analysis
Credits: 4
Theory of analytical and sampling techniques used in environmental engineering. Topics include potentiometry, spectroscopy, chromatography, automated analysis, quality control, sampling design, and collection methods. Methods discussed in lecture are demonstrated in labs. Prereq: CHEM 404 and CEE 620 or permission. Lab. Writing intensive.
Attributes: Writing Intensive Course

CEE 722 - Introduction to Marine Pollution and Control
Credits: 4
Introduces the sources, effects, and control of pollutants in the marine environment. Dynamic and kinetic modeling; ocean disposal of on-shore wastes, shipboard wastes, solid wastes, dredge spoils, and radioactive wastes; and oil spills. Prereq: CEE 620 or permission.

CEE 723 - Water Chemistry
Credits: 4
Emphasizes the use of chemical equilibrium principles and theory, calculations, and applications of ionic equilibrium stresses. Topics include thermodynamics, kinetics, acid/base, complexation, precipitation/dissolution, and redox equilibria. Computer equilibrium modeling is presented. Prereq: CHEM 404 or CHEM 405.

CEE 724 - Environmental Engineering Microbiology
Credits: 4
Concepts of environmental engineering microbiology. Topics include taxonomy of species important in environmental engineering processes; microbial metabolism, interaction, and growth kinetics in environmental treatment processes; biogeochemical cycling in water; and effects of environmental parameters on environmental engineering microbial processes. Laboratories focus on microbiological methods and laboratory-scale biological treatment experiments. Prereq: CEE 520 and CEE 650 or permission. Lab. Writing intensive.
Attributes: Writing Intensive Course

CEE 730 - Public Health Engineering for Rural and Developing Communities
Credits: 3
The application of environmental health engineering and sanitation principles in disease prevention and control are discussed. Special emphasis is given to areas of the world where communicable and related diseases have not yet been brought under control and to what can happen in more advanced countries when basic sanitary safeguards are relaxed. The following topics are covered: water-related diseases to include their transmission and control; safe water development, treatment, distribution and storage; and on-site wastewater treatment and disposal system.
CEE 731 - Advanced Water Treatment Processes  
**Credits:** 4  
The primary objective of this course is to provide the environmental engineer with an overview of physical-chemical and biological unit water treatment processes. Major emphasis is placed on the analysis and design of both conventional and advanced water treatment unit processes/operations.

CEE 732 - Solid and Hazardous Waste Design  
**Credits:** 4  
Selection, design, and evaluation of unit processes employed in the treatment of solid wastes and hazardous wastes will be studied. Topics include design of materials recovery facilities, landfills, waste-to-energy facilities and hazardous waste site remedial technologies. A group term project taken from a real-world project will be required. An oral presentation by the group and preparation of a final written engineering report including alternative evaluation, permits, scheduling and economic analysis will be required from each group. Prereq: CEE 720 or permission. Writing intensive.  
**Attributes:** Writing Intensive Course

CEE 733 - Public Infrastructure Asset Management  
**Credits:** 3  
The course provides a thorough examination of the growing engineering field of Public Infrastructure Assess Management (IAM). The course enables the student to design an IAM system. It touches upon all types of public infrastructure with a particular focus on water infrastructure for the semester design project. Students build upon their engineering economics and project engineering skills and use simple IAM software along with GIS applications. Practice leaders from the industry provide guest lectures throughout the semester. A focus on triple bottom line or the Societal, Environmental and Economic aspects of IAM are included. The format is a modified team based design learning experience providing practice in processing of technical lecture material, personal performance evaluation (frequent quizzes) and team based performance evaluation. Student groups will present their design to the class and provide a written engineering report. Pre- or Coreq: CEE 502 and CEE 620.

CEE 734 - Bioenvironmental Engineering Design  
**Credits:** 4  
Selection, design, and evaluation of unit processes employed in biological treatment of waters, wastewaters, and hazardous wastes. Preparation of engineering reports, including developing design alternatives and economic analysis, is required. Prereq: CEE 620 and CEE 724 or permission. Writing intensive.  
**Attributes:** Writing Intensive Course

CEE 735 - Properties and Production of Concrete  
**Credits:** 3  
Basic properties of hydraulic cements and mineral aggregates, and their interactions in the properties of plastic and hardened concrete; modifications through admixtures; production handling and placement problems; specifications; quality control and acceptance testing; lightweight, heavyweight, and other special concretes. Prereq: CEE 635 or permission.

CEE 736 - Asphalt Mixtures and Construction  
**Credits:** 3  
Specification of asphalt cements, aggregates and proportioning of mixture constituents for paving applications. Asphalt mixture design methods, production, construction, and quality control are discussed. Current new material production and construction technologies are introduced. Prereq: CEE 635.

CEE 749 - Pavement Design and Analysis  
**Credits:** 4  
Introduction to flexible and rigid pavement design and analysis for highways and airports. Examines design inputs, materials, analysis methods, design tools, and maintenance treatments. Prereq: CEE 635 and CEE 665 or permission.

CEE 750 - Ecohydrology  
**Credits:** 3  
Introduction to ecohydrological concepts in terrestrial and riverine systems. Topics include the historical practices, resource management impacts, hydrologic variability, and the relationships among water and ecology, vegetation, biology, geomorphology, and water quality. Prereq: CEE 754 or ESCI 705 or permission.

CEE 751 - Open Channel Flow  
**Credits:** 3  
Energy and momentum principles in open channel flow; flow resistance; channel controls and transitions; unsteady flow concepts and dam failure studies. Modeling with HEC programs. Prereq: CEE 650 or permission.

CEE 754 - Engineering Hydrology  
**Credits:** 3  
Hydrologic cycle, probability theory related to hydrology and the design of water resources structures, water law, flood discharge prediction, hydrograph development, hydraulic and hydrologic river routing, reservoir routing, theory of storage, reservoir operations, hydropower development, modeling of watershed hydrology with program HEC-1, HEC-HMS, multipurpose projects.

CEE 755 - Design of Pressurized Water Transmission Systems  
**Credits:** 4  
Theory developed for individual components to large complex systems. Analysis and designs of components and systems. Topics include: steady and unsteady closed conduit flow, valves and meters, pump requirements, pump selection, system planning and layout, water hammer, and system operation and maintenance. Pressure system modeling with program EPANET. Prereq: CEE 650 or permission.

CEE 757 - Coastal Engineering and Processes  
**Credits:** 3  
Introduction to small amplitude and finite amplitude wave theories. Wave forecasting by significant wave and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave-structure interaction. Design of coastal structures. Introduction to mathematical and physical modeling. Prereq: CEE 650 or permission.

CEE 758 - Stormwater Management Designs  
**Credits:** 3  
Historic review of stormwater management leading up to the current regulatory framework. Overview of stormwater management strategies, strategy selection, and the targeting of specific contaminants, contaminant removal efficiencies, construction and site selection, and system maintenance. Hydrologic concepts including watershed and storm characteristics, design hydrology (peak flows, storm and treatment volumes), hydrograph routing, and critical review of hydrology and drainage reports. Design and sizing of treatment systems including: conventional, BMPs, low impact development, and manufactured devices. Rainfall runoff calculations with US SCS TR55 model. Prereq: CEE 650 or permission.
CEE 759 - Stream Restoration
Credits: 4
The assessment, planning, design, engineering, and monitoring of stream and watershed practices intended to protect and restore the quality and quantity of flowing surface waters and stream corridors. Lecture material covers hydrology, geomorphology, and ecosystems, with the intent of understanding the variables associated with stream systems and their interplay. Students measure field variables and then are challenged with actual designs. Examples of stream restoration issues include: in-stream flow, dam removal, induced recharge, improvements to fish habitat, and channel stabilization. Prereq: CEE 650.

CEE 765 - Engineering Behavior of Soils
Credits: 4

CEE 766 - Introduction to Geotechnical Earthquake Engineering
Credits: 3
Overviews earthquake source mechanisms; magnitude and intensity; seismicity of the United States. Dynamics of simple structures; response spectra. Selection of design parameters; source, magnitude, input records. Measurement of dynamic characteristics of soils; site response, liquefaction, and ground deformation. Prereq: CEE 778 or permission.

CEE 767 - Geological Engineering
Credits: 3
Functional classification of rocks and rock masses, stereographic projection, engineering properties of rocks, and rock mechanics. The influence of geology in the design of underground excavations, tunneling, foundations, and rock slope engineering. Prereq: ESCI 401 or permission.

CEE 768 - Geo-Environmental Engineering
Credits: 3
Soil composition and structure; hydrogeology; attenuation and contaminant transport; containment design including landfills, geo-synthetics for liners and covers, leachate collection systems, vertical cutoff walls and stability analyses; geo-environmental site characterization and investigation using geotechnical and geophysical methods; ground water, soil and gas monitoring and sampling; remediation including in situ and ex situ techniques and treatment methods. Prereq: CEE 665 or permission.

CEE 778 - Foundation Design I
Credits: 4
Foundation design based on subsurface investigation and characterization using current methods of laboratory and in situ testing. Use of consolidation theory and bearing capacity theory for the design of shallow foundations including footings and rafts. Basic design of pile foundations. Earth pressure theory applied to design of retaining walls. Slope stability theory and applications. Prereq: CEE 665 or permission.

CEE 779 - Foundation Design II
Credits: 3
Advanced pile and pier design under vertical and lateral loads. Slope stability by circular and noncircular arc methods. Design of flexible bulkhead walls and mechanically stabilized walls. Excavation and dewatering. Soil and site improvement. Prereq: CEE 778 or permission.

CEE 780 - Matrix Structural Analysis and Modeling
Credits: 3
Modeling and analysis of determinate and indeterminate structures by matrix computer methods. Creation of matrix elements using compatibility, equilibrium, and constitutive relationships. Plane trusses, beams, frames, and space trusses. Prereq: CEE 680 or permission.

CEE 781 - Dynamics of Structures
Credits: 3

CEE 789 - Timber Design
Credits: 3
Introduces the design of timber structures. Structural properties of wood, determination of horizontal and vertical loads, horizontal and vertical load-resisting systems, and design of horizontal diaphragms, shear walls, beams, and columns. Bolted, screwed, and nailed connections. Prereq: CEE 680 or permission.

CEE 790 - Structural Design in Masonry
Credits: 3
Introduces the design of reinforced masonry structural members by the stress and strength method and considering deflection and other serviceability performance criteria. Includes development of wind and seismic load, curtain wall, shear wall, lintels and columns. Prereq: CEE 635, CEE 680, or permission.

CEE 791 - Reinforced Concrete Design
Credits: 4
Introduces the design of reinforced concrete structural members by the stress method and considering deflection performance. Includes loads, approximate analyses, slabs, beams, and columns. Prereq: CEE 635, CEE 680, or permission.

CEE 792 - Pre-stressed Concrete
Credits: 3

CEE 793 - Structural Design in Steel
Credits: 4
Introduction to steel member design, including horizontal and vertical members for design and analysis of buildings. Examines design inputs, material choice, analysis methods and design and construction methodologies. Prereq: CEE 635 and CEE 680.

CEE 794 - LRFD Bridge Design
Credits: 3
AASHTO LRFD Bridge Design Specifications using SI units. Design objectives, loads, load case analysis and selection, load distributions, static analysis, and design for axial loads, flexure, and shear. Design of slender columns, composite, beams, and plate girders. Prereq: CEE 791. Pre- or Coreq: CEE 793 or permission.

CEE 795 - Independent Study
Credits: 1-4
Seniors in good standing may pursue independent studies under faculty guidance. A written culminating report is required. Prereq: permission.
**Civil Technology (CT)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**CT 423 - Introduction to Surveying and Mapping**
Credits: 3
An introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.

**CT 425 - Surveying and Mapping Lab**
Credits: 2
A series of labs and recitations that provide an introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.

**CT 427 - 2D Computer Aided Design**
Credits: 4
The student designs fundamental design project work including site work and buildings, prepares plans using computer software (AutoCAD). Emphasis is on learning the software, basic design and plan requirements. Students then apply this knowledge to produce presentation drawings and develop proficient skills with this software. The student also works concurrently on course projects. 2-hr lec/2-hr rec.

**CT 428 - 3D Design, Modeling and Visualization**
Credits: 4
Provides foundational skills in critical thinking, design process and creative expression in three dimensions. Individual and group projects provide opportunities for enhancing spatial thinking, understanding and communication. Hand sketching, computer sketching, REVIT Building Information Modeling (BIM) software and ArcGIS Geographic Information System (GIS) software is utilized to develop a rich awareness of 3D spatial relationships in the natural and built environments.

**CT 432 - Applied Environmental Technology**
Credits: 4
The technical and administrative issues inherent to the management of our impact on the environment are covered. Topics to be covered include: examination of the evolution, design, and processes inherent to manage and treat stormwater, deliver potable water, collect and treat wastewater discharge, manage solid and hazardous waste, and promote recycling. Global climate change monitoring is also discussed when appropriate.

**CT 442 - Construction Surveying**
Credits: 4
This course applies methods and techniques learned in CT 423/424 to real world situations. The student works as part of a project team on a proposed construction site. Tasks and materials covered include: setting control, mapping of sites, design and layout of roadways, site planning, building and infrastructure layout, area and volume calculations. Class expands on use of survey equipment such as data collectors, RTK-GPS and land design computer software. Prereq: CT 423 and CT 424 with a grade of C- or better. 2-hr lec/1-hr rec/2-hr lab.

**CT 483 - Mechanical and Electrical Systems**
Credits: 4
Description, analysis and design application of conventional heating, ventilating, air conditioning, lighting and plumbing systems for residences. Electrical principles, laws, and installation with emphasis on the National Electrical Code. 2-hr lec/2-hr rec.

**CT 538 - Construction Contracting**
Credits: 4
Overview of administrative skills required to manage a construction process. Emphasis on project management through the entire construction and design process. Building codes and the ADA code included. 2-hr lec/2-hr rec.

**CT 541 - Legal Aspects of Surveying**
Credits: 4
The legal issues involved when performing a property boundary survey are presented. Ownership of land, the search for boundary evidence, methods of performing research and resolving conflicting information and disputes are discussed. Other topics include: An introduction to legal principles, statutes, case law, terminology, liability, ethics and standards relating to surveying. A course-long project is undertaken whereby research, the search for evidence, a field survey, boundary determination and a plat are completed. Prereq: CT 423 and CT 424 with a grade of C- or better. 2-hr lec/2-hr rec.

**CT 543 - Advanced Surveying and Mapping**
Credits: 4
A continuation of surveying topics not covered in CT 423 and CT 424. Specifically Geodesy, Map Projection Systems, State Plane Coordinates, Control Surveys, Static and Real Time Satellite Positioning, Astronomic Observations, Equipment Testing, Site Detail Mapping, Laser Scanning, Observation Adjustment Theory and 3D Least Squares Adjustment. Prereq: C- or better in CT 423 and CT 424. 3-hr lec/3-hr lab.
CT 548 - Advanced Surveying Computation  
Credits: 4  
Emphasis on how to perform the typical surveying computations encountered in the field. Use of surveying and mapping software and plotters for topographic mapping and subdivision design. Advanced GIS theory and applications including Photogrammetry and Remote Sensing. Field equipment testing and adjustment. Prereq: CT 423 and CT 424, CT 442, CT 543, minimum grade of C- or better in all, or permission. 3-hr lec/2-hr lab.

CT 551 - Statics and Materials  
Credits: 4  
Determining and evaluating physical properties of common building construction materials: wood, steel and non-ferrous metals, cement, concrete, brick, and bituminous materials. Application of materials to design of structural elements in beam and column applications, under various load conditions. Emphasis on appropriate material selection and optimization of design. Prereq: CT 581. 2-hr lec/2-hr rec.

CT 554 - Soils and Foundations  
Credits: 4  
Subsurface exploration, soil sampling, testing and evaluating subsurface materials, and their effect on foundations, site development, and construction. Hands-on laboratory component. Introduction to site excavation methods and foundation design. 2-hr rec/2-hr lab/rec.

CT 557 - Land Design and Regulations  
Credits: 4  
Hydrology of drainage and storm water runoff, basic concepts of hydraulic flow in pipes and channels, and overview of pump systems. Technical and regulatory requirements of designing residential water supply and septic disposal systems. Review of federal, state, and local ordinances with respect to construction and land development. 2-hr lec/2-hr rec.

CT 576 - Building Science/Residential Construction  
Credits: 4  
The study of inter-relationship of physical principles that affect the functionality and life span of a building; foundations, floor and framing systems, roofing styles and options, siding and interior finish work, and fenestrations. The materials and methodologies of residential construction with an emphasis on energy efficiency, air quality management, and moisture control. Includes safe and efficient operation of industry-standard power tools in hands-on shop environment (table saw, jointer, miter saw, etc.).

CT 581 - Architecture I History and Design  
Credits: 4  
Develops a basic understanding of American residential architectural history while developing architectural programming and design skills in a project based environment. Moderate CAD usage for project submissions 2-hr lec/2-hr rec.

CT 582 - Architecture II  
Credits: 4  
Studio application of principles and skills developed in the architectural concentration. Design of a complete shelter system into the design development phase. Prereq: CT 581. 2-hr lec/2-hr rec.

CT 591 - Studies  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples may include energy conservation, surveying, construction, or hydrographic surveying.

CT 592 - Studies  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples may include energy conservation, surveying, construction, or hydrographic surveying.

CT 597 - Work Experience  
Credits: 0  
Career-oriented work experience (10 weeks, full time) to include, but not limited to, architecture, construction, surveying, and mapping. Cr/F.

Classics (CLAS)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CLAS 401 - Classical Mythology  
Credits: 4  
Survey of myths and sagas of ancient Greece and Rome. No classical preparation necessary. Background course for majors in English, the arts, music, history, modern languages, classics. Special fee.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

CLAS 401H - Honors/Classical Mythology  
Credits: 4  
Survey of myths and sagas of ancient Greece and Rome. No classical preparation necessary. Background course for majors in English, the arts, music, history, modern languages, classics. Special fee. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

CLAS 402 - Hellenic and Roman Institutions  
Credits: 4  
Lecture, discussion. Introduction to ancient Greek and Roman literature. Emphasis on the institutions from the earliest period to the end of the classical age. Open to all students.  
Attributes: Literature, Phil, Ideas GP 8

CLAS 405 - Introduction to Greek Civilization  
Credits: 4  
A broad historical exploration of Greek civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and the Greek’s legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages. Special fee.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
CLAS 406 - Introduction to Roman Civilization
Credits: 4
A broad historical exploration of Roman civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and their legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages. Special fee. Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4

CLAS 411 - Elementary Hittite I
Credits: 4
Elements of grammar, reading of simple prose. Special fee.

CLAS 412 - Elementary Hittite II
Credits: 4
Elements of grammar, reading of simple prose. Special fee.

CLAS #414 - Elementary Sanskrit II
Credits: 4
Elements of grammar, reading of simple prose. Special fee.

CLAS 421 - Major Greek Authors in English
Credits: 4
Major classical authors such as Homer, the Tragedians of Athens, Herodotus, Thucydides, and Plato in the context of their civilization, from which so much of our contemporary culture derives. For students unprepared to read Greek. Background for majors in English, history, Latin, Greek, the arts, music, philosophy, modern languages. Open to all students. Special fee. Writing intensive. Attributes: Humanities (Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

CLAS 444 - Individual and Society in the Ancient World
Credits: 4
This class examines one of the major issues faced by people throughout history, whether and under what circumstances an individual should act against the wishes of society. The great philosophical and historical works of the ancient world shed light not only on how the Greeks and Romans approached the idea of personal responsibility but also on the assumptions we today make about human nature and the relationships on which society depends. No prior knowledge of the ancient world required. All readings are in English. Writing intensive. Attributes: Humanities (Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

CLAS 444C - Is Winning Everything? Competition in Ancient Sports
Credits: 4
An investigation of the competitive nature of Greek athletics and the Roman games. Focus is on how Greek and Roman views of the value of competition reflect the differences in their histories. Particular attention paid to the types of evidence and methods used by ancient historians. Open to all students. All readings in English. Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

CLAS 444D - Athens, Rome, and the Birth of the United States
Credits: 4
What did Washington, Jefferson, Adams (John and Abigail), Madison and Paine have in common? They were all instrumental in shaping the US political system, but they were also educated in the classics. When building the framework of our democratic republic, they continually looked to Athens and Rome as models, inspirations and warnings. The course examines ancient political systems and how they helped fashion our founder's notion of the ideal government and continue to do so. Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

CLAS 500 - Classical Mythology: Topics in World Literature
Credits: 4
Topics are chosen to introduce students to major themes and genres. (Also offered as FREN 500, GERM 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Writing intensive. Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

CLAS 506 - Introduction to Comparative and Historical Linguistics
Credits: 4
Major language families (primarily Indo-European) and the relationships among the languages within a family. Diachronic studies, methods of writing, linguistic change, glottochronology, etymological studies. Some language training and LING 505 desirable. (Also offered as LING 506.) Attributes: Social Science (Discovery); Social Science GP 7

CLAS 510 - Building Rome
Credits: 4
An introduction to the buildings and structures for which the Romans remain famous, such as the Pantheon, the Colosseum, and the aqueducts that allowed Rome to become a metropolis. A major focus is the connection between the changes in Roman society and the development of Roman architecture. Looks at both Rome and other important cities in the Roman Empire. All readings are in English. No prior knowledge of the ancient world required. Special fee. Attributes: FinePerformingArts (Discovery); Fine Arts GP 6

CLAS 511 - Special Studies in Greek History
Credits: 4
The course uses historical and literary sources in conjunction with the city of Athens itself and its archaeological remains to explore the history of a particular theme, cultural practice or institution in ancient Greek civilization. The topics changes with different instructors but always takes a fundamentally historical orientation to the material and the city, even if interdisciplinary approaches are incorporated into the coursework. CLAS 511 is offered only as part of a study abroad program. Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4; Inquiry (Discovery)

CLAS 520A - Classical Society, Politics and Ethics: Democracies and Republics
Credits: 4
We frequently use the terms “democracy” and “republic” to describe our own political system, but where did these words and ideas originally come from? This course examines the historical development of the original democracies in Greece (primarily Athens) and the Roman Republic, as well as the particular institutions and practices that were associated with each. Course will also cover the development of democratic and republican institutions in the modern world. No prerequisite. Open to all students. Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4
CLAS 520B - Classical Society, Politics and Ethics: Happiness and Ancient Views of the Good Life
Credits: 4
How did the Greeks and Romans define happiness and was happiness considered an essential component of the "good life"? How do ancient concepts of the "good life" influence later views of human flourishing and how do specific historical circumstances alter utopian visions of a life well lived? This course traces the concept of the "good life" from ancient Greece to today and challenges students to create their own vision of a "good life".
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

CLAS 520C - Classical Society, Politics and Ethics: Sports, Spectacle and Competition
Credits: 4
This course treats the details of athletic training and competition, but its primary focus is on investigating the importance of athletics to society and how athletics reflected the broader cultural values of the Greeks and Romans. Open to all students. All readings in English. Special fee.
Attributes: Historical Perspectives(Disc); Literature, Phil, Ideas GP 8

CLAS 520D - Classical Society, Politics and Ethics: Greek and Roman Religion
Credits: 4
This course traces the historical development of ancient Greek and Roman religion from its antecedents in Near Eastern, Minoan, and Mycenaean culture to the rise of Christianity in Rome's early imperial period. This course also introduces students to the methods and materials of historians of religion. Topics covered in this course include: changing conceptions of divinity, animal sacrifice, sanctuaries, festivals, death and the afterlife, divination, magic, and mystery cults.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

CLAS 525 - Greek and Latin Origins of Medical Terms
Credits: 4
Study of medical terminology. Exercises in etymology and the development of vocabulary in a context at once scientific, historical, and cultural. No knowledge of Greek or Latin is required. Useful to premedical, pre-dental, pre-veterinary, nursing, medical technology, and other students in the biological and physical sciences. Open to all students. Special fee.

CLAS 530A - Classical Literary Performance Genres: War and Adventure in Ancient Epic
Credits: 4
Storytelling has long been one of the primary means to preserve and transmit cultural ideas and traditions. In this course students read and analyze the earliest epic tales from the Greek and Roman period with a view toward understanding the roots and nature of epic, the myths it told, and the influence it has had on subsequent literature. No credit earned if credit received for CLAS 444B. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

CLAS 530B - Classical Literary and Performance Genres: Tragedy and Comedy on the Ancient Stage
Credits: 4
Investigations into the dramatic works of the Greek and Romans, the power of performance, and the cultural importance of stage productions. Readings include the tragedies of Aeschylus, Sophocles, and Euripides, and the comedies of Aristophanes, Menander, and Plautus. Ideal background for students of all theatrical and performance traditions. Open to all students. All readings in English. Special fee.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

CLAS 540A - Environment, Technology and Ancient Society: Sustaining Ancient Rome Ecology and Empire
Credits: 4
This course examines the interplay between the ancient Roman environment, Roman technological innovations, and the values of Roman imperial society. Examining Roman innovations in water supply, building technology, mining, and more, this course explores the ethical questions that arise through the use of ancient Roman technology, evaluates the effects of these technologies on the environment and Roman society, and determines whether Roman values encouraged or discouraged a responsible approach to technology and the environment.
Attributes: Environment, TechSociety(Disc)

CLAS 540B - Environment, Technology and Ancient Society: Roman Houses, Domestic Space and Public Life
Credits: 4
The Romans used the house as a communication technology for defining and expressing their identities in society and in the natural world. In this course, we examine literary and visual sources for Roman houses, apartments, villas, and palaces, and we compare and contrast the role of the house in the ancient world and in American society. We pay special attention to how domestic space shapes and is shaped by environment, politics, and culture.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

CLAS 540C - Environment, Technology and Ancient Society: Tech, Tools and Engineering in the Ancient World
Credits: 4
This course examines positive and negative impacts of ancient technological advances: engineering (fire, metallurgy), writing technology (scripts, including the alphabet, the emergence of papyrus and vellum), military technology (shipbuilding, defensive and offensive technologies, and navigation), artistic (invention of dyes, lost-wax methods of bronze casting), infrastructure (roads, bridges, and aqueducts), and monumentality (Stonehenge, Greek temples, and the Roman Colosseum). Focus on the ways in which societal and environmental factors influenced technological development and vice versa.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

CLAS 550A - Identities and Difference in the Ancient World: Greek and Roman Women
Credits: 4
The impact of women on society in Greece and Rome throughout Antiquity. The role of women in public, religious, and private life as well as their legal status through law codes. Men's views of women in different literary texts. Especially concentrating on the few existing texts written by women. All readings are in English. No prerequisite. Special fee. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

CLAS 550B - Identities and Difference in the Ancient World: Slaves and Masters
Credits: 4
Students explore the different ways slavery developed in the Greek and Roman worlds with an emphasis on the connections to other historical developments such as the practice of warfare, changes in political systems, and ancient views about human rights. To better understand the development of Greek and Roman slavery, we look at how the ancient systems compare to slavery in the American South and modern human trafficking.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
CLAS 550C - Identities and Difference in the Ancient World: Sex and Desire in Greece and Rome
Credits: 4
This course provides an introduction to ancient Greek and Roman conceptions of desire and sexuality, to how these conceptions developed and changed over time, and how they differ from modern ways of understanding sex, desire, and sexuality. Topics discussed include "romantic" love, attitudes towards homosexual practices, man-boy love, lesbianism, ancient views of "cross-dressing," and attitudes towards prostitution, among others. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

CLAS 551 - Greeks and Barbarians: Culture, Identity and Difference in the Ancient World
Credits: 4
Exploration of how the ancient Greeks' conceptions of foreign ethnicities and cultures -- most notably a contrast between European Greeks and various peoples from Asia, especially the Persians--evolved and was expressed in ancient literary and historical sources. Course examines how the Greeks came to think of themselves as a distinct people with shared attributes amidst non-Greeks, to all of whom they applied the generic term "barbaroi," or barbarians.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8

CLAS 560 - Sports, Spectacle, and Competition in the Ancient World
Credits: 4
This course treats the details of athletic training and competition, but it's primary focus is on investigating the importance of athletics to society and how athletics reflected the broader cultural values of the Greeks and Romans. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.
Attributes: Historical Perspectives(Disc); Literature, Phil, Ideas GP 8

CLAS 595 - Topics
Credits: 4
Introduction and elementary study related to linguistic study of Latin and Greek or relevant to Greco-Roman culture and history. Primarily for students unprepared to read Latin and Greek. Topics: A) Byzantine Heritage; B) Grammar: Comparative Study of English and the Classical Languages; C) Greek and Latin Origins of Legal Terms; D) Greek and Latin Origins within the English Language; E) Classical Backgrounds of Modern Literature; F) Classical Archaeology.

CLAS 596 - Topics
Credits: 4
Introduction and elementary study related to linguistic study of Latin and Greek or relevant to Greco-Roman culture and history. Primarily for students unprepared to read Latin and Greek. Topics: A) Byzantine Heritage; B) Grammar: Comparative Study of English and the Classical Languages; C) Greek and Latin Origins of Legal Terms; D) Greek and Latin Origins within the English Language; E) Classical Backgrounds of Modern Literature; F) Classical Archaeology.

CLAS 601 - Classical Myth II: The Power and Persistence of Myth
Credits: 4
An in-depth look at the myths of the Greeks and Romans, at the power of myth as a cultural force, and at the importance of myth both in the ancient period as well as the modern era. The focal point is on the myths of the Greeks and Romans, but the myths of other cultures are addressed. All readings are in English. Special fee. Writing intensive.
Attributes: Writing Intensive Course

CLAS 604 - Golden Age of Rome
Credits: 4
A study of the early Roman Empire as created by Augustus and his immediate successors; glorified by Vergil, Horace, and the poets of the Golden Age; and described by Tacitus, Suetonius, and the prose writers of the Silver Age. Open to all students. Prereq: any CLAS course or permission of instructor. Writing intensive.
Attributes: Writing Intensive Course

CLAS 686 - UNH in Greece Study Abroad
Credits: 6
Study abroad in Greece. Interested students should consult a Classics advisor. Prereq: must satisfy university requirements for studying abroad. Special fee. Cr/F. (IA grade will be assigned until official transcript is received from the foreign institution.) Contact james.parsons@unh.edu at the COLA Center for Study Abroad or visit www.cola.unh.edu/greece for more information.

CLAS 694 - Supervised Practicum
Credits: 2 or 4
Participants earn credit for suitable pre-professional activities, including high school outreach, assisting in undergraduate courses and work with professional organizations, museum work. Enrollment limited to juniors and seniors who are Classics, Latin, or Greek majors or minors and have above-average G.P.A.s. Writing assignments are required. Prereq: permission of instructor and program coordinator. Course does not count toward Classics, Latin, or Greek major or minor requirements. May be repeated up to a maximum of 8 credits. Special fee. Cr/F.

CLAS 695 - Special Studies
Credits: 2 or 4
Advanced work in classics. Research paper. Not open to freshmen and sophomores.

CLAS 696 - Special Studies
Credits: 2 or 4
Advanced work in classics. Research paper. Not open to freshmen and sophomores. Special fee.

College of Liberal Arts (COLA)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COLA 400 - Career Planning in the Liberal Arts
Credits: 2
An exploration of career paths and the strategies to market the skills and competencies associated with a liberal arts major. Restricted to COLA students. Cr/F.

COLA 401 - Undeclared Liberal Arts Advising Seminar
Credits: 1
This course is an introduction to the nature of academic knowledge, academic standards, and academic management skills essential for success in the University. This course is the foundation of the Undeclared Liberal Arts Advising program. The course is focused on exploring majors, academic success, and building a 4 Year Plan. Cr/F.

COLA 653 - Introduction to British Culture
Credits: 1
Students participating in the UNH London Program are required to take this course whose purpose is to familiarize them with British culture and the city of London. Variable topics. Pre- or Coreq: COLA 655.
COLA 654 - Intro to British Culture  
Credits: 1  
Students participating in the UNH London Program are required to take this course whose purpose is to familiarize them with British culture and the city of London. Variable topics.

COLA 655 - London Program  
Credits: 18  
Enables students to pursue a semester or academic year of in UNH's programs in London, England. Students must be admitted before enrolling in the course. For information and application forms, consult program secretary, 53 Hamilton Smith Hall. Special fee. IA (continuous grading) grade will be assigned until official transcript is received.  
Program fee. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

COLA 656 - London Program  
Credits: 16  
Enables students to pursue a semester or academic year of in UNH's programs in London, England. Students must be admitted before enrolling in the course. For information and application forms, consult program secretary, 53 Hamilton Smith Hall. Special fee. IA (continuous grading) grade will be assigned until official transcript is received.  
Program fee. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

COLA 657 - Justice Studies Budapest Program  
Credits: 16  
This program is designed to introduce students interested in the field to a broader appreciation of the cross-cultural perspective. Each fall, fifteen UNH students spend the semester in residence at the Budapest University of Economic Sciences in Budapest, Hungary, where they have an opportunity to witness first hand the evolution of a criminal justice system within a context of significant cultural, political, economic, and social change. Situated along the Danube in one of Europe's oldest cities, the program offers a unique educational experience to students interested in the study of criminology, law and society, and the administration of justice. Under the supervision of a UNH faculty member also in residence, students carry a four course load, two of which are taught by the UNH faculty member. All courses are taught in English. Eligible students must hold sophomore standing, have completed either SOC 515 or POLT 507 and one other course in the Justice Studies curriculum, and have a minimum cumulative grade point average of 2.50. Special fee. IA/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

COLA 658 - Humanities Spring Budapest Program  
Credits: 16  
Enables students to pursue a spring semester in UNH's program in Budapest, Hungary. The program is designed to provide undergraduates with an intensive study abroad experience focusing on modern Hungarian and Central European history and culture. Students study at Corvinus University and take courses taught by Hungarian and University of New Hampshire faculty. Under the supervision of a UNH faculty member in residence, students carry a four course load, two of which (HUMA 550 and HUMA 551) are taught by the UNH faculty member. All courses are taught in English. Students must be admitted before enrolling in this course. For information and application forms, consult the COLA Study Abroad Coordinator. IA (Continuous grading) grade is assigned until official transcript of courses taken a Corvinus University is received. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

Communication (CMN)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CMN 440A - Honors/Communication, Identity and Addiction  
Credits: 4  
Exploration of how diverse ways of talking about addiction contribute to our understanding – and ultimate approach toward – addictive behaviors. Focus will be on a relational approach to understanding the complex lives of human in their social contexts; it is an approach that challenges the dominant individualistic and scientific models of a person. Examination of the ways in which the moral, disease, and psychosocial models of addiction invite us to ignore larger social, cultural, and global issues that contribute to addiction.  
Attributes: Social Science (Discovery); Social Science GP 7

CMN 455 - Introduction to Media Studies  
Credits: 4  
Nature, development, and the effects of mass media. Overview of mass communication history and theory.  
Attributes: Social Science (Discovery); Social Science GP 7

CMN 455H - Honors/Introduction to Mass Communication  
Credits: 4  
Nature, development, and the effects of mass media. Overview of mass communication history and theory.  
Attributes: Social Science (Discovery); Social Science GP 7

CMN 456 - Propaganda and Persuasion  
Credits: 4  
Introduction to theories of propaganda and persuasion. Examination of symbolic strategies designed to secure or resist social and institutional change. Attention given to case studies of social, political, economic, and religious reformation. Special consideration of the ethical ramifications of such efforts.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

CMN 456H - Honors/Propaganda and Persuasion  
Credits: 4  
Introduction to theories of propaganda and persuasion. Examination of symbolic strategies designed to secure or resist social and institutional change. Attention given to case studies of social, political, economic, and religious reformation. Special consideration of the ethical ramifications of such efforts.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

CMN 457 - Introduction to Language and Social Interaction  
Credits: 4  
An introduction to the study of the conversational basis of social reality. Presents an overview of interpersonal communication processes and the ways in which they influence the formation of identity, personal relationships, gender, interactional patterns, conflict, culture, and power. Readings and class material from a variety of authors in the communication discipline as well as related fields in the humanities and the social sciences.  
Attributes: Social Science (Discovery); Social Science GP 7
CMN 500 - Public Speaking
Credits: 4
Performance course buttressed by practical theories of public discourse. Focus on analysis of speaking situations and audiences, message construction, presentation, and critical evaluation. Does not count towards the CMN major.

CMN 504 - Introduction to Argumentation
Credits: 4
Persuasive discourse as inquiry and advocacy grounded in practical inductive and deductive reasoning. Discovery, analysis, and testing of practical arguments. The nature and function of proof. Some emphasis on applied presentation. Prereq: CMN 456 with C or better, or by permission. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

CMN 505 - Analysis of Popular Culture
Credits: 4
Locates the development of popular cultural artifacts and practices within the 20th-century social history of the U.S. Examines the political-economic forces that underpinned the commercialization of art, leisure, sports, and other elements of culture in industrial and postindustrial America. Prereq: CMN 456 with C or better, or by permission.
Attributes: Inquiry (Discovery)

CMN 507 - Introduction to Rhetorical Theory and Analysis
Credits: 4
Major precepts of rhetorical theory. Application of those precepts in analysis and understanding of a wide range of human communication. Consideration of how precepts and issues of rhetorical theory apply to contemporary issues and problems. Prereq: CMN 456 with C or better, or by permission.
Attributes: Inquiry (Discovery)

CMN 519 - Advertising as Social Communication
Credits: 4
Social role of advertising, public policy debates concerning advertising, influence of advertising on culture, and methods of analyzing advertising messages. Prereq: CMN 455 with C or better, or by permission.

CMN 556 - Persuasion and Public Problems
Credits: 4
Examination of communication about public problems using major precepts from classical and contemporary rhetorical theory. Application of those precepts discloses how persuasive communication frames public problems and constrains responses to them. By the end of the course students will know how to conduct a rhetorical analysis of public discourse and how to use results from that analysis to criticize, improve, or participate in deliberations about public problems. Prereq: CMN 456; Communication, CMN: Media Practices, and CMN: Business Applications majors only. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

CMN 562 - Collaborative Leadership in the 21st Century
Credits: 4
This course grounds the study of interaction in groups via theories of inter-organizational collaboration. Students will leave this course with a very specific set of knowledge and skills related to dialogue, principled negotiation, constructive conflict, consensus decision making and appreciative inquiry. Lessons focus on the development of a responsible ethic regarding how to share power among diverse group members. This ethic prepares you to lead collaborative groups in organizations, communities, and as family members. Prereq: CMN 457 with a grade of C or better or permission.

CMN 567 - Gender, Race, and Class in the Media
Credits: 4
The purpose of this course is to introduce students to contemporary critical scholarship on the construction of gender, race, and class in the media - particularly popular media. Subjects such as the portrayal of ethnic groups, ideal body image, blue collar men, and gay, lesbian, bisexual, and transgender groups are case studies. This course is one that introduces students to performing communication analysis. Prereq: CMN 455; Communication, CMN: Media Practices, and CMN: Business Applications majors only.

CMN 572 - Analysis of Language and Social Interaction
Credits: 4
This mid-level course, students develop the observational and analytic skills necessary for the in-depth study of interaction in a variety of everyday and institutional social settings. Settings may include dialogue, multiparty interaction, non-verbal communication and embodiment, identity talk, and communication in organizations. Special attention to developing the reading and research skills used in upper level interpersonal communication courses. Prereq: CMN 457 with C or better, or by permission.

CMN 575 - Research Practicum
Credits: 1-4
Student engagement through direct participation in faculty research projects. Elective credits which do not count towards the major. Instructor permission required. May be repeated for a maximum of 8 credits. Prereq: CMN 455, CMN 456, CMN 457, and permission. Cr/F. Communications majors only.

CMN 588 - Analyzing Institutional Interaction
Credits: 4
Examinations of institutional interactions in emergency services, justice/law, medicine, family school encounters, journalism and politics. Shows how the work of society gets done through interaction. Students get hands-on experience analyzing persons' conduct in these interactions. This course is designed to develop students' analytic skills in studying social interaction in institutions, using recorded data in the form of naturally-occurring interactions in these settings. Prereq: CMN 457.
Attributes: Inquiry (Discovery)

CMN 596 - Special Topics in Media Studies
Credits: 4
Selected topics not covered by existing courses in media studies. Topics vary; course descriptions are available in department office during preregistration. May be repeated for credit if topics differ. Prereq: CMN 455 with C or better, or by permission.
CMN 597 - Special Topics in Rhetorical Studies
Credits: 4
Selected topics not covered by existing courses in rhetorical studies. Topics vary; course descriptions are available in department office during registration. May be repeated for credit if topics differ. Prereq: CMN 456 with C or better, or by permission.

CMN 598 - Special Topics in Interpersonal Studies
Credits: 4
Selected topics not covered by existing courses in interpersonal communication. Topics vary; course descriptions are available in department office during registration. May be repeated for credit if topics differ. Prereq: CMN 457 with C or better, or by permission.

CMN 599 - Internship
Credits: 1-4
Internships are designed to integrate classroom study and supervised practical experience in a work setting. Each student is required to write a series of reports focusing on aspects of the work experience that are related to coursework in the Communications Department. These assignments are designed to enhance a student's ability to reflect critically on the internship experience and to merge theory and practice. Assignments are available, depending on the number of credits granted (1-4). Students are expected to hold the common exam time (TR, 1240-2) open for occasional meetings. Before starting the internship, students must submit a written proposal to both the work supervisor and the faculty sponsor. The proposal should include detailed information on the duties and responsibilities to be undertaken at the internship site and on the goals and learning objectives as relevant to the Communication Department curriculum. May be repeated for a maximum of 8 credits. Prereq: CMN 455, CMN 456, CMN 457, or permission. Cr/F.

CMN 600 - Public Speaking as a Civic Art
Credits: 4
Performance course buttressed by the traditional civic art of rhetoric. Focuses on analysis of speaking situations and audiences, message of construction, presentation, and critical evaluation using major precepts of rhetorical theory. Theoretical and critical issues in the context of rhetorical practices. Prereq for CMN majors: CMN 455, CMN 456, CMN 457, and 500-level courses, or permission; prereq for non-majors: junior or senior standing. Writing intensive.
Attributes: Writing Intensive Course

CMN 602 - Theories of Interpersonal Communication
Credits: 4
Analysis and criticism of contemporary perspectives on interpersonal communication. Theories and concepts, issues, and research models are examined as they contribute to our understanding of social interaction. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 607 - Persuasion in American Politics
Credits: 4
Study of the forms and strategies of persuasive discourse employed by contemporary American political leaders. Analysis of important political addresses of the 20th century, with attention to theoretical and critical issues in political communication and public address. Discussion of the status of rhetoric in modern politics, and the impact of persuasive discourse on campaigns, policy decisions, crisis management, political scandal, and the national identity. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 615 - Public Opinion and Mass Communication
Credits: 4
Examines the historical development of the 18th century public sphere and its relationship to the press. Traces the transformation of the press from an ideological grounding to a commercial base. Analyzes the consequences of contemporary mass consumer-oriented media on the public sphere and democratic life. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 627 - Great Speakers and Speeches
Credits: 4
Historical and critical survey of masterpieces of oratory examining the rhetorical situation and artistic features of great works of spoken discourse. Demosthenes, Cicero, Edmund Burke, Daniel Webster, Frederick Douglass, Abraham Lincoln, and Elizabeth Cady Stanton may be among the orators studied. The course will engage students in critical assessment of eloquence by emphasizing study of historical circumstances, ethical choices, and artistic virtue of the most effective and admired public speakers in Western tradition. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 630 - Psychology of Communication
Credits: 4
Recasts human psychology as a communicative accomplishment, offering a critique of the individualist tradition. Emphasis on the ways in which identity, knowledge, values, and beliefs are constructed in daily social engagements and the pragmatic, political, and moral implications of this view. Implications for our major cultural institutions such as education, health, and politics. Prereq: CMN 455, CMN 456, and CMN 457 with C or better and two 500-level courses with a C- or better, or by permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 634 - Media and Politics
Credits: 4
The goal of this course is to study the role of the media in American politics, and what media evolution means for future politics. Topics such as political campaigns, media effects, news reporting, framing terrorists, etc. are studied in depth. Timely topics such as "are the media liberal or conservative?" are debated in class. Research projects and papers study questions related to important social issues such as women in the media. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level CMN courses; Only open to Communication, CMN: Media Practices, and CMN: Business Applications majors. Writing intensive.
Attributes: Writing Intensive Course

CMN 637 - Controversy and Reasoning in Law
Credits: 4
Uses rhetorical analysis and criticism to evaluate communication practices in courtroom disputes. Compares conventional American litigation to alternative methods. Explains how stages of a trial shape communication options and norms. Illustrates common subjects and forms for judicial reasoning. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level courses. Writing intensive.
Attributes: Writing Intensive Course
CMN 647 - Rhetorical Criticism of Media
Credits: 4
Use of rhetorical approaches and methods in the analysis and criticism of contemporary forms of visual media culture. Students examine the social, political, and aesthetic implications of contemporary media forms from within a framework of rhetorical theory. Emphasis on practical analysis employing various rhetorical approaches with a goal of understanding persuasive elements in contemporary media (including television, film, print & broadcast advertising, internet, and social media). Prereq: CMN 455, CMN 456, CMN 457, and two 500-level communication courses. Writing intensive.
Attributes: Writing Intensive Course

CMN 650 - Critical Perspectives on Film
Credits: 4
Advanced, focused study of film theory as cultural practice. Topics vary from year to year and with instructor. May be repeated for different topics. Focus may range from general considerations of film theory, criticism, and history, to specific analyses of selected genres, directors, national cinemas, and periods. Course descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457, CMN 550, ENGL 533, or permission. Special fee. May be repeated for credit.

CMN 650W - Critical Perspectives on Film
Credits: 4
Advanced, focused study of film theory as cultural practice. Topics vary from year to year and with instructor. May be repeated for different topics. Focus may range from general considerations of film theory, criticism, and history, to specific analyses of selected genres, directors, national cinemas, and periods. Course descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457, CMN 550, ENGL 533, or permission. Special fee. Writing intensive. May be repeated for credit.
Attributes: Writing Intensive Course

CMN 666 - Conversation Analysis
Credits: 4
Exploration in how participants in interpersonal communication display their orientation to the fundamental orderliness of conversational sequences in everyday, institutional, and mass media settings. Basic concepts covered include the interactional co-construction of turn-taking, repair, overlap, openings, closings, silences, adjacency, pairs, disagreement, preference, and the role of various linguistic, paralinguistic, and nonlinguistic features in the conversation process. Prereq: CMN 455, CMN 456, CMN 457, CMN 550, ENGL 533, or permission. Special fee. Writing intensive. May be repeated for credit.
Attributes: Writing Intensive Course

CMN 680 - Perspectives on Culture and Communication
Credits: 4
Critical interpretation of culture focused on the communication practices and resources of diverse groups. Examination of the reciprocal relationship between communication practices, forms of culture, and cultural identity. Exploration of the conditions necessary for dialogue between differing cultural groups. Emphasis on the role of communication in constructing race, power, cultural domination, and globalization. Prereq: CMN 455, CMN 456, and CMN 457 with C or better and two 500-level courses with a C- or better, or by permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 696 - Seminar in Media Studies
Credits: 4
Variable topics in media research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission.

CMN 696W - Seminar in Media Studies
Credits: 4
Variable topics in media research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 697 - Seminar in Rhetorical Study
Credits: 4
Variable topics in rhetorical research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.

CMN 697H - Honors/Seminar in Rhetorical Study
Credits: 4
Variable topics in rhetorical research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 698 - Seminar Interpersonal Studies
Credits: 4
Variable topics in interpersonal research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 702 - Seminar in Interpersonal Communication Theory
Credits: 4
In-depth concentration on a particular theoretical orientation in interpersonal communication. Original works are read. Theoretical orientation varies by semester. May be repeated for different topics. Prereq: CMN 455, CMN 456, and CMN 457 and two 500-level CMN courses. Writing intensive.
Attributes: Writing Intensive Course

CMN 703 - Seminar in Rhetorical Theory
Credits: 4
Focused study of problems in rhetorical theory construction through examination and criticism of selected theoretical frameworks used to explain or interpret rhetorical phenomena. May be repeated for different topics. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
CMN 730 - Family Communication  
Credits: 4  
Exploration of the patterned communication in families and the ways in which our understanding of these patterns can be utilized to understand and transform unwanted family interactions. Varying cultural discourses of family communication are used to explore the dialogic construction of family and self. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. Writing intensive.  
Attributes: Writing Intensive Course

CMN 732 - Communication Theory  
Credits: 4  
Terminology, concepts, theoretical models, functions, levels, modes, and media in human communication. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. Writing intensive.  
Attributes: Writing Intensive Course

CMN 737 - Principles of Rhetorical Crit  
Credits: 4  
Application of critical principles to message evaluation. Consideration of the varying roles, methods, and standards of rhetorical critics. Special attention to major perspectives on rhetorical criticism including Neo-Aristotelian, historical, dramatistic, generic, literary, and psychological. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 742 - Dialogue and Teamwork  
Credits: 4  
This course is about team building, alternative conflict resolution, and creative problem solving. We will explore the idea that, contrary to prevailing cultural assumptions, a significant factor in our achievements at work and play can be traced not to our individual attributes but rather to the relationships that we develop in our conversations with others. We will examine the dialogic basis of these relationships, drawing on a range of philosophic traditions and practical activities that highlight the social basis of thought. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 756 - Rhetorics of Display  
Credits: 4  
This course examines a selection of displays with the goal of acquiring perspective for understanding and evaluating how they engage with people who come into contact with them. Displays examined range among oratory, photographs, advertisements, films, architecture, monuments, and statuary, public demonstrations, and presentations of self. Attention is given to questions about identity and belonging, authenticity and simulation, and public memory. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 757 - Public Address and the American Experience  
Credits: 4  
Study of persuasive texts set firmly in their historical and social contexts. Discussion of the impact of popular discourse on historically significant political and social events. Analysis of how leading persuasive speakers and writers responded to the fundamental questions confronting their age and articulated ideas in a manner that provoked or motivated their community, state, or nation. Historical period studied will vary. May be repeated for credit to a maximum of 12 credits when topic varies. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level CMN courses or permission. CMN majors only. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

CMN 758 - Media Analysis and Criticism  
Credits: 4  
Approaches and methodologies for media criticism. Analysis of sample studies. Students work on original media analysis projects. Prereq: CMN 455, CMN 456, CMN 457 and any two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 760 - Mediation  
Credits: 4  
This course will explore different theories and models of mediation as they inform the broader topic of conflict resolution. Emphasis will be on models that examine relational processes as opposed to models that provide a list of skills or techniques for mediation. To that end, the course will focus on transformative dialogue as a mode of mediation and conflict resolution rather than on compromise or consensus models. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 762 - Organizational Communication and Society: What to Expect Out There  
Credits: 4  
This course will demonstrate how communication is key to understanding how organizations work. Through such topics as culture, identity, structure, systems, globalization, and change, the course examines the ways individuals and society are shaped by interactions with the organizations. Through case studies, we examine the way people communicate in organizational contexts, and the social, ethical, and sometimes political implications. Prereq: CMN 455, 456, 457 and any 2 500-level classes.  
Attributes: Writing Intensive Course

CMN 765 - Police Talk  
Credits: 4  
How do police get people to comply with a communicative action? How do they ask questions to investigate, to problem-solve, and to get a confession during an interrogation? How do citizens resist or cooperate with police action? This course examines questions such as these to understand basic communication processes, and how these processes are utilized in talk-in-interaction between police and citizens. This is a hands-on research methods course that instructs students in the methodology of video analysis, and has students pursue their own research projects in the content area of police-citizen interaction. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission; CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course
CMN 772 - Seminar in Media Theory  
Credits: 4  
Detailed analysis of major theories related to the interaction of communication technologies and society. Application to current examples in politics, advertising, and entertainment. May be repeated for a different topic. Prereq: at least one 600-level course or permission. Writing intensive.  
Attributes: Writing Intensive Course

CMN 788 - Opening Everyday Interaction  
Credits: 4  
Examination of how everyday human social interactions begin. Provides hands-on experience analyzing verbal and nonverbal social actions during naturally occurring interactions, including telephone conversations and especially face-to-face encounters between previously acquainted and unacquainted persons socializing and/or doing work. Explores how parties use the openings of interactions to (re)-create and maintain social relationships. Encourages students to develop intellectual curiosity about everyday social life. Prereq: CMN 455, CMN 456, CMN 457, (2)-CMN 500 levels or permission. Open to CMN majors only. Writing intensive.  
Attributes: Writing Intensive Course

CMN 795 - Independent Study  
Credits: 1-4  
Advanced individual study in rhetoric, media, or interpersonal communication. Project to be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Prereq: permission.

CMN 795W - Independent Study  
Credits: 1-4  
Advanced individual study in rhetoric, media, or interpersonal communication. Project to be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Prereq: permission. Writing intensive.  
Attributes: Writing Intensive Course

CMN 796 - Comm-Entary Journal  
Credits: 1  
Serve on the editorial board of student run communication journal. Elective credit which does not count toward the major. May be repeated for a maximum of 2 credits. Prereq: CMN 455, CMN 456, CMN 457, or permission. CMN majors only. Cr/F.

CMN 799H - Honors Thesis  
Credits: 4  
Written thesis based on substantial and original research under the direction of a full-time member of the communication faculty. Thesis must be in the form and style of a publishable, scholarly work. Restricted to seniors seeking honors in major.

Communication Arts (CA)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CA 444 - Manipulating Media: Exploring Image and Sound Aesthetics  
Credits: 4  
An introductory exploration of moving image and sound with an emphasis on discovering how aesthetic choices impact media messages. Students investigate aesthetic principles by finding, making, and working with digital media, animation, video, audio, and film. This is not a production class, but rudimentary, hands-on production is taught. No credit earned if credit received for CA 502. Special fee.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery)

CA 450 - Introduction to Public Speaking  
Credits: 4  
Theories of rhetoric applied to the practice of speech composition, oral performance, and critical evaluation. Focus on student speeches for a variety of situations and audiences. Not for credit if credit earned for CMN 500.

CA 500 - Media Writing  
Credits: 4  
An introduction to business, creative and freelance writing for a variety of media. Writing, editing and rewriting in areas such as video scripts, short magazine articles, audio scripts, ads, press releases, news, short one-act plays, blogs and more. Prereq: ENGL 401. Writing intensive.  
Attributes: Writing Intensive Course

CA 501 - Internship/Communication in the Urban Community  
Credits: 1-4  
Field-based learning experiences. Connects students to the urban community and integrates their classroom education within a business or organizational setting. Students work under the direction of a faculty advisor and workplace supervisor to fulfill the obligations of the workplace internship plan and to complete individually-designed academic projects. Projects must be approved in advance by the faculty advisor. Open to matriculated students with a GPA of 2.50 or better and junior standing. Permission of instructor required. May be repeated for up to 8 credits, with 4 credits maximum accepted toward satisfaction of requirements for the CA major. Cr/F.

CA 502 - Image and Sound  
Credits: 4  
Image and Sound is a foundation course in the aesthetics of motion picture and sound production. This course explores the aesthetic principles that are used to communicate stories, emotions and messages in popular media. Students will study film, television and new media and survey production methods. This is not a production course per se, but is particularly helpful to students interested in video and film production. No credit for students who have completed CA 444.

Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

CA 503 - Techniques for News Reporting  
Credits: 4  
Focuses on the essential elements of fact-based reporting and discussion of the principles and ethics of independent journalism. Techniques include determining the different perspectives and voices that belong in a story, developing research skills for locating information, strategies for reconciling conflicting information, and procedures for effective interviewing. Prereq: ENGL 401 plus CMN 455; or permission.
CA 504 - Film Criticism  
Credits: 4  
An introduction to the practice of film criticism. Critique of film as both art form and medium of communication. Examines the process of film production, basic principles of film form, techniques of film style, and major approaches to film criticism. Prereq: ENGL 401 and CMN 455 or permission. Special fee.  

CA 506 - Gender  
Credits: 4  
How gender is created, maintained, repaired, and transformed through communication in particular historical, cultural, and relational contexts. Examines a variety of topics including the relationship between sex and gender, language, cultural mythologies, identity, health care, sexuality, and strategies for resisting conventional gender definitions. Prereq: CMN 457 or permission.  

CA 507 - Relational Violence  
Credits: 4  
This course explores relational violence and its impact on individuals, families, and communities. Topics include relational violence as a continuum, types of relational violence (domestic, gangs, hate crimes), causes of relational violence, PTSD, responding to relational violence, silencing, compassion fatigue, and restorative justice. Prereq: CMN 457 or permission. Special fee.  

CA 508 - Conflict in Relational Communication  
Credits: 4  
Introduces communication theories relevant to the study of conflict interaction in interpersonal relationships. Considers interpersonal concerns contributing to conflict such as power, face-saving, and goals. Examines behaviors that affect our ability to resolve conflict, and strategies, such as mediation, to resolve conflict. Develops the ability to diagnose productive and destructive conflict patterns in relationships. The course is both theoretical and practical in orientation. A combination of lecture, discussion, case studies, and in-class group assignments are employed. Prereq: CMN 457.  

CA 512 - Screenwriting  
Credits: 4  
Examines the preproduction phase of moving image media, focusing especially on the art and business of writing for the screen. Covers the process of developing student work from original story idea to completed, first draft screenplay. Topics include script formats, narrative structure, plot development, characterization, style, and marketing strategies. Prereq: ENGL 401, CMN 455 or CMN 456; or permission. Cannot receive credit if credit received for CA 512 Scriptwriting. Writing intensive.  
Attributes: Writing Intensive Course  

CA 514 - Fundamentals of Video Production  
Credits: 4  
Beginning electronic field production using digital video and nonlinear editing formats. Covers basic aesthetic principles and practices of video communication. Introduces techniques for effective image and sound recording in the field, fundamentals of shot and sequence construction, and basic postproduction practices on nonlinear editing systems. Prereq: ENGL 401, CA 502 or CA 444, CMN 455, or permission. Preference given to CA majors. Special fee.  

CA 515 - Advanced Video Production  
Credits: 4  
Advanced electronic field production and post production using digital video and nonlinear editing formats. Emphasizes original student work of increasing conceptual, formal, and technical complexity that begins to incorporate a wider range of images, sounds, and editing techniques. Prereq: CA 514 or permission. Preference given to CA majors. May be repeated, with permission, to a maximum of 8 credits. Special fee.  

CA 516 - Speechwriting  
Credits: 4  
The strategies of art and persuasion in the craft of professional speechwriting for a variety of modes, audiences, and exigencies. Examines a wide array of famous speeches from political, literary and cinematic sources to uncover the fundamental theories of rhetoric and persuasion at work in these texts. Application of these theories and strategies of persuasion in original speechwriting projects. Prereq: ENGL 401 plus CMN 456; or permission.  

CA 517 - Fundamentals of Audio Prod  
Credits: 4  
This course provides students with an introduction to the history, principles, and techniques of audio production. Through hands-on experience, class projects, and homework assignments, student learn how to use voice, music, writing, sound effects, and audio hardware and software to design sound and tell a story. This class will also look at the radio industry and how sound design is being used by a variety of industries. Special fee.  

CA 518 - Advanced Topics in Digital Media Production  
Credits: 1-4  
Advanced topics in digital media production not covered in depth in other course offerings. Topics vary and change. May be repeated for up to 12 credits if topics differ. Prereq: CA 514 or CIS 515 or permission.  

CA 519 - Advanced Screenwriting  
Credits: 4  
Advanced examination of the preproduction phase of moving image media, focusing on the art and business of screenwriting. Develops students works from original idea through the numerous steps to completed, second draft screenplay. Advanced topics and genres may vary. Prereq: CA 512. May be repeated, with permission, to a maximum of 8 credits. Cannot receive credit if credit earned for CA 520 Special Topics in Communication: Advanced Screenwriting.  

CA 520 - Special Topics in Applied Communication  
Credits: 1-4  
New or specialized topics in applied communication not covered in regular course offerings. Topics vary; descriptions listing course content and any prerequisites are available during preregistration. May be repeated for credit if topics differ for a maximum of 12 credits. Prereq: contingent on topic. Writing intensive when topic is advanced feature scriptwriting.  

CA 522 - Graphic Design I  
Credits: 4  
Presents fundamentals of Graphic Design while touching on foundation art theories and vocabulary. Through examination and analysis of professional graphic design, students become familiar with the relationship between graphic design process, creative solutions and critical thinking. Students work with a variety of traditional and digital media, with an emphasis on the process of design, composition and typography. Class includes a significant amount of computer lab and creative studio time.
CA 523 - Graphic Design II
Credits: 4
Students explore the creative process that helps them communicate ideas and information to a target audience. Higher level, theoretical ideas related to communication, design and cognitive theories will be introduced. Students will engage in intermediate design projects through software and traditional media. Class includes a significant amount of computer lab and creative studio time. Prereq: CA 522, or permission of instructor.

CA 525 - Media Programming
Credits: 4
Process of program planning for electronic media. Covers the contexts – social, cultural, institutional, economic, technical, regulatory – within which decisions concerning program selection, form, content, and scheduling are made. Prereq: CA 522, or permission of instructor.

CA #526 - Organization of Newswork
Credits: 4
Examines news as socially situated discourse. The professional norms, work routines, representational practices, ideologies, and ethics of news producing organizations. Prereq: CMN 455 or permission.

CA 527 - History of Film
Credits: 4
The history of film since 1948. Historical analysis of the development of cinema since the emergence of television, both in the United States and abroad. Selected topics include cinema and the cold war, international stylistic movements, film exhibition, the decline of the studio system, new technologies, third cinema, globalization and economic consolidation. Prereq: CMN 455 or permission. Special fee.

CA 531 - History and Organization of Advertising
Credits: 4
Examines the development of advertising in historical context, focusing on the evolving structure and function of advertising agencies, market research practices, advertising design, anthropological approaches to advertising and consumer culture, and contemporary policy issues. Prereq: CMN 455 or permission.

CA 532 - Typography I
Credits: 4
Typography is the formal study of letterforms. Students gain perspective into this important field by starting with a focus on early visual communication, symbols, handwritten letterforms, calligraphy and the development of movable type. Students explore ways to categorize type into families and identify and define similarities and subtle differences in classical typefaces. Class discussions, projects, critiques and lectures focus of typography terminology, as well as the aesthetic discipline of using type effectively as designer.

CA 533 - Typography II
Credits: 4
This course builds on skills learned in Typography I. The goal is to explore type as a two dimensional element and to explore the elements and components needed to design multiple page projects. Emphasis is given to both the creative process and the production/printing process. Students learn to communicate with graphic design using page layout, hierarchy, grids, and the relationship of typography and imagery. Students learn how to use InDesign, Illustrator and Photoshop. Prereq: CA 532, or instructor permission.

CA 536 - LGBT Images and Perspectives
Credits: 4
This course explores the perspectives and images of lesbian, gay, bisexual, trans, and queer individuals, from antiquity through modern day. Topics include: history, aging, religion, the media, and the law. Prereq: CMN 457 or permission of the instructor; majors only.

CA 537 - Health Communication
Credits: 4
Introduces students to foundation concepts and theories in health communication, and their application to real-world settings. Explores how health communication is embedded in social, cultural, economic, political, technological, and historical contexts. Examines a range of issues, including the meaning of health and illness; physician-patient interactions; caregiving; the impact of illness on identity; media campaigns; popular cultural narratives; end of life; and ethics. Discusses healthcare careers. Prereq: CMN 457 or permission.

CA 539 - Communicating in Families
Credits: 4
Explores the role of communication in the creation, maintenance, and transformation of family systems. Focus on how meanings of "family" are constructed through familial and popular discourses, and the consequences these communication practices have for lived experience. Prereq: CMN 457 or permission.

CA 540 - Public Relations
Credits: 4
This course provides students with an overview of the field of public relations, including its history, ethics, and current practices. Will include case studies of major public relations issues that have occurred both historically and in recent years; individual and class projects that enable students to determine how best to plan for and respond to public relations issues; and guest practitioners who work in various fields, including business, government, the non-profit sector, and education. Prereq: CMN 456 or CMN 455 or permission.

CA 542 - Social Media for Organizations and Business
Credits: 4
Focuses on the history, development and practical use of social media for organizational and business communications. A primary focus is on the latest social media tools and their use in developing social media campaigns. Hands-on student work is an important part of the course. Prereq: ENGL 401, CMN 455 or CA 500 - or permission. Cannot receive credit if earned for CA 520 Social Media for Organizations and Business.

CA 550 - Special Topics in Communication Organization, History, and Policy
Credits: 1-4
New or specialized topics in the organization, history, and policy of communication practices not covered in regular course offerings. Topics vary; descriptions of course content and any prerequisites are available during preregistration. May be repeated for a maximum of 12 credits if topics differ. Prereq: contingent on topic.
CA 600 - Research Methods in Media
Credits: 4
Qualitative research practices for the study of mass communication. Tools for investigating the production contexts of media institutions, the cultural and ideological meanings of media texts, and the social dimensions of media consumption in home and family. Emphasis on how to review literature, develop a research question, define a unit of analysis, select and apply method, interpret data, and draw conclusions grounded in theory. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 is prerequisite or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 601 - Exploring Relationships
Credits: 4
Critically examines the myriad ways qualitative researchers approach the study of interpersonal communication. With an emphasis on the artistic practice of fieldwork, the course considers the process of research design, the relationship between researcher and researched, the moral and ethical aspects of research, issues of representation and audience, and evaluation strategies. Students design, conduct, and present original qualitative research projects. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 610 - Communication Technologies and Culture
Credits: 4
The role of communication technologies in shaping cultural meanings and human consciousness. Covers the work of Innis, McLuhan, Ong, Postman, Carey and others to understand the historical development of shifting communication technologies and patterns of culture from orality to computer communication. Also explores the dynamic between mass culture and sub-cultural appropriations of media forms and content. Prereq: any two CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 611 - Theories of Relational Communication
Credits: 4
Critically examines a variety of theories which seek to explain the dynamics of interpersonal relationships including performance theory, social construction theory, systems theory, feminist theory, and narrative theory. Prereq: any two 500 level courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 612 - Narrative
Credits: 4
Considers the ways humans make sense of experience through the stories we construct within particular relational, cultural, and historical contexts. Explores a variety of topics including narrative conventions, canonical stories, subjectivity and reflexivity, the relationship between story and audience, space and time, memory and imagination, and narrative truth. Each student will conduct an original narrative research project. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 614 - Communication and Power
Credits: 4
Explores the concept of power -- how we conceive of power, how we enact power, and the effects of power in our interpersonal relationships. Using a variety of theoretical approaches such as relational theory, feminist theory, and social constructionist, we will consider the idea that the expression of power is an act of self-definition, that power resides in the ability to define one's reality while identifying and choosing courses of action, and that disempowerment is the end result of the loss of freedom of action. Prereq: Any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 615 - Film History/Theory and Method
Credits: 4
Intensive study of philosophical, rhetorical, and methodological issues in film history research. Examines a series of selected historical problems in the areas of social, aesthetic, industrial, and technological film history up to 1948 and reviews existing historiography on these problems. Focus is on original student research. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite, or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

CA 618 - Documentary
Credits: 4
Exploration of the historical development, ethics, funding, socio-cultural significance, and communication strategies of documentary film and video. May focus on a particular genre or genres. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite, or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

CA 720 - Seminar
Credits: 4
Intensive readings and research course in a highly focused area of study. Topics vary. Descriptions of course content and any prerequisites are available during preregistration. May be repeated for credit to a maximum of 12 credits if topics differ. Prereq: contingent on topic. Writing intensive.
Attributes: Writing Intensive Course

CA 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty member. Content area and research project to be developed in consultation with faculty supervisor. Prereq: permission. May be repeated for up to 8 credits, with 4 credits maximum accepted toward satisfaction of requirements for the CA major.

Communication Sciences & Disorders (COMM)

- Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
COMM 401 - American Sign Language I  
Credits: 4  
This course provides an introduction to the vocabulary, finger spelling, grammar, phonology, syntax and semantics of American Sign Language. Emphasis is on applying language-learning principles through discourse. Introduction to Deaf Culture and its community will be explored. This course is taught in a language-immersion environment and taught primarily in ASL. One-hour lab required per week in conjunction with course. 4 credits and meets the language requirement for some majors.

COMM 402 - American Sign Language II  
Credits: 4  
This course is a continuation of ASL I with an emphasis on the advanced linguistic principles of ASL including vocabulary, grammar, the non-manual signals of ASL such as facial expression and shoulder shifting. Improvement of speed and accuracy in receptive and expressive skills are stressed. Assignments in and outside the classroom assist the student in learning about the Deaf community and culture. This course is taught in a language-immersion environment and taught primarily in ASL. One-hour lab required per week in conjunction with this course. For the online version of this course the lab component is completed on-line. 4 credits and meets the language requirement for some majors. Prereq: COMM 401.

COMM 405 - Introduction to the Deaf World  
Credits: 4  
This course addresses various aspects of the Deaf community, including the value of American Sign Language and the culture it reflects, professions within the Deaf community, legislation affecting Deaf people, educational approaches and controversies, activities and events relating to the population, and hearing-related issues.

COMM 420 - Survey of Communication Disorders  
Credits: 4  
The use of language to communicate is a uniquely human capability. Language is part of our cultural identities and can be expressed through many modalities such as speech, sign, and writing. Disorders of communication have profound effects on an individual’s ability to function and impact family, friends, learning and professional choices. It has been said that “life without communication is scarcely better than death.” This course provides an overview of human communication disorders across the life span. The course includes information about the various types of communication disorders and how they are diagnosed and treated.

COMM 504 - Basic Audiology  
Credits: 4  
Normal hearing process and pathologies of the auditory system. Hearing screening, pure-tone testing, and speech audiometry. Prereq: COMM 521 or permission.

COMM 510 - Voodoo Science  
Credits: 4  
This course will allow students to develop an understanding of evidence-based practice in the modern health care arena. This course offers a unique opportunity to learn critical thinking skills, evaluate scientific inquiry and discern information that has evidence from that with no support. The ability to evaluate ideas, and in particular, distinguishing scientific evidence from fiction is critical to success in any scholarly discipline, different ideas, such as perpetual motion machines, cold fusion, homeopathy, the role of media in spreading voodoo and scientific misconduct will be explored. Many of these have started out as sincere attempts to understand various phenomena, but at some point were found to not be supported by evidence. Unfortunately, these ideas continued to be promoted for a variety of reasons including financial gain, professional name, or social prominence and as such became fraudulent. As part of this course, we will study evidence-based practice in health care in relation to Voodoo Science.

COMM 521 - Anatomy and Physiology of the Speech and Hearing Mechanisms  
Credits: 4  
Anatomy, physiology, neurology, and function of the mechanisms for the production and perception of speech.

COMM 522 - Acquisition of Language  
Credits: 4  
Introduction to normal language acquisition; stages of children's developing language examined within a linguistic framework with attention paid to syntax, morphology, phonology, semantics, and pragmatics. Theories of language acquisition overviewed.

COMM 524 - Clinical Phonetics  
Credits: 4  
Application of the International Phonetic Alphabet to normal and clinical populations; use of broad and narrow transcriptions. Basic speech science, acoustic phonetics, and acoustic analysis of speech production.

COMM 575 - Have You Heard? The Fundamentals of Hearing and Hearing Loss  
Credits: 4  
This course will provide an overview of hearing loss including current issues and technology. Areas of study will focus on the incidence of hearing loss, terminology and definitions, service delivery models, educational trends, accessibility regulations and the impact of noise. Information about the various professionals, who work with individuals with hearing loss, and their respective roles, will also be provided. This 4 credit course is open to all undergraduates and it has no prerequisites.

COMM 604 - Basic Audiology  
Credits: 4  

COMM 622 - Acquisition of Language  
Credits: 4  
Introduction to normal language acquisition; stages of children's developing language examined within a linguistic framework with attention paid to syntax, morphology, phonology, semantics, and pragmatics. Theories of language acquisition overviewed.
COMM 635 - Senior Capstone: Professional Issues in Communication Sciences and Disorders
Credits: 4
Introduction to the profession of speech-language pathology; review of issues related to scope of practice; professional ethics, certification/licensure, and current challenges facing the profession. Discussion of employment opportunities for speech-language pathologists. Seniors only. Writing intensive.
Attributes: Writing Intensive Course

COMM 637 - Multicultural Issues in Communication Disorders
Credits: 4
Physical, acoustical, and perceptual correlates of normal speech production and audition. Includes theoretical models with the generation, transmission, detection, and analysis of speech signals.

COMM 705 - Introduction to Auditory Perception and Aural Rehabilitation
Credits: 4
Research, testing, and clinical procedures of auditory perception, applied to the communicatively impaired. Prereq: COMM 704 or permission.

COMM 723 - Observation Skills in Speech-Language Pathology
Credits: 2
This guided observation course is designed to acquaint students with intervention and assessment while providing opportunity to begin to develop systematic observation skills. Students successfully completing this course will accrue a minimum of 25 observation hours. Cr/F.

COMM 724 - Senior Capstone: Professional Issues in Speech-Language Pathology
Credits: 4
Introduction to the profession of speech-language pathology; review of issues related to scope of practice; professional ethics, certification/licensure, and current challenges facing the profession. Discussion of employment opportunities for speech-language pathologists. Seniors only. Writing intensive.
Attributes: Writing Intensive Course

COMM 725 - Cued Speech
Credits: 4
This course covers the fundamentals of the Cued Speech system, its applications and research as well as its relevance to other communication options for children who are deaf or hard of hearing. Various topics are covered, including CS and language development, reading, auditory and speech skill development, auditory processing, bilingualism, Down Syndrome, Autism, cochlear implants and transliteration.

COMM 731 - Articulation and Language Disorders in Children
Credits: 4
Research, diagnosis, and therapy procedures as applied to articulation and language disorders. Prereq: COMM 522 and COMM 524.

COMM 734 - American Sign Language III
Credits: 4
Builds upon the information covered in Introductory ASL I and II. Development of basic grammatical rules, vocabulary, manual alphabet/numbers, visual-gestural communication, and information related to Deaf Culture are covered. All lectures, laboratory activities, outside assignments build upon rudimentary competency in receptive and expressive use of ASL and develop fluency and competency. Class is conducted using ASL only. Prereq: American Sign Language I and II.

COMM 735 - American Sign Language IV
Credits: 4
Builds upon the information covered in Introductory ASL I, II, and III. Development of basic grammatical rules, vocabulary, manual alphabet/numbers, visual-gestural communication and information related to Deaf Culture are covered. All lectures, laboratory activities, outside assignments build upon rudimentary competency in receptive and expressive use of ASL and develop fluency and competency. Class is conducted using ASL only. Prereq: American Sign Language I, II, and III.

COMM 737 - Linguistics of American Sign Language
Credits: 4
This course provides linguistic study of the major structural aspects of phonology, morphology, syntax, lexicology, and discourse in American Sign Language. Concepts of language variation, dialect, creolization, and bilingualism are studied. Taught primarily in ASL. Prerequisites/Proficiencies: COMM 402 - Elementary American Sign Language II Minimum grade of: C.

COMM 740 - Treatment of Adults with Acquired Brain Injury
Credits: 4
This "hands-on" interdisciplinary experience enables students to acquire clinical skills and professional competence in a community-based day program where they assist adults with acquired brain injury meet their physical, emotional, cognitive-linguistic, social, spiritual, recreational, and vocational needs. Permission required. CSD majors only.

COMM 742 - Speech-Language Pathology II
Credits: 4
Neurologic bases, diagnoses and treatment of communication disorders; emphasis on motor speech disorders and aphasia from young adulthood to geriatrics. Prereq: BMS 507, KIN 706, COMM 741, COMM 604.

COMM 777 - Speech and Hearing Science
Credits: 4
Physical, acoustical, and perceptual correlates of normal speech production and audition. Includes theoretical models with the generation, transmission, detection, and analysis of speech signals.

COMM 779 - Deaf and Hard of Hearing Internship
Credits: 4
This internship will allow students in the Deaf and Hard of Hearing Minor to expand their knowledge about the needs, challenges and experiences of deaf and hard of hearing individuals. The internship locations will be varied and matched, as closely as possible, to the student's particular interests. Potential placement opportunities include a school for the deaf, a public agency or vocational setting which provides services for deaf and hard of hearing individuals. Prereq: COMM 533, COMM 536, and COMM 733; permission. Cr/F.

COMM 795 - Independent Study
Credits: 1-8
Individual or group projects involving directed study of an area of communication sciences and disorders that students wish to explore in greater depth than is covered in the required curriculum. May be repeated to a maximum of 8 credits. Prereq: permission.

COMM 798 - Special Topics
Credits: 1-4
New or specialized topics not covered in regular course offerings. May be repeated for a total of 8 credits. Special fee on some topics.
COMM 799 - Honors Thesis  
Credits: 1-4  
Supervised research leading to the completion of an honors thesis required for graduation from the university honors program in major. Permission required.

Community & Environmental Planning (CEP)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CEP 415 - Community Development Perspectives  
Credits: 4  
Introduces students to a range of community development and environmental planning issues facing communities as they undergo social, economic, and environmental change. Through class discussion and examination of case studies, this course instills basic principles and processes of community development and environmental planning, formulation, and conflict resolution. Community and environmental planning topics covered in the course include land use conflict, urban/suburban sprawl, rural development, economic development, local food systems, community infrastructure, and environmental stewardship. Emphasis is placed on the roles and responsibilities of community development professionals, including land use planners, municipal administrators, and community leaders.  
Attributes: Social Science (Discovery); Social Science GP 7

CEP 508 - Applied Community Development  
Credits: 4  
Students work in an actual community, assisting individuals and groups to identify needs and problems, establish attainable and objective goals, assess requirements and resources, and formulate programs for development and methods of collection, analysis, and integration of pertinent primary and secondary economic, social, political, and physical data for community development. Prereq: CEP 415 or permission. Lab.

CEP 614 - Fundamentals of Planning  
Credits: 4  
Community planning process in nonmetropolitan communities; practical application of planning techniques. Communities' components: housing, jobs, schools, recreation, transportation, community appearance, and the administrative structure for planning. Use of planning tools: data gathering and analysis, the master plan, zoning and subdivision regulations, community development programs. Prereq: EREC 411; CEP 415 or permission. (Offered every other year.) Writing intensive.  
Attributes: Writing Intensive Course

CEP 672 - Fundamentals of Real Estate  
Credits: 4  
This course covers timely subjects in National and regional real estate, such as types of property ownership, easements, financing, contacts, appraisal, brokerage, property listings, commissions, fair housing, and property management. The goal of this class is to prepare students to pass the New Hampshire Real Estate Sales Agent License Exam and/or be knowledgeable real estate investors. Prereq: MATH 420 or higher.

CEP 673 - Green Real Estate  
Credits: 4  
This class covers issues related to existing and new real estate development with respect to history, law (state statutes and federal legislation), economics, and technology. The course looks at impacts of green development from an individual building level, and out to regional and global levels. We look at common problems and solutions, review case studies, and discuss emerging trends in "green development."  

CEP 710 - Seminar  
Credits: 2-4  
Seminars arranged to students' needs and offered as demand warrants: in-depth treatment of area, including classic work. May be repeated.

CEP 777 - Topics in Community Planning  
Credits: 4  
Advanced treatment of the concepts and tools required for effective local and regional planning to guide land use, capital investment in infrastructure, and organization for service delivery. Prereq: CEP 614 or permission. (Also listed as RAM 877.) (Offered every other year.) Writing intensive.  
Attributes: Writing Intensive Course

CEP 794 - Community and Environmental Planning Internship  
Credits: 4-12  
Fieldwork in a planning office for student's professional development. Student must be supervised by a qualified planner or faculty-approved supervisor throughout the internship and remain in consultation with a faculty advisor. A Memorandum of Understanding between the student, the internship supervisor, and the faculty advisor, as well as midterm and final written reports are required. May be taken for 4 credits with 150 hours of internship up to a maximum of 12 credits for 450 hours of internship. Cr/F.

CEP 795 - Investigations  
Credits: 2-4  
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission.

CEP 795W - Investigations  
Credits: 2-4  
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission. Writing intensive.  
Attributes: Writing Intensive Course

Community Leadership (CSL)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CSL 401 - Introduction to Community Service and Leadership  
Credits: 4  
Students are introduced to differing concepts of community and influence within communities, and to the challenges facing leaders within community organizations as they work to address key problems. All students participate in a significant community project which serves as the basis for both learning specific community organizing skills and for reflecting on the rewards and challenges of community leadership. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course
CSL 402 - Introduction to Nonprofit Organizations  
Credits: 4  
This practical course provides an overview of the unique responsibilities and practices needed to effectively manage a community-based nonprofit organization. Topics include: issues of organizational structure and staffing, strategic planning, board effectiveness, financial management, leadership roles and responsibilities, and public accountability.

CSL 403 - Organizing and Supervising Volunteers  
Credits: 4  
This course provides students with the knowledge and skills necessary to design, organize, and manage effective volunteer programs. Topics covered include: identifying organizational volunteer needs, recruiting, supervising, and motivating volunteers, integrating volunteers into the overall goals and services of an organization, and creating effective volunteer training programs. Students will explore resources available for creating a successful volunteer program and will research the variety of approaches to volunteer management that organizations currently use. All students also volunteer with a community organization.

CSL 405 - Communication Within Communities  
Credits: 4  
This course focuses on the ways we influence—and are influenced by—others within the communities in which we live and participate. Students have the opportunity to analyze how a specific "real life" community issue is presented, interpreted, and resolved through various written and oral mediums. Additional coursework involves frequent writing and speaking assignments, with particular emphasis on the forms of persuasion that most commonly shape "community opinion." Students will also examine on-line forms of communication such as web sites and e-newsletters and contribute to at least one of these as a service to a community organization.

CSL 491 - Studies in Community Service and Leadership  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific community leadership/organizing topic. Prereq: CSL 401 or equivalent.

CSL 492 - Studies in Community Service and Leadership  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific community leadership/organizing topic. Prereq: CSL 401 or equivalent.

CSL 504 - Managing Change and Conflict in Communities  
Credits: 4  
This course examines a variety of approaches to promoting and responding to community change. Through active participation and analysis of specific community initiatives, students will explore such topics as issue-identification, planning for change, power dynamics and conflict within diverse groups, strategies for action, lobbying, and influencing political action. Prereq: CSL 401, permission.

CSL 506 - Literature of Family and Community  
Credits: 4  
Through a wide range of readings, primarily fiction, this course examines what it means to be an individual living in the context of family and community. Students use these readings both to examine differing concepts of community and to explore how individuals and groups respond to the challenges of creating as well as changing their communities. Coursework involves critical analysis, group-led discussions, and frequent short papers. Prereq: COM 211 or instructor permission. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

CSL 508 - Essentials of Grant Writing for Community-Based Organizations  
Credits: 2  
The ability to raise funds is essential to all community-based and nonprofit organizations. This course is designed to provide students with the essential knowledge and skills to develop and execute a successful fundraising program. Topics covered include: prospect research, choosing fundraising strategies, common fundraising mistakes, maintaining relationships with donors, raising money by mail, personal solicitation, event planning, and other key approaches to raising money.

CSL 509 - Essentials of Grant Writing for Community-Based Organizations  
Credits: 2  
This course provides the information and skills necessary to research and apply for grants from government agencies, foundations, corporations, and other sources. Students will follow the process of grant-seeking from identifying need through application and follow up.

CSL 510 - Civic and Community Internship  
Credits: 4  
This internship is designed to promote experiential learning about community service and leadership through active involvement within a community organization. It provides students with an opportunity to build upon their skills and interests while developing an awareness of civic and community issues. In addition to participating in community projects, students are expected to reflect upon their experiences and to relate them to assigned reading. Each student will also complete a research project based on a problem encountered at the service site. Prereq: CSL 401 or permission of instructor. May be repeated for up to 8 credits.

CSL 520 - Capstone Seminar  
Credits: 4  
This seminar provides the opportunity for students in their final semester to synthesize their learning and skills as they broaden their understanding of the political and social policy dimensions of community organizing and leadership. Each student will engage in a significant service project that will serve as the focal point for both skill application and issue analysis. Prereq: CSL 401, CSL 402, CSL 403, and CSL 405.

Computer Science (CS)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CS 400 - Introduction to Computing  
Credits: 1  
Initial exploration of computing, including comparison of the various subfields. A wide range of issues, including fundamental concepts, selected current topics and the role of both computing and computing professionals in organizations and in society are also discussed. Cr/F.
CS 401 - Computers and Their Applications
Credits: 4
Use of computers to manage and analyze information across a variety of settings and disciplines. Introduces major categories of computer software, including word processing, spreadsheets and database systems. Covers basic computer concepts and the computer’s role in today’s society. Significant hands-on work required outside of the class. Not open to CS majors. CEPS students should check with their major department for approval.
Attributes: Environment, TechSociety (Disc); Technology GP 3T

CS 401H - Honors/Computers & Their Application
Credits: 4
Use of computers to manage and analyze information across a variety of settings and disciplines. Introduces major categories of computer software, including word processing, spreadsheets and database systems. Covers basic computer concepts and the computer’s role in today’s society. Significant hands-on work required outside of the class. Not open to CS majors. CEPS students should check with their major department for approval.
Attributes: Environment, TechSociety (Disc); Technology GP 3T

CS 404 - Do-It-Yourself Internet
Credits: 4
The objective of this course is to demystify the design process that leads to the evolution of the Internet. In doing so, we investigate the ways that technology changes to meet the needs of society, how society changes in response to these new technologies and how these societal changes create pressures that produce needs for new technologies.
Attributes: Environment, TechSociety (Disc); Technology GP 3T

CS 405 - Introduction to Applications Programming with Visual Basic
Credits: 4
Introduces the concepts and techniques of microcomputer windows programming. Students use the Visual Basic language to develop modular, event-driven programs/applications. Topics include: forms, properties, controls, variables, decision structures, and built-in and user-defined functions and subroutines. CEPS students should check with their major department for approval. Not open to CS majors.
Attributes: Quantitative Reasoning GP 2

CS 408 - Living in a Networked World: The Good, the Bad, and the Ugly
Credits: 4
The objective of this course is to explore the implications of living in a networked world. The course surveys the fundamental technologies and practices that make up the Internet and then ask the student to examine the ramifications of using the technologies. Users of the technologies should understand the technology in order to make educated decisions about how to use it safely and effectively. Students have the opportunity to self-publish by using various current technologies including blogs, discussion boards, email and creating web pages using xhtml.
Attributes: Environment, TechSociety (Disc); Technology GP 3T

CS 410 - Introduction to Scientific Programming
Credits: 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. Good programming style is stressed. Significant out-of-class programming required. Not open to students who have completed CS 407, 415, or the equivalent.
Attributes: Quantitative Reasoning GP 2

CS 410C - Introduction to Scientific Programming/C
Credits: 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. Good programming style is stressed. Significant out-of-class programming required. Not open to students who have completed CS 415 or equivalent.

CS 410P - Introduction to Scientific Programming/Python
Credits: 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. Good programming style is stressed. Significant out-of-class programming required. Not open to students who have completed CS 415 or the equivalent.

CS 414 - From Problems to Algorithms to Programs
Credits: 4
This course is an introduction to the design and implementation of computer programs. The basic software development process (modeling, algorithm design, programming, testing and debugging) is illustrated through problem examples. Programming techniques are introduced to allow students to implement and evaluate solutions as programs.
Attributes: Quantitative Reasoning (Disc); Quantitative Reasoning GP 2

CS 415 - Introduction to Computer Science I
Credits: 4
Theory and practice of computer science. Algorithm development and analysis; data abstraction techniques; elementary data structures; dynamic memory manipulation; debugging; and program design issues. Computer systems and applications. Intended for CS majors.

CS 416 - Introduction to Computer Science II
Credits: 4
Theory and practice of computer science. Algorithm development and analysis; data abstraction techniques; elementary data structures; dynamic memory manipulation; debugging; and program design issues. Computer systems and applications. Intended for CS majors. Prereq: CS 415.

CS 417 - From Programs to Computer Science
Credits: 4
Accelerated coverage of programming techniques for students with experience equivalent to CS410 or CS 414. Covers basic algorithm analysis. Topics include basics of classes, inheritance, and data abstraction; linear data structures (vectors, lists, stacks and queues); trees and simple graphs; hash tables; sorting and searching; recursion; and basic graph traversal algorithms. Numerous labs and programming assignments build skills in planning, problem solving, and debugging: this is a hands-on course. Prereq: CS 410 or CS 414 or equivalent.

CS #444 - Computer Technology: Balancing Risks Against Reward
Credits: 4
Computer technology permeates life in our modern world, for better and for worse. Its rewards to individuals and society are unprecedented. Yet so are its risks. This course examines computer technology’s role in modern society and endeavors to assess its impact - both beneficial and detrimental. Problems are evaluated from a variety of perspectives, including technological, societal, legal, commercial and ethical.
Attributes: Environment, TechSociety (Disc); Technology GP 3T; Inquiry (Discovery); Writing Intensive Course
CS 501 - Professional Ethics and Communication in Technology-related Fields
Credits: 4
A mixed lecture/seminar course intended to improve both reasoning and ability to communicate effectively in front of an audience. Students learn basic forms of ethical argument, they read about ethical situations in which technology and technology professions play a key role, and they participate in student-led discussions about the reading. Students also make oral presentations about both ethical and technical topics, and evaluate each other's presentations in order to improve their sense for what makes a good presentation. Prereq: ENGL 401.
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

CS 515 - Data Structures
Credits: 4
Reviews basic data structures; advanced data structures such as graphs, B-trees, and AVL trees; abstract data structure design and programming techniques; use of data abstraction language. Introduction to algorithm analysis. Prereq: CS 416 or CS 417.

CS 520 - Assembly Language Programming and Machine Organization
Credits: 4
Assembly language programming and machine organization: program and data representation; registers, instructions, and addressing modes; assemblers and linkers. Impact of hardware on software and software on hardware. Historical perspectives. Prereq: CS 416 or CS 417.

CS 595 - Professional Ethics and Communication in Computer Science
Credits: 2
A seminar course intended to improve both reasoning and ability to communicate effectively in front of an audience. Students learn basic forms of ethical argument, they read about ethical situations in which technology and technology professions play a key role, and they participate in student-led discussions about the reading. Students also make oral presentations about both ethical and technical topics, and evaluate each others' presentations in order to improve their sense for what makes a good presentation.

CS 619 - Introduction to Object-Oriented Design and Development
Credits: 4
Principles of problem analysis and software design applied to the development cycle of a software system (i.e. from system requirements specification to design, implementation, and system test). Design and implementation using object-oriented principles, patterns, and tools. Experience in understanding and debugging software systems. Experience in working in groups. Prereq: CS 515.

CS 620 - Operating System Fundamentals
Credits: 4
Introduces operating system concepts and design. Process and memory management; scheduling; file systems; storage devices; inter-process communication. Prereq: CS 520.

CS 659 - Introduction to the Theory of Computation
Credits: 4

CS 671 - Programming Language Concepts and Features
Credits: 4
Explores the main features of modern, high-level, general purpose programming languages from the user (programmer) point of view. Provides students with an opportunity to use non-imperative programming paradigms, such as object-oriented, functional, and logical, and to learn how specific features of such languages can be used efficiently in solving programming problems. Prereq: CS 520.

CS 696 - Independent Study
Credits: 1-6
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated for credit.

CS 696W - Independent Study
Credits: 1-6
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated for credit. Writing intensive.
Attributes: Writing Intensive Course

CS 699 - Internship
Credits: 1
Provides the opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the internship and what supervision is available during the internship. A mid-semester report and final report are required. Prereq: permission. May be repeated for a maximum of 4 credits. Only open to Computer Science majors. Cr/F.

CS 712 - Compiler Design
Credits: 4
Formal languages and formal techniques for syntax analysis and parsing; organization of the compiler and its data structures; code generation. LL and LR parsing; automatic generation of scanners and parsers from high level descriptions. Implementation of features from imperative and object-oriented languages. Students required to design and implement a compiler for a simple language. Prereq: CS 520.

CS 720 - Operating System Programming
Credits: 4
Detailed discussion of operating system concepts and features. Practical examples and exercises that utilize advanced operating system features, including inter-process communication, synchronization, client-server communication, shared memory, threads, remote procedure calls, and device-level I/O. Discussion of POSIX 1003.1 Part I Standards. Prereq: CS 520 and CS 619.

CS 723 - Performance Evaluation of Computer Systems
Credits: 4
Introduces the main concepts, techniques, and tools needed to evaluate the performance of computer systems under various configurations and workloads. The techniques allow one to perform capacity planning based on quality of service requirements of users and workload characteristics. Course is mainly based on the use of analytic queuing network models of computers systems. The performance techniques are applied to study the performance of centralized, distributed, parallel, and client/server systems. The course also discusses performance measuring tools for operating systems such as Unix and Windows NT. Prereq: CS 620 and (MATH 539 or MATH 644).
CS 725 - Computer Networks  
**Credits:** 4  
Introduction to fundamental concepts of computer networks and exploration of widely-used networking technologies. Topics include principles of congestion and error control; network routing; local, wireless and access networks; application protocol design; and network programming. In-depth discussion of the Internet suite of protocols. Prereq: CS 520.

CS 730 - Introduction to Artificial Intelligence  
**Credits:** 4  
In-depth introduction to artificial intelligence, concentrating on aspects of intelligent problem-solving. Topics include situated agents, advanced search techniques, knowledge representation, logical reasoning techniques, reasoning under uncertainty, advanced planning and control, and learning. Prereq: CS 515.

CS 730W - Introduction to Artificial Intelligence  
**Credits:** 4  
In-depth introduction to artificial intelligence, concentrating on aspects of intelligent problem-solving. Topics include situated agents, advanced search techniques, knowledge representation, logical reasoning techniques, reasoning under uncertainty, advanced planning and control, and learning. Prereq: CS 671. Writing intensive.  
**Attributes:** Writing Intensive Course

CS 735 - Introduction to Parallel and Distributed Programming  
**Credits:** 4  
Programming with multiple processes and threads on distributed and parallel computer systems. Introduces programming tools and techniques for building applications on such platforms. Course requirements consist primarily of programming assignments. Prereq: CS 520.

CS 745 - Formal Specifications and Verification of Software Systems  
**Credits:** 4  
Course focuses on the formal specification and verification of reactive systems, most notably concurrent and distributed systems. Topics relevant to these systems, such as non-determinism, safety and liveness properties, asynchronous communication or compositional reasoning, as discussed. We rely on a notation (TLA+, the Temporal Logic of Actions) and a support tool (TLC, the TLA+ Model Checker). Prereq: CS 520 and CS 659.

CS 753 - Information Retrieval  
**Credits:** 4  
Fundamental algorithms and techniques for text processing and text-based information retrieval systems. Topics include how to build an end-to-end information retrieval system, such as a Web search engine. Prereq: CS 515.

CS 758 - Algorithms  
**Credits:** 4  
An introduction to important concepts in the design and analysis of algorithms and data structures, including implementation, complexity analysis, and proofs of correctness. Prereq: CS 515 and CS 659.

CS 760W - Introduction to Human-Computer Interaction  
**Credits:** 4  
Human-computer interaction is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. Prereq: CS 619 and CS 620. Writing intensive.  
**Attributes:** Writing Intensive Course

CS 767 - Interactive Data Visualization  
**Credits:** 4  
Detailed discussion of how an understanding of human perception can help us design better interactive displays of data. Topics include color, space perception, object perception and interactive techniques. Students write interactive programs, give presentations and undertake a project designing and evaluating a novel display technique. Prereq: instructor’s permission. Writing intensive.  
**Attributes:** Writing Intensive Course

CS 770 - Computer Graphics  
**Credits:** 4  
Input-output and representation of pictures from hardware and software points of view; interactive techniques and their applications; three-dimensional image synthesis techniques and their applications. Prereq: CS 671.

CS 770W - Computer Graphics  
**Credits:** 4  
Input-output and representation of pictures from hardware and software points of view; interactive techniques and their applications; three-dimensional image synthesis techniques and their applications. Prereq: CS 671. Writing intensive.  
**Attributes:** Writing Intensive Course

CS 771 - Web Programming Paradigms  
**Credits:** 4  
In this course you will learn languages to program the Web. Languages integrated into browsers, like JavaScript, and languages invoked on the server, like Ruby. You will also learn about frameworks, like Rails, and various techniques used to support the programming process. In addition, you will learn languages you will need to create, modify, and process Web documents. Although we will learn how to read and write in these languages, our primary goal will be an understanding of how the design of these multi-paradigm dynamic languages support the process of developing Web applications. Prereq: CS 671.

CS 775 - Database Systems  
**Credits:** 4  
Introduction to database management systems — design, implementation, and usage — with focus on the relational model. Data description, manipulation, and query language in the context of MySQL. Schema design and normalization; indexes, transaction processing. Web access of databases (PHP); overview of XML and noSQL systems. No credit if credit earned for IT 775. Prereq: CS 515 and MATH 531.

CS 780 - Topics  
**Credits:** 1-4  
Material not normally covered in regular course offerings. May be repeated for credit.
CS 791 - Senior Project I
Credits: 2
The principal goal of CS 791 is to develop precise functional specifications for the senior projects as well as a complete software design specification. The course will review and expand upon design concepts presented in previous courses, including UML, and CRC approach, and design patterns. Students apply these concepts to the design of their own senior projects. A significant component of the design includes specifications of the testing methodology to be used. Prereq: CS 619. Computer Science and CS: Bioinformatics majors only.

CS 792 - Senior Project II
Credits: 2
Continuation of CS 791: Senior Project I. Students complete the project by implementing their design. Students work in teams. Successful completion of this course fulfills the Capstone Experience requirement for Computer Science majors. Prereq: CS 791. Writing intensive.

Attributes: Writing Intensive Course

Computing Technology (COMP)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COMP 405 - Introduction to Internet and Web Authoring
Credits: 4
The fundamental technologies, protocols, and practices that make up the Internet. The Internet as a global information system that has transformed the current business environment. Additional topics include: Internet structure; applications; business uses; legal and ethical issues introduced by networked computers such as privacy, fraud, and security. A significant portion of the course covers Web authoring procedures and languages. Students create a Web site using xhtml language and are introduced to JavaScript. No prior computer experience is required. Cannot receive credit if credit earned for CS 403.

Attributes: Environment,TechSociety(Disc); Technology GP 3T

COMP 411 - Introduction to Computer Applications
Credits: 4
Beginning course on computer technology, specifically microcomputer systems. Emphasis is on (1) using computers to manage information for personal and professional applications and (2) the impact of computer information technology on today's society. Software applications used include word processing, spreadsheets, database, and graphics. Independent lab activities are a major part of the course content. No prior computer experience is required. No credit if credit has been received for DCE 491; 492, CS 401.

Attributes: Environment,TechSociety(Disc); Technology GP 3T

COMP 415 - Mobile Computing First and For Most
Credits: 4
This course examines how mobile computing is transforming our everyday lives and the society and environment in which we live. In this course the students will engage the mobile ecosystem by inventing apps and solving problems of personal, social, and environmental relevance. Students will learn computational thinking skills and create mobile apps using AppInventor, a free and open source visual blocks-based programming environment. Students will share their creative apps with peers and communities. They will also exercise inclusion, civic engagement, and peer learning in the context of innovating with free and open source software that empower individuals and communities.

Attributes: Environment,TechSociety(Disc); Technology GP 3T

COMP 425 - Introduction to Programming
Credits: 4
An introduction to problem solving and object-oriented programming. Emphasis is on programming concepts and techniques and their application to software development. Students learn to write, review, document, share, and demonstrate interactive applications and participate in pair programming, peer-led tutoring, and collaborative learning throughout the course.

Attributes: Quantitative Reasoning GP 2

COMP 430 - Systems Fundamentals
Credits: 4
The underlying hardware and software infrastructure upon which applications are constructed is collectively described by the term "computer systems." Computer systems broadly span the subdisciplines of operating systems, parallel and distributed systems, communications networks, and computer architecture. The class will present an integrative view of these fundamental concepts in a unified albeit simplified fashion, providing a common foundation for the different specialized mechanisms and policies appropriate to the particular domain area.

COMP 490 - Statistics in Computing and Engineering
Credits: 4
An introduction to tools from probability and statistics that are needed by computing and engineering professionals. Exploratory data analysis including graphic data analysis. discrete and continuous probability distributions, inference, linear regression, and analysis of variance, with applications from artificial intelligence, machine learning, data mining, and related topics. Project work and use of statistical software are an integral part of the course. Prereq: MATH 425|MATH 424B|MATH 424A.

COMP 500 - Discrete Structures
Credits: 4
This course prepares students for understanding computational complexity; i.e., what makes a given task/problem hard and how hardness is measured. It accomplishes this through the study of algorithms, permutations, combinations, probability, graph theory, and trees. Prereq: MATH 425.

COMP 505 - Advanced Web Authoring
Credits: 4
An introduction to web applications development. The course builds on introductory programming and web authoring. Emphasis is on dynamic web concepts and advanced programming techniques using markup languages and client-side and server-side scripting. Students learn to develop interactive web pages and integrate them with web-based systems. Students participate in real-world team projects. Prereq: COMP 405 and COMP 425, or permission.

COMP 510 - Fundamentals of Computer Information Systems
Credits: 4
Investigates the role and impact of computer applications on computer information systems in general and specifically as applied to business requirements. Surveys the components of a computer information system; explores computer information systems in areas such as manufacturing, medicine, education, and government; discusses the issues of computerizing information resources. Directs attention to computer information systems in business and identifies the need for and function of formal systems development methodologies. Prereq: COMP 411 or equivalent. Writing intensive.

Attributes: Writing Intensive Course
COMP 515 - Multimedia: Introduction and Applications
Credits: 4
Examines the history and underlying theory behind computer integration of text, sound, video, and graphics. Topics include: hardware and software requirements, design criteria, analysis of current hypertext, and multimedia applications in education and business. Students gain practical experience in developing multimedia applications on the Macintosh platform.
Attributes: Technology GP 3T

COMP 520 - Database Design and Development
Credits: 4
An introduction to developing database applications with business users. Topics include fundamentals of the relational model, structured query language, data modeling and database design and implementation. Students use a variety of database management system tools to model, code, debug, document, and test database applications. Students complete real-world team projects. Prereq: COMP 505 and COMP 510, or permission.

COMP 525 - Data Structures Fundamentals
Credits: 4
Data structures and algorithms are fundamental to developing solutions for computational problems. In this course students design and implement data and functional abstractions; analyze and select appropriate data structures to solve computational problems; practice programming and software development techniques to implement computational solutions. Prereq: COMP 425.

COMP 530 - Machine and Network Architecture
Credits: 4
Examines the following topics. Machine organization: program and data representation; registers, instructions, and addressing modes; assemblers and linkers. Impact of hardware on software and software on hardware. Introduces the Internet protocol suite and network tools and programming and discusses various networking technologies.

COMP 550 - Networking Concepts
Credits: 4
Explores the fundamentals of data communications and networking requirements for an organization, including the standard layers of network organization; network technologies; and protocols for LANs, WANs, wireless networks, and switched and routed networks. Includes issues of security, topology, management, and future developments. Prereq: COMP 542 or permission.

COMP 560 - Ethics and the Law in the Digital Age
Credits: 4
Examines classical and ethical and legal constructs as they pertain to current and topical issues. Students develop and articulate a personal point of view on a broad range of issues based on sound ethical principles and consider the impact of such views on co-workers, employers, and society in general. Topics also include: major social issues involving intellectual property, privacy, current U.S. and international relations relevant to ethical theories. The interplay between ethics and law is explored through current case studies and students formulate and support conclusions based on ethical constructs presented in class. Case study analysis is a major component in course delivery. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

COMP 590 - Entrepreneurship Project
Credits: 4
This course requires the development of a conceptual business plan for a proposed real world project undertaken by a team of students. An iterative approach is used to incrementally address the project requirements while constructing and refining original proposed plan. Prereq: COMP 525.

COMP 625 - Data Structures and Algorithms
Credits: 4
An introduction to object-oriented design, analysis, and implementation of data structures and algorithms. Students apply concepts and techniques to develop information processing applications. Best programming practices of editing, debugging, documentation, testing, and code review are stressed. Familiarity with an object-oriented programming language and experience with application development are required. Prereq: COMP 425 and COMP 505, or permission.

COMP 640 - Human Computer Interaction
Credits: 4
This course familiarizes students with Human Computer Interaction and the significant role it plays in product design and development. The principles of HCI, examples of good and bad applications, and factors that determine a design's effectiveness are covered. Stages of the product development life cycle are discussed to understand the progression of a project from conception to delivery and the impact it has on HCI. No credit for students who took CIS 599 Special Topics: Human Computer Interaction.

COMP 650 - Network Administration and Maintenance
Credits: 4
Advances the understanding of networks through practical application of administering and maintaining intranet and its servers. Students use a modern server operating system and network management tools. Routine tasks include: install and configure servers, setup directory services and access privileges, tune network services, understand and implement network security, perform routine maintenance, and practice troubleshooting techniques. Prereq: COMP 550 or permission.

COMP 685 - Professional Development Seminar
Credits: 1
The Professional Development Seminar is designed to prepare students for successful internship placement and future work opportunities in the computer profession. You will learn the tools to effectively market yourself, manage job fairs, practice informational interviews, prepare for interviews, and learn about the workplace in general. You will also actively seek a work experience for the following semester. Prereq: Majors must complete 40 CIS credits, or have permission from the program coordinator. Not open to students who passed CIS 680.

COMP 690 - Internship Experience
Credits: 4
The internship provides field-based learning experience through placement in a computing field. Students gain practical computing experience in a business, non-profit, or government organization. Under the direction of a faculty advisor and workplace supervisor, the student is expected to contribute to the information technology products, processes, or services of the organization. Prereq: COMP 685 and instructor permission. Majors only. May be repeated up to 8 credits but no more than 4 credits may fill major requirements.
COMP 698 - Special Topics
Credits: 1-4
Course topics not offered in other courses. Topics covered vary depending on contemporary computing topics, programmatic need, and availability and expertise of faculty. Barring duplication of subject, may be repeated for credit. Prereq: permission.

COMP 705 - Web Application Development
Credits: 4
Students work in teams and implement, test, document, demonstrate, and deploy web systems that solve organizational needs expressed by real clients. Emphasis is on advanced server-side and client-side programming and integration of web application with database and web server applications. Free and open source development and communication tools are used to carry out the course project. Prereq: Senior status or permission. No credit for students who have completed CIS 605.

COMP 710 - Information Security
Credits: 4
Topics include general security principals and practices, network and system security, access control methodology, and cryptography. Students develop a simple cryptographic system based on sound mathematical principals, work to improve it, and find ways to attack it. Some programming required. Prereq: Senior status or permission. No credit for students who have completed CIS 615.

COMP 720 - Database Application Development
Credits: 4
This is a project course that provides practical experience with developing a storage subsystem of a computer information system. Topics include data modeling, database design, system implementation, and integration with a target application. Emphasis is on implementation activities, database application development artifacts, project communication, and supporting system development and project management tools. Prereq: Senior status or permission. No credit for students who have completed CIS 650.

COMP 725 - Programming Languages
Credits: 4
Explores the main features of modern, high-level, general purpose programming languages from the user point of view. Provides students with an opportunity to use non-imperative programming paradigms, such as object-oriented, functional, and visual, and to learn how specific features of such languages can be used efficiently in solving problems. The purpose is to gain knowledge regarding the languages studied as well as providing the basis to conduct analysis related to comparisons and divergence in capabilities. Prereq: COMP 425 or equivalent. No credit earned if credit received for ET 647, CIS 698 Adv Perspectives on Programming, or COMP 698 Adv Perspectives on Programming.

COMP 730 - Object-Oriented Software Development
Credits: 4
Presents an iterative methodology for developing software systems. Development activities include requirements elicitation and analysis, system and object design, implementation and testing, project and configuration management, infrastructure maintenance, and system deployment to end user. Students work in team, assume developer roles, build models of a real-world system, and deliver a proof-of-concept or prototype. Prereq: Senior status or permission. No credit for students who have completed CIS 610. Writing intensive.

Attributes: Writing Intensive Course

COMP 751 - Neural Networks
Credits: 4
Artificial neural networks power the recent advances in computer vision, speech recognition, and machine translation. This is a first course on neural networks with a focus on applications in computer vision and natural language processing. Topics will include generic feedforward neural networks, convolutional neural networks for computer vision tasks and recurrent neural networks with application to natural language processing, with other topics to be selected based on the interests of the instructor and the class. Prereq: MATH 425, MATH 545 or MATH 645, COMP 490, or permission of the instructor. Also listed as DATA 751.

COMP 780 - Advanced Topics in Computing
Credits: 1-4
The course includes advanced topics ans emerging areas in computing. Barring duplication of subject, the course may be repeated for credit. Prereq: Senior status or permission.

COMP 790 - Capstone Project
Credits: 4
This course requires the development of a real world project that responds to an IT organizational need. The project is undertaken by a team of students. An iterative approach is used to incrementally address the project requirements while constructing a prototype of the IT solution to the original problem. Prereq: COMP 690 and CIS 610. Writing intensive.

Attributes: Writing Intensive Course

COMP 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty mentor. Content area to be determined in consultation with faculty mentor. Prereq: permission. May be repeated.

Culinary Arts & Nutrition (CAN)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CAN 401 - Food Preparation Fundamentals
Credits: 2 or 3
Preparation techniques, knife skills, measurements, food handling, selection, and classification. CAN majors only. 2hr lec. Students in both Restaurant Management and Dietetic Technician concentrations must also complete a lab. Practical application of skills and techniques utilized in a professional kitchen. 2hr lab.

CAN 402 - Quantity Food Practicum
Credits: 3
Students utilize cooking principles and food preparation techniques learned in CAN 401 to produce foods in a quantity food setting. Elements of food sanitation and workplace safety in the operation of commercial cooking equipment are stressed. Students operate Stacey’s Express, open to the public and participate in various positions such as production manager, cashier, production cooks, and utility workers. Students standardize, cost, and assign selling prices for all menu items prepared for Stacey’s Express. Prereq: CAN 401. Culinary Arts & Nutrition majors only.
CAN 403 - Culinary Arts and Baking Skills Development
Credits: 4
This laboratory class explores classical culinary and pastry arts and basic cooking techniques. Classical recipes for stocks, mother sauces, soups and pie crust, quick and yeast breads are featured with hands-on experiential learning using common practices and techniques of the food service industry. Students will gain an understanding of basic ingredients, fabrication, storage, cooking, hygiene and sanitation, equipment usage in modern culinary and pastry arts through demonstration, practice and evaluation. Special fee.

CAN 404 - Baking and Pastry Fundamentals
Credits: 4
Baking and Pastry Fundamentals is an introductory-level baking course exploring the science and art of small-scale and high-volume commercial production of classical and modern pastries and baked goods. Students will gain an understanding of basic ingredients, equipment and techniques used in the production and presentation of plated desserts, as well as the display and storage of pastries and baked goods. Special fee.

CAN 405 - Retail Baking and Merchandising
Credits: 4
This course educates and exposes the students to quantity production of baked goods for retail sale. Students will gain understanding of basic ingredients, equipment and techniques used in the production of pastries and baked goods, as well as experience in the presentation, display and storage of baked goods for sale to customers. The student will experience the baker's contribution to a retail bakery, a restaurant, catering business, event businesses (wedding cakes), cottage industries, etc. Special fee. Prereq: CAN 401, 403, and 404.

CAN 407 - Hospitality Sanitation and Safety
Credits: 1
This course covers the responsibilities of food service operators for food safety and sanitation. Students learn safe food production policies and procedures, how to implement HACCP standards, pest control, and crisis management, with an overall focus on learning to take a proactive approach to maintaining a safe food environment. Students sit for the National Restaurant ServSafe Exam.

CAN 410 - Introduction to the Diabetic Technician Profession
Credits: 1
This course provides an introduction to the dietetics profession with an emphasis on dietetic technician practice. Topics include educational requirements, credentialing, nutrition resources and professional development. Students participate in a health and wellness project.

CAN 422 - Cuisine and Culture
Credits: 4
Focuses on the history of people by examining cuisines and cultures from the African savanna to the kitchens of California. Students study various cultures from around the world and learn how the same foods demonstrate profound differences in attitudes to those foods, nature, and the environment. Using this approach, students understand how historical events have affected and defined culinary traditions in different societies around the world.

CAN 426 - Dining Room Practicum
Credits: 3
A front-of-the-house supervised training experience with an emphasis on customer service and table service techniques in one of the TSAS restaurants. Students also take the Serve Safe Alcohol Examination and, upon successful completion of the exam, are awarded a certificate from the National Restaurant Association. Culinary Arts & Nutrition majors not allowed.

CAN 443 - Quantity Food Production and Display Cooking
Credits: 4
Students gain practical-based experiential learning in quantity food production working directly with chefs in the Holloway Commons (one of UNH's dining commons) facility. Students also prepare cooked-to-order menu items in front of customers while rotating through the eight culinary concepts at Holloway; including stir-fry, sushi, brick oven pizza, vegan, vegetarian and gluten free stations. 1 hr lec/6 hr lab.

CAN 504 - Intermediate Baking
Credits: 4
This course builds upon the foundational baking courses through applications of American and International baking and pastry formulas with applications of yeast breads, laminations of doughs, pastry elements, pastry doughs, batters, sauces and creams. Students experience production of pastries and baked goods and restaurant finishing techniques for sale of goods through catering and retail operations, such as 180 Blue, the student-run restaurant that serves American Regional and International Cuisines. Special fee. Prereq: CAN 401, CAN 403, CAN 404, and CAN 405.

CAN 506 - Food and Beverage Cost Control
Credits: 4
Course places emphasis on methods used to solve mathematical problems that relate to food service operations as they apply to controls. Topics: weights and measures, recipe conversion, menu pricing, purchasing, food costs, inventories, break-even analysis, and financial statements.

CAN 507 - Advanced Baking
Credits: 4
Advanced Pastry Arts expands upon the basics of piping learned in the introductory-level and intermediate baking and pastry classes and delves further into the history of this intricate art, including instruction in celebrated traditions of advanced cake design from around the world. Students will also learn in various methods of contemporary cake decorating from advanced sugar work, blown sugar and pastillage, to hand-sculpting, airbrushing, hand-painting and novelty cakes. Special fee. Prereq: CAN 401, CAN 403, CAN 404, and CAN 504.

CAN 508 - Baking and Pastry Externship
Credits: 5
This externship introduces the student to the activities of the professional pastry kitchen as they relate to the overall operation of a licensed food service establishment. Students participate in a variety of activities including, but not limited to proper sanitation and safety practices, baking preparation and scaling methods, working with standardized formulas, proper receiving, storage and inventory techniques, effective utilization of leftovers, and active participation as a contributing member of a professional culinary team. Prereq: CAN 401, CAN 403, CAN 404, CAN 405, and CAN 504.

CAN 512 - Hospitality Human Resources Management
Credits: 3
Designed to teach the first-line hospitality supervisor how to create a positive work climate to assist identifying and keeping employees who cook, serve and tend bar. Students learn and develop skills, attitudes and abilities needed to lead and manage in an industry with numerous demands. Course focuses on employee recruitment, training and development, performance evaluation, disciplinary action, and wage and fringe benefit administration. Through case studies, students practice planning, organizing, communicating effectively, delegating and decision-making. 2 lec.
CAN 525 - American and Regional Cuisine  
Credits: 5  
Students apply and enhance skills in advanced aspects of a la carte cooking. Course introduces students to foods available in the United States and prepare meals for service in 180 Blue restaurant. Students are also introduced to the art of pairing foods with fine wines for special events. Prereq: CAN 401, CAN 407, CAN 403, CAN 443. Majors only. 1 hour lecture/6 hour lab.

CAN 528 - Culinary Nutrition  
Credits: 2  
The study of dietary needs from a culinary perspective. The focus is on basic nutrition and health with an emphasis on healthy menu and recipe development. Students research, plan, and prepare healthy menus and recipes using healthy cooking techniques. Course will culminate in students completing a healthy cooking demonstration. Prereq: CAN 401, CAN 407. 1hr lec/2 hr lab.

CAN 535 - International Cuisine  
Credits: 5  
International Cuisine allows students to explore different cultures and cuisines of the world. Students study a different country or region each week and learn how history, geography, and main ingredients influence the different cuisines. Students prepare multi-course international menus one evening a week in the dining room at Cole Hall. Prereq: CAN 401, CAN 404, CAN 403, CAN 443. Majors only. Pre-or Coreq: CAN 544, CAN 525. 2 hr lec/6 hr lab. Culinary Arts & Nutrition majors only.

CAN 544 - Catering and Garde Manger  
Credits: 4  
Students apply skills and techniques learned in prior courses and enhance skills in advanced aspects of culinary preparation and management such as garde manger, buffet presentation, event booking, scheduling, and buffet staging. Advanced techniques of garde manger include production of canapes, savory pastries, charcuterie, farces, and sculptured centerpieces. Prereq: CAN 401, CAN 407, CAN 403, CAN 443. Majors only. Pre-or Coreq: CAN 544, CAN 525. 2 hr lec/6 hr lab. Culinary Arts & Nutrition majors only.

CAN 591 - Independent Studies in Culinary Arts  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research.

CAN 596 - Dietetic Technician Independent Study - Dietetic Technician Practicum  
Credits: 3-6  
For Dietetic Technician students who need to take practica at alternate times. There are two practica in the Dietetic Technician major: CAN 290 Clinical Nutrition Practicum 7 cr.; and CAN 260 Community Nutrition Practicum 5 cr. May be repeated for a maximum of 13 credits. Prereq: permission.

CAN 597 - Culinary Arts Internship  
Credits: 5  
Supervised internship of a minimum of 255 hours at a pre-approved property which introduces students to the culinary activities of a licensed food service establishment. Students must be available to participate on weekends and will participate in a variety of on-site activities including proper sanitation, food preparation and handling, knife skills, and line cooking. Students are required to attend a weekly lecture and complete a semester portfolio of activities and assignments. Prereq: CAN 401, CAN 404, CAN 403, CAN 443, CAN 407. Culinary Arts & Nutrition majors only.

CAN 598 - Work Experience  
Credits: 0  
This course enables students to enhance basic cooking skills and techniques learned in the first year. Students obtain industry related employment over the summer generally between the first and second year of academic course work. Documentation of the work experience is required as well as a final written paper. Prereq: CAN 401, CAN 404, CAN 407, CAN 214, CAN 443. Majors only. Cr/F. Culinary Arts & Nutrition majors only.

**Decision Sciences (DS)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**DS 444 - Meaning of Entrepreneurship**  
Credits: 4  
This course explores the idea and ideals of entrepreneurship, the creating of value through individual initiative, creativity and innovation. The idea of entrepreneurship is of significant relevance in the highly dynamic and competitive 21st century global economy. It is an idea that is important for students to understand and to critically consider and apply. Encourages the development of multiple views of entrepreneurship, and uses a broad, not just business, approach to the study as it engages students in the subject matter. Open to all majors. (Also offered as MGT 444.) Writing intensive.  
**Attributes:** Environment, TechSociety(Disc); Social Science GP 7; Inquiry (Discovery); Writing Intensive  

**DS 562 - Business Applications Development**  
Credits: 4  
The course focuses on topics related to designing and using information technology in a business setting. Students gain knowledge and skills in application design, development, deployment, and management. A hands-on approach is used, providing students with opportunities to develop and refine their knowledge and skills. The course introduces software engineering concepts using movie metaphors, and students develop fun, socially-relevant three-dimensional animations. Students also gain experience with object oriented programming using the Java programming language. Prereq: ADMN 410.

**DS 598 - Topics in Decision Sciences**  
Credits: 4  
Special topics; may be repeated.  

**DS 698 - Topics**  
Credits: 1-4  
Special topics; may be repeated up to a maximum of 12 credits. Prereq: permission.
DS 741 - Private Equity/Venture Capital
Credits: 4
This course will notably increase knowledge and understanding of the private equity financing market, develop analytical skills in evaluating private equity financing details, learn from the experience of market practitioners, and enhance oral and written presentation skills. Prereq: ADMN 570 and senior standing.

DS 742 - Internship in Entrepreneurial and Management Practice
Credits: 4
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high-growth environment of entrepreneurial ventures. Focus on several topic areas, including venture capital. Prereq: senior standing; permission.

DS 766 - Business Analytics and Spreadsheet Modeling
Credits: 4
The course focuses primarily on Descriptive and Prescriptive Analytics. Students gain modeling and analysis skills necessary to address a wide variety of business problems. Topics covered include general modeling and analysis principles, principles and practices of good spreadsheet model design, optimization, simulation, decision analysis, and Visual Basic for Applications. Students develop a decision support tool for a real-world problem. Prereq: ADMN 410, ADMN 420.

DS 768 - Forecasting Analytics
Credits: 4
The course focuses on Predictive Analytics. Businesses and organizations need to be able to forecast effectively in order to make decisions. Students learn the background necessary to develop forecasts for real-world business situations. An applied, hands-on approach is used in the course. Students learn and use SAS to analyze data and fit models. Topics include regression analysis in forecasting, model building, residual checking, analysis of seasonal and cyclic trends, and times series models. Prereq: ADMN 410, ADMN 420.

DS 773 - Database Management and Systems Analysis
Credits: 4
Provides students with the skills necessary to understand the database environment of the firm and a background to develop moderately complex, stand-alone databases. Gives the foundation to study database development in multiuser, client/server environments. Prereq: ADMN 410 and junior standing.

DS 774 - E-Business
Credits: 4
Covers the concepts, tools, and strategies for understanding the challenges and exploiting the opportunities associated with e-commerce/e-business. Provides an understanding of the technology platform and its components. Additional material covers various models of e-commerce/e-business and its impacts on the firm’s performance. Prereq: ADMN 410 and junior standing. DS 562 or CS 405 is strongly recommended.

DS 775 - Corporate Project Experience
Credits: 4
Provides real-life experience in organizations. Work in groups on information systems and/or projects identified by sponsoring organizations. Integrate concepts and skills learned in prior business and technology courses. Learn project management concepts, work with project management tools, and use presentation techniques. Prereq: senior standing, DS 773, two additional Information Systems & Business Analytics Option courses.

DS 798 - Topics
Credits: 4
Special topics; may be repeated.

Earth Sciences (ESCI)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ESCI 400 - Freshman Field Seminar
Credits: 1
A field introduction for new or prospective majors to New Hampshire's mountains, rivers, estuaries, and beaches. Field excursions (approximately five) are scheduled on Friday afternoons. Special fee. Ct/F.

ESCI 401 - Dynamic Earth
Credits: 4
In this course we study the minerals, rocks and fluids which make up the Earth; the landforms on the surface of the Earth such as mountains, flood plains and straovolcanoes; and processes such volcanism, earthquakes, erosion and glaciation that create and alter them. The rock cycle and plate tectonics are used to integrate activity at the surface of the Earth with processes in the Earth's interior. Campus field exercises. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 402 - Earth History
Credits: 4
Course provides knowledge and skills necessary to interpret, understand, and appreciate the Earth's 4.6 billion-year history. The first third of the course introduces basic principles, including geological materials, plate tectonics, geological time, fossil preservation, and biological evolution. The remainder of the course tells the story of Earth history through case studies that illustrate scientific methods used to reconstruct critical events in our planet's evolution through time. Topics include the origin of the Earth, the Cambrian explosion of life, building of the Appalachians, assembly of Pangaea, the rise and fall of dinosaurs, the formation of the Rocky Mountains, mammalian evolution, human origins, and Pleistocene glaciation. Students gain experience in making geological observations through laboratory exercises and during one afternoon field trip. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 405 - Global Environmental Change
Credits: 4
Human activity rivals nature as an agent of change in the global environment. Explores evidence of environmental degradation in Earth's crust, hydrosphere, and atmosphere; considers prospects for future sustainable human health, diversity, and economic development. Problem solving through critical analysis of environmental variables. Special fee.
Attributes: Physical Science(Discovery); Physical Science GP 3P
ESCI 409 - Geology and the Environment
Credits: 4
Environmental impact of geologic processes; natural hazards, landslides, earthquakes, volcanoes, flooding, erosion, and sedimentation; land exploitation and site investigations; environmental considerations of water-supply problems; the recovery of energy and mineral resources. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 410 - Earth Hazards
Credits: 4
Introductory-level physical science course concerning earth processes that impact humanity, with natural disasters as the focus. Topics include the causes and effects of earthquakes, tsunamis, volcanic eruptions, floods, and landslides. The course covers basic concepts of physical geology using hands-on-activities, small-group discussions, and in-class demonstrations and is intended for students with little or no previous experience in earth sciences. No prerequisites. Special fee.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 420 - Our Solar System
Credits: 4
Course focuses on the nature and formation of our solar system and the planets associated bodies it contains, with emphasis on the physical and chemical processes significant in the system's origin and evolutionary history. Our approach provides the basis for understanding key differences between the Earth-like terrestrial planets and those farther out in the solar system (the gas giants). We also explore recent discoveries on Mars and moons of the gas giant planets and their implications for the search for life elsewhere in our solar system. Special fee.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 444A - Philosophy of Earth Science
Credits: 4
Course provides an introduction to the discipline of Philosophy of Science, but from an Earth Science perspective. Considers various philosophical perspectives on the nature of science and scientific progress, drawing from works by thinkers such as Aristotle, Popper, Kuhn and Lakatos. Particular attention is given to the following questions: What is scientific knowledge? Is the acquisition of scientific knowledge a rational process? And, what makes some scientific discoveries "revolutionary"? These questions are considered using examples from the history of scientific progress in the Earth Sciences, focusing on groundbreaking discoveries such as the age of the earth, the evolution of organisms as observed in the fossil record, sea-floor spreading, and modern-day global warming.
Attributes: Environment, TechSociety(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

ESCI 444 - Water - How Much is Enough?
Credits: 4
The natural distribution of water is not adequate to sustain modern civilization. As water mining and redistribution projects continue to grow in number and size, so do the concomitant stresses on the environment. Through a detailed look at the unique properties of water and the processes that drive the earth's hydrologic cycle; this course will explore the concepts of water stress, water scarcity, and safe yield.
Attributes: Physical Science(Discovery); Physical Science GP 3P; Inquiry (Discovery)

ESCI 420 - Our Solar System
Credits: 4
Course focuses on the nature and formation of our solar system and the planets associated bodies it contains, with emphasis on the physical and chemical processes significant in the system's origin and evolutionary history. Our approach provides the basis for understanding key differences between the Earth-like terrestrial planets and those farther out in the solar system (the gas giants). We also explore recent discoveries on Mars and moons of the gas giant planets and their implications for the search for life elsewhere in our solar system. Special fee.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

ESCI 501 - Introduction to Oceanography
Credits: 4
Introduces students to the four oceanographic disciplines: the geology of the ocean basins, including the creation of oceans and continents. The physics of the seas, including the origin of the ocean currents and their effect on the Earth's climate. The chemistry of the ocean waters, including how the distribution of elements reflects circulation and biology. The life in the ocean, including animals, plants and microbes, and humanity's influence on them. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P; Inquiry (Discovery)

ESCI 502 - Beaches and Coasts
Credits: 4
Introductory-level physical science course on ocean, air, and landform dynamics affecting beaches and coasts, with considerations of natural processes associated with waves and currents, wind and rain, sediments and rocks, and ecology. Emphasis is placed on impacts on ecosystem and human health, the economics of coastal industry, and consequences of pollution and engineering practices. Topics are approached via real world examples, small-group discussions, and field trips to local sites. No prerequisites. Recitation. Special fee.
Attributes: Physical Science(Discovery); Physical Science GP 3P

ESCI 512 - Principles of Mineralogy
Credits: 4
Minerals record variations in chemistry, pressure, temperature, and time in the Earth. This course emphasizes minerals and mineral assemblages in rocks, sediments and soils; their identification, symmetry, chemistry, equilibria, and physical properties. Introduction to x-ray diffraction and optical techniques. Prereq: CHEM 403 or CHEM 405. Special fee for field trips. Lab.
ESCI 514 - Introduction to Climate
Credits: 3
The climate as a system controlled by the fluid, chemical, geological, and biological dynamics of the earth. Investigation of natural and man-made climate change over the period of 100 to 100 million years, including the greenhouse effects, tectonic climate forcing, astronomic (Milankovich) cycles, deep ocean circulation, and biological feedback. How past climate is measured. Prereq: one introductory course in Earth Sciences or permission.

ESCI 530 - Geological Field Methods
Credits: 4
An introduction to basic geologic field mapping of bedrock and surficial materials using pace and compass, surveying and GPS techniques. Observational data plotted on topographic maps and/or aerial photographs, accompanied with stratigraphic measurements and sampling sites where appropriate, provide the basis for interpretative maps, cross sections and written reports and a field context for more advanced Earth sciences course work and independent research. One weekend field trip to western or northern New England. Prereq: ESCI 401 or ESCI 409, ESCI 402. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ESCI 534 - Techniques in Environmental Sciences
Credits: 3
Elementary mapping and monitoring methods. Map interpretation, preparation of maps; survey techniques including pace and compass, leveling, and global positioning systems; environmental monitoring. Field lab. Cannot receive credit if taken after receiving credit for ESCI 530 or NR 542. Special fee.

ESCI 561 - Landscape Evolution
Credits: 4
Course focuses on the processes that shape the Earth's surface. Lectures discuss the development of landscapes in a wide variety of climatic and geologic settings, with an emphasis on understanding the process mechanics that create landforms and surficial deposits. Labs involve topographic map interpretation, geomorphic data analysis, and short field exercises. Course incorporates one weekend field trip that explores the landscapes of Cape Cod. Students also gain practical experience in geomorphic research by teaming up and completing a required laboratory field-based project. Prereq: ESCI 401, ESCI 402, or permission. Lab. Special fee.

ESCI 595 - Introductory Investigations
Credits: 1-4
Special topics by means of lectures, conferences, assigned readings, and/or field or laboratory work in the areas of geology, hydrology, or oceanography. May be repeated up to a maximum of 8 credits.

ESCI 596 - Introductory Investigations
Credits: 1-4
Special topics by means of lectures, conferences, assigned readings, and/or field or laboratory work in the areas of geology, hydrology, or oceanography. May be repeated up to a maximum of 8 credits.

ESCI 614 - Introduction to Petrology
Credits: 4
Description, classification and formation of igneous, sedimentary, and metamorphic rocks in the field, hand specimen, and thin section. Prereq: ESCI 401, ESCI 409, or ESCI 501; and ESCI 512. Special fee. Lab and field trips.

ESCI 631 - Structural Geology
Credits: 4
Structural units of the Earth's crust and mechanics of their formation. Prereq: ESCI 530. Special fee. Lab and fieldwork.

ESCI 652 - Paleontology
Credits: 4
Use of the fossil record to address current problems in Earth history, paleoecology, and evolutionary biology. Examples are drawn from both vertebrates and invertebrates. Lab combines analytical paleontological methods with a systematic survey of important fossil groups. Prereq: ESCI 402 or permission. Special fee. Lab.

ESCI 654 - Fate and Transport in the Environment
Credits: 4
An introduction to the basic processes controlling the migration and transformation of chemicals in surface water, groundwater, and the atmosphere, including advection, diffusion, dispersion, retardation, and chemical reaction. Extensive practice with quantitative problem solving in the environmental sciences, including constructing and using box models. Prereq: CHEM 404 or CHEM 405, MATH 425 or MATH 424B.

ESCI 701 - Quantitative Methods in Earth Sciences
Credits: 4
Introduces quantitative tools necessary for upper level Earth Science courses. Includes basic statistical descriptions of spatially and temporally varying data, curve fitting, and time-series analysis with emphasis on atmospheric, oceanic and terrestrial data sets. Students learn to construct simple numerical models of Earth Systems. Instruction in data analysis and modeling in Matlab. Prereq: MATH 426, and ESCI 401, ESCI 402 or ESCI 501; or permission.

ESCI 705 - Principles of Hydrology
Credits: 4
Basic physical principles important in the land phase of the hydrologic cycle, including precipitation, snowmelt, infiltration and soil physics, evapotranspiration, and surface and subsurface flow to streams. Problems of measurement and aspects of statistical treatment of hydrologic data. Field trips. Prereq: ESCI 654. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

ESCI 710 - Groundwater Hydrology
Credits: 4
Principles for fluid flow in porous media with emphasis on occurrence, location, and development of groundwater but with consideration of groundwater as a transporting medium. Major topics include well hydraulics, regional groundwater flow, exploration techniques, and groundwater modeling. Laboratory exercises involve use of fluid, electrical, and digital computer models to illustrate key concepts. Prereq: ESCI 654. Special fee. Lab.

ESCI 726 - Igneous and Metamorphic Petrology
Credits: 4
This course focuses on the origin and evolution of igneous and metamorphic rocks from field, petrographic mineral chemistry, experimental, and theoretical studies. Igneous systems include volcanic and plutonic suites, with emphasis on mineralogic records of magma chamber systematics. Metamorphic systems include pelitic, mafic, and calc silicate rocks, with special emphasis on closed- and open-system reactions, mutl-systems, reaction space, and pressure-temperature-time paths. Prereq: ESCI 614; adequate calculus, chemistry, and physics. Field trips. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
ESCI 731 - Geodynamics
Credits: 4
Application of quantitative methods to geologically motivated problems, focusing on lithospheric deformation, topography, and fluid flow. Students acquire geophysical and geochemical techniques used to address dynamics in the Earth system. Includes biweekly recitation sessions for working through problem sets and facilitating discussions of relevant papers from the literature. Prereq: CHEM 404 or ESCI 512 and ESCI 658 or permission.

ESCI 734 - Geophysics
Credits: 4
The structure of the solid Earth, including the continental and oceanic lithosphere and the deep interior as revealed by investigations of seismic waves, the Earth's gravitational and magnetic fields, heat flow, and earthquakes. Prereq: ESCI 401; one year of calculus; one year of college physics; ESCI 658; or permission. Special fee. Lab.

ESCI 735 - Earthquakes and Faulting
Credits: 4
This course provides an introduction to the principles of brittle faulting and earthquake mechanics. We discuss classic theory and current topics in earthquake science based on observations from laboratory experiments, seismology, geodesy, and geology. Prereq: MATH 425 and MATH 426, PHYS 407, and ESCI 631 or permission. Writing intensive.
Attributes: Writing Intensive Course

ESCI 741 - Geochemistry
Credits: 4
Course focuses on the application of chemical principles to solve problems in the Earth sciences. Students learn the chemical tools of thermodynamics and kinetics, element partitioning, conservation of mass, and isotope geochemistry. Explore geochemical properties/processes in the deep Earth and the Earth surface, atmosphere and marine systems, and cosmo-chemistry and investigate the interactions between these components of the Earth system. Prereq: MATH 426; CHEM 404 or permission. Lab. Writing intensive.
Attributes: Writing Intensive Course

ESCI 745 - Isotope Geochemistry
Credits: 4
Course focuses on the application of radiogenic, radioactive and stable isotopes to improve students' knowledge about the processes and timescales relevant to the formation of the planet and solar system, the evolution of the Earth system and interactions in the hydrosphere and biosphere. Topics include geochronology, tracer applications, Earth surface applications, as well as applications in the hydrosphere and biosphere. Systems discussed include the classic radiogenic systems (K-Ar, Rb-Sr, Sm-Nd, Lu-Hf and U-Th-Pb), traditional (H, C, N, O) as well as nontraditional (e.g., Mg, Ca, Fe) stable isotope systems, and radioactive isotopes (e.g., radiocarbon). Course consists of lecture, where students are exposed to these applications, and a lab section to work through any questions on the homework assignments, discuss relevant papers from the literature, and carry out a project. Prereq: MATH 426, CHEM 404. Special fee. Lab.

ESCI 747 - Aqueous Geochemistry
Credits: 4
The chemical processes that determine the composition of aquatic systems such as rivers, lakes, groundwater and the ocean. The goal is to quantitatively understand the behavior of inorganic species such as carbon dioxide, nutrients, trace metals and inorganic pollutants in natural waters. Topics include, acid-based equilibria, carbonate chemistry, reduction-oxidation reactions, organic complexation and mineral precipitation and dissolution. Lab. Prereq: one year college chemistry or geochemistry or permission. Prereq: CHEM 404 and MATH 426.

ESCI 750 - Biological Oceanography
Credits: 4
Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ZOOL 750.) Special fee. Lab. (Not offered every year.)

ESCI 752 - Chemical Oceanography
Credits: 3
This course investigates the physical and biogeochemical processes that determine the composition of seawater. Topics include biological effects on chemistry, ocean nutrient cycles, air-sea gas exchange, radiogenic and stable isotopes as tracers of ocean processes, sediment and trace-metal chemistry. Prereq: MATH 426 and CHEM 404.

ESCI 754 - Sedimentology
Credits: 4
This course focuses on modern sedimentary processes and ancient sedimentary records through the examination, identification, and interpretation of sediments and sedimentary rocks. Topics such as sediment transport mechanisms, depositional environments, and time in sedimentary records will provide a strong framework for any student studying Earth processes and sedimentary systems. Prereq: ESCI 401 or ESCI 402 or ESCI 501, and ESCI 512; or permission. Special fee. Lab and field trips.

ESCI 756 - Geotectonics
Credits: 3
The geological record of plate tectonics past and present. The first part of the course focuses on modern tectonic settings with an emphasis on plate geometries, geodynamical processes, and sedimentary products. The second part of the course focuses on reconstructing ancient tectonic settings with an emphasis on methodology (paleomagnetism, basin analysis, provenance) and case studies (e.g. India-Asia collision). Field trip. Prereq: ESCI 614 or ESCI 631 or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ESCI 758 - Introductory Physical Oceanography
Credits: 3
Descriptive treatment of atmosphere-ocean interaction; general wind-driven and thermo-haline ocean circulation; waves and tides; continental shelf and near-shore processes; instrumentation and methods used in ocean research. Simplified conceptual models demonstrate the important principles. Prereq: PHYS 407; ESCI 501; or permission.
ESCI 759 - Geological Oceanography
Credits: 4
Major geological features and processes of the ocean floor; geological and geophysical methods; composition of the earth, sedimentary processes, plate tectonics and paleoceanography. Prereq: Senior standing in Earth Science major or permission. Writing intensive.
Attributes: Writing Intensive Course

ESCI 762 - Glacial Geology
Credits: 4
Course provides a survey of glacier dynamics and processes, with an emphasis on understanding the origin and significance of glacial deposits and landforms. The first half of the course examines the physics of glaciers, and the second half focuses on glacial geologic processes. Lectures discuss glaciology and ice sheets as key agents of large-scale geomorphic change, as well as their central role in the Earth's past and present climate system. Labs involve analysis of glaciological data, glacial-geologic map interpretation, and short field exercises. Course incorporates one mandatory weekend field trip that explores the glacial landscapes of New England. Prereq: ESCI 561 or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

ESCI #764 - Data Analysis in Earth System Science
Credits: 4
Analytical and numerical methods used to understand geospatial and time series data sets encountered in Earth system science research. Students develop skills in data analysis, primarily through writing and modifying their own computer programs, focused on particular aspects of real data sets. Understanding various data types, formats, and projections, and how to handle them, are also covered. Prereq: one year calculus, one year chemistry, basic statistics;/or permission. Special fee.

ESCI 765 - Paleoclimatology
Credits: 3
Course reviews the study of past changes in the Earth's climate system. Main discussion topics include astronomical theories of ice ages, Quaternary dating methods, Antarctic and Greenland ice core records, greenhouse gases, marine-based climate proxies, glacial mega-floods, and linkages between ocean circulation and abrupt climate change. Emphasis on climate variability during the Quaternary period (the last approximately 1.8 million years), a time interval dominated by cycles of global glaciation. Lectures include discussion of recent and emerging scientific papers in order to keep pace with the latest findings in paleoclimatic research. Writing intensive.
Attributes: Writing Intensive Course

ESCI 766 - Volcanology
Credits: 4
Provides a comprehensive overview of volcanic processes and their influences on planetary evolution and modern-day Earth systems. Lectures discuss the generation and properties of magma, tectonic setting of volcanism, eruption styles, volcanic landforms and products, monitoring of active volcanoes, volcanic hazards, and volcanism on other planets. Laboratory topics include modeling volcanic processes, handsample observation, topographic map interpretation, volcanographical data analysis, and two afternoon field trips. As volcanology is a rapidly developing field of active research, the course incorporates discussions of recent and emerging scientific papers from the literature and student-led updates of ongoing volcanic activity. Prereq: one year of calculus and one ESCI course or permission. Special fee. Lab.

ESCI 771 - Geodesy and Positioning for Ocean Mapping
Credits: 4
The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as OE 771.)

ESCI 795 - Topics
Credits: 1-4
Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods. May be repeated a maximum of 3 times for no more than four credits.

ESCI 796 - Topics
Credits: 1-4
Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods. Special fee on some topics.

ESCI 797 - Colloquium
Credits: 0
Presentation of recent research in the earth sciences by guest speakers and department faculty. May be taken four times. Cr/F.

ESCI 799 - Senior Thesis
Credits: 1-4
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in an oral presentation and a written thesis. Research projects should include the development of a research question; collection analysis, and synthesis of data; and interpretation and presentation of results. A copy of the written thesis must be submitted to the Chair of the Department of Earth Sciences prior to graduation. A total of 4 credits is required and may be completed over multiple semesters. Writing intensive.
Attributes: Writing Intensive Course

Ecogastronomy (ECOG)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
ECOG 401 - Introduction to Ecogastronomy
Credits: 4
This interdisciplinary course introduces students to the principles and practices of EcoGastronomy. It provides students with a foundation for understanding the connections among food production, ecology, ethics, cuisine, nutrition and health within the framework of sustainability. The course includes guest lectures, class discussion, film reviews, activities, and food tastings.
Attributes: Environment; TechSociety(Discovery); Technology GP 3T

ECOG 685 - EcoGastronomy Study Abroad
Credits: 20
Open to students studying abroad in the discipline as approved by the EcoGastronomy program director and the student's college dean. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ECOG 695 - Independent Analysis
Credits: 1-4
Study and research project for students to advance knowledge in EcoGastronomy fields. Course may be repeated up to a maximum of 8 credits. Prereq: At least Junior standing and permission.

ECOG 696 - Supervised Student Teaching Experience
Credits: 4
Participants are expected to perform such functions as attending classes, leading discussion groups, assisting faculty, presenting information in undergraduate courses that they have successfully completed, holding office hours, grading papers and exams. Enrollment is limited to juniors and seniors who have had above average GPAs. Prereq: permission of instructor, program director, director of advising and ECOG 401.

ECOG 698 - Topics
Credits: 1-4
Special topics and developments in EcoGastronomy. Prereq: junior standing and permission. Course may be repeated when topics change up to a maximum of 8 credits.

ECOG 701 - EcoGastronomy Capstone
Credits: 2-4
This is a one to two-semester course in which students will synthesize their EcoGastronomy experience with their undergraduate education, including their primary major, and will explore an integrated outlook on their professional future. Filed trips, guest lecturers, experimental activities, and related readings and research will provide the foundation for the completion of a portfolio. A research paper is presented at the Undergraduate Research Conference in the spring. Prereq: ECOG 401 & Study Abroad. Writing intensive.
Attributes: Writing Intensive Course

Economics (ECON)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECON 401 - Principles of Economics (Macro)
Credits: 4
Basic functions of the United States economy viewed as a whole; policies designed to affect its performance. Economic scarcity, supply and demand, the causes of unemployment and inflation, the nature of money and monetary policy, the impact of government taxation and spending, the federal debt, and international money matters. ECON 401A emphasizes applications to the international economy. ECON 401H is open to students in the Honors Program. No credit for students who have received credit for ECON 401A, ECON 401H, ECN 411, or equivalent.
Attributes: Social Science (Discovery); Social Science GP 7

ECON 401H - Honors/Principles of Economics (Macro)
Credits: 4
Basic functions of the United States economy viewed as a whole; policies designed to affect its performance. Economic scarcity, supply and demand, the causes of unemployment and inflation, the nature of money and monetary policy, the impact of government taxation and spending, the federal debt, and international money matters. ECON 401A emphasizes applications to the international economy. ECON 401H is open to students in the Honors Program. No credit for students who have received credit for ECON 401, ECON 401A, ECN 411, or equivalent.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

ECON 402 - Principles of Economics (Micro)
Credits: 4
Functions of component units of the economy and their interrelations. Units of analysis are the individual consumer, the firm, and the industry. Theory of consumer demand and elasticity, supply and costs of production, theory of the firm under conditions of perfect and imperfect competition, demand for and allocation of economic resources, general equilibrium, and basic principles and institutions of international trade. ECON 402A emphasizes applications to the international economy. ECON 402H is open to students in the Honors Program. No credit for students who have received credit for ECON 402, ECON 402H, EREC 411, ECN 412, or equivalent.
Attributes: Social Science (Discovery); Social Science GP 7

ECON 402H - Honors/Principles of Economics (Micro)
Credits: 4
Functions of component units of the economy and their interrelations. Units of analysis are the individual consumer, the firm, and the industry. Theory of consumer demand and elasticity, supply and costs of production, theory of the firm under conditions of perfect and imperfect competition, demand for and allocation of economic resources, general equilibrium, and basic principles and institutions of international trade. ECON 402A emphasizes applications to the international economy. ECON 402H is open to students in the Honors Program. Writing intensive. No credit for students who have received credit for ECON 402, ECON 402A, EREC 411, ECN 412, or equivalent.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course
ECON 501 - Business and Economic History
Credits: 4
This course studies the historical influence of business enterprises on the development of capitalist economies, with an emphasis on the United States. Topics include the rise of manufacturing, development of financial institutions and markets, innovation and new markets, the role of the entrepreneur, and the impact of government policy on business development. Because this is an Inquiry course, each student will pursue a major research project. Does not satisfy Economics Major or Minor requirements. DISC: HP and INQ.
Attributes: Historical Perspectives (Disc); Historical Perspectives GP 4; Inquiry (Discovery)

ECON 551 - Careers in Economics - Seminar
Credits: 2
This career seminar is designed to provide economics majors with an opportunity to learn more about potential careers in the field. Students take a number of self-assessments and are exposed to the full depth of career opportunities. Prereq: ECON 401, ECON 402. Does not satisfy Economics Major requirements. Economics majors only. Cr/F.

ECON 552 - Careers in Economics - Field Experience
Credits: 2
This career seminar is the second course in the ECON 551/552 sequence. It is designed to give students an opportunity to observe real work environments and then share those experiences with other students enrolled in the course. Does not satisfy Economics Major requirements. Economics majors only. Requires: ECON 401, ECON 402, ECON 551.

ECON 565 - Predictive Modeling: Data Driven Economic Analysis
Credits: 4
This course expands upon core topics in statistics through the study and practice of data management, data analysis, and statistical programming. Statistical programming and analytical skills are the key components of predictive modeling. Students will develop tools for collecting, organizing, interpreting, presenting, and analyzing business information. As an economics course an emphasis will be placed on how to use data to improve the information needed to make sound economic and business decisions based on marginal analysis. Prereq: ECON 401, ECON 402, ECON 551.

ECON 605 - Intermediate Microeconomic Analysis
Credits: 4

ECON 605W - Intermediate Microeconomic Analysis
Credits: 4
Attributes: Writing Intensive Course

ECON 606 - Intermediate Microeconomics with Calculus
Credits: 4

ECON 611 - Intermediate Macroeconomic Analysis
Credits: 4
Macroeconomic measurement, theory, and public policy determination. Prereq: ECON 401 and ECON 402.

ECON 625 - Economic History of the United States
Credits: 4
This course studies the development of the U.S. economy from colonial times to the 21st century. The role that institutions, innovations and government policy play in economic development is a central theme of the course. Western settlement, slavery and abolition, the rise of manufacturing and the corporate business, emergence of affluence and consumer society, and the Great Depression are some of the topics addressed. Prereq: ECON 401 or ECON 402; or permission.

ECON 635 - Money and Banking
Credits: 4
Study of how the financial sectors of globally interconnected economies impact real economic activity. It includes interrelationships of interest rates, exchange rates, expectations, financial markets, financial institutions, central banks, systemic crises, the supply and demand for money and other financial instruments, and an introduction to monetary theory, policy and regulation. Prereq: ECON 401 and ECON 402.

ECON 642 - Health Economics
Credits: 4
Theoretical and empirical analysis of the U.S. health care delivery sector. While topics evolve from year-to-year, in recent years they included errors policy makers have made because they didn't understand basic demand and supply analyses, cost-effectiveness analyses of new medical technologies, overlooked causes of rising health care expenditures, and explanations of our highest -in-the-world prescription drug prices. (Also listed as HMP 642). Does not satisfy Economics Major or Minor requirements.

ECON 645 - International Economics
Credits: 4
Covers both international trade theory and open-economy macroeconomics. Some of the major issues include whether free trade is always preferred to restricted trade, the controversy over industrial policy and how best to structure the international financial system. Students gain an understanding of topics including currency exchange rate movements, and trade policy, among others. Prereq: ECON 401 and ECON 402.

ECON 651 - Governmental Regulation of Business
Credits: 4
Mergers, competition, monopoly, and the regulated industries. Prereq: ECON 402.

ECON 653 - Law and Economics
Credits: 4
Introduces the field of Law and Economics. Focuses on the legal system and the economic consequences of property, contract, tort, criminal law and mediation. Prereq: ECON 402. Writing intensive.
Attributes: Writing Intensive Course
ECON 654 - Industrial Economics and Business Innovation
Credits: 4
This course will provide students with a survey of economic models in industrial organization, applied to innovation-related issues. The course is divided into three sections. In the first one, we introduce the concept of innovation, its measurement and how it is related to knowledge. In the second part, we look at innovation at the firm level. In particular, we delve into the “knowledge-creating” company and its strategies. Finally, we analyze the structure and evolution of several hi-tech industries, in terms of survival of existing firms and creation of new firms. Prereq: ECON 401 and ECON 402. Writing intensive.
Attributes: Writing Intensive Course

ECON 655 - Innovation in the Global Economy
Credits: 4
This course will provide students with a survey of economic models in international trade, applied to innovation-related issues. The course is divided into three sections. In the first one, we look at the role that industry, universities, and the government play in the national innovation system. In the second part, we look at innovation from an international perspective. In particular, we delve into the relationship between globalization and innovation. Finally, we analyze the role of externalities in the knowledge economy and particularly network effects in the diffusion of new technologies. Prereq: ECON 401 and ECON 402. Writing intensive.
Attributes: Writing Intensive Course

ECON 656 - Labor Economics
Credits: 4
Functioning of labor markets from theoretical and policy perspectives. Labor demand and supply, wages and employment. Welfare programs, human capital, discrimination in the labor market, unions, wage differentials. Prereq: ECON 401; ECON 402; ECON 605 recommended.

ECON 658 - Economic Development
Credits: 4
An exploration of the theorizing (ways of seeing) and resulting policies (ways of doing) in Third World development. How the ‘West’ constructed the ‘Rest’. Theories of development and underdevelopment. Development as industrialization with its urban bias. A planet of slums? The ambivalent effects of technological change in the Third World. An examination of agriculture (famines, green revolution, case study of opium cultivation in Afghanistan). International institutions’ versus NGO’s approaches to development. Grassroots development, participation and post-development. Prereq: ECON 401; ECON 402; ECON 605 recommended.
Attributes: Writing Intensive Course

ECON 668 - Economic Development
Credits: 4
Examines the position, roles, and contributions of women in economic development as interpreted though different discourses (feminisms, modernity, post-modernity) and in theoretical conceptualizations (neoclassical integrationist, liberal feminism, class and gender, Feminist ecology). Applied analyses on Africa, South Asia and Latin America. Writing intensive.
Attributes: Writing Intensive Course

ECON 669 - Women and Economic Development
Credits: 4
Examines the position, roles, and contributions of women in economic development as interpreted though different discourses (feminisms, modernity, post-modernity) and in theoretical conceptualizations (neoclassical integrationist, liberal feminism, class and gender, Feminist ecology). Applied analyses on Africa, South Asia and Latin America. Writing intensive.
Attributes: Writing Intensive Course

ECON 676 - Economics of Sports
Credits: 4
Focuses on the major economic aspects of North American professional and collegiate sports and special topics like the Olympics, discrimination, and tournament sports drawing from public finance, labor economics, and industrial organization. Prereq: ECON 402. Writing intensive.
Attributes: Writing Intensive Course

ECON 685 - Study Abroad
Credits: 1-16
Open to students studying abroad in the discipline as approved by the economics program director. Cr/F.

ECON 686 - Study Abroad
Credits: 1-16
Open to students studying abroad in the discipline as approved by the economics program director. Cr/F.

ECON 695 - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of an economics faculty member must be obtained followed by approval of PAUL advisor and dean’s office. Special permission required to earn more than 4 credits in one semester. For Paul College juniors and seniors in with 3.0 or better cumulative GPA

ECON 695W - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of an economics faculty member must be obtained followed by approval of PAUL advisor and dean’s office. Special permission required to earn more than 4 credits in one semester. For Paul College juniors and seniors in with 3.0 or better cumulative GPA. Writing intensive.
Attributes: Writing Intensive Course

ECON 696 - Supervised Student Teaching Experience
Credits: 1-8
Participants are expected to perform such functions as leading discussion groups, assisting faculty in undergraduate courses that they have successfully completed, or working as peer advisers in the advising center. Enrollment is limited to juniors and seniors who have above-average G.P.A.s. Reflective final paper is required. Prereq: permission of instructor, department chair, and director of undergraduate programs. No more than 4 credits may be earned as a teaching assistant in any one course. May be repeated to a maximum of 8 credits. Cr/F.

ECON 698 - Topics
Credits: 4
Special topics. May be repeated. Writing intensive.
Attributes: Writing Intensive Course

ECON 706 - Economics of Climate Change
Credits: 4
Explores the economics and public policy of global climate change and develops the economic theory including the concepts of externalities, stock pullulant models, the social discount rate, and complicating factors such as information, uncertainty, technological progress, and risk. Students use economic analysis to compare different policy instruments such as administrative regulation, marketable permits, tax incentives, and direct subsidies. Also covers the political economy of international environmental agreements, including an analysis of the Kyoto Protocol. Prereq: ECON 401, ECON 605. Writing intensive.
Attributes: Writing Intensive Course
ECON 726 - Introduction to Econometrics
Credits: 4
Introduces regression techniques as used in economics and management; estimation and statistical inference in the context of the general linear model; discussion of problems encountered and their solutions; extensions of the general linear model. Prereq: ADMN 420 or equivalent.

ECON 727 - Advanced Econometrics
Credits: 4

ECON 736 - Seminar in Monetary Theory and Policy
Credits: 4
Contemporary developments in monetary theory and the evaluation of policy measures. Prereq: ECON 635. Writing intensive.
Attributes: Writing Intensive Course

ECON 746 - International Finance
Credits: 4
International monetary mechanism; balance of payments, international investment, exchange rates, adjustment systems, international liquidity, foreign aid, multinational corporations. Prereq: ECON 611; ECON 645. Writing intensive.
Attributes: Writing Intensive Course

ECON 747 - Multinational Enterprises
Credits: 4
Internationalization of economies. Growth and implications of multinational corporations at the level of systems. Theories of imperialism, international unity/rivalry; theories of direct investment, exercise of influence and conflict, technology transfer, bargaining with host country; effects on U.S. economy. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

ECON 768 - Seminar in Economic Development
Credits: 4
Advanced reading seminar. Topics include methodologies underlying economic development theory, industrialization and post-import substitution, state capitalist development, stabilization policies, appropriate technologies, the capital goods sector, agricultural modernization schemes, and attempts at transition to socialism.

ECON 774 - Senior Economics Seminar
Credits: 4
Capstone experience for students enrolled in the Economics B.A. program. Topics and format of the class depends on the interests and expertise of the faculty member and students of the course. The course is organized around a “big” idea and focuses on an important topic that has broad interest and social consequences. Prereq: ECON 605, ECON 611. Writing intensive.
Attributes: Writing Intensive Course

ECON 775 - Applied Research Skills for Economists
Credits: 4
Capstone course for students enrolled in B.S. in analytical economics. Students conduct economic research by bringing their understanding of economic theory and empirical/analytical skills to investigate contemporary economic problems, issues, and phenomena. Presentations are calculus-based. The topics and course design vary depending on the instructor. Prereq: ECON 606, 611, 726. Writing intensive.
Attributes: Writing Intensive Course

ECON 795 - Internship
Credits: 1-16
On-the-job skill development through fieldwork in an organization (business, industry, health, public service, etc.). Normally, supervision is provided by a qualified individual in the organization, with frequent consultation by a faculty sponsor. Written report required. Internships may be part or full time, with course credits assigned accordingly. May not be used as a major elective. Cr/F.

ECON 798 - Economic Problems
Credits: 2 or 4
Special topics; may be repeated. Prereq: permission of adviser and instructor. Writing intensive.
Attributes: Writing Intensive Course

ECON 799 - Honors Thesis
Credits: 4-8
Supervised research leading to the completion of an honors thesis; required for graduation from the honors program in economics. Writing intensive.
Attributes: Writing Intensive Course

Economics-UNHM (ECN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECN 410 - History of Literary Economics
Credits: 4
An examination of the contributions of fiction writers to the history of economic thought. Novels and short stories are analyzed in conjunction with studying influential and heterodox schools of economic thought. Fiction writers will vary by semester (e.g., Mark Twain, Edith Wharton, Charlotte Perkins Gilman, Theodore Dreiser, Jack London, Ayn Rand, F. Scott Fitzgerald and Louisa May Alcott). Schools of economic thought examined include critics as well as advocates of free market capitalism. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ECN 411 - Introduction to Macroeconomic Principles
Credits: 4
Studies economic performance and the use of fiscal and monetary policies in the U.S. No credit for students who have received credit for ECN 401.
Attributes: Social Science (Discovery); Social Science GP 7
ECN 411W - Introduction to Macroeconomic Principles
Credits: 4
Studies how an economy functions. Develops measures and theories of economic performance to study such issues as unemployment, inflation, international trade and finance, and the level of national production. Examines government policies designed to correct for unemployment and inflation with close attention to the use of fiscal and monetary policies in the U.S. No credit for students who have received credit for ECON 401. Writing Intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

ECN 650 - Economics for Managers
Credits: 4
Examines how economic principles can be applied to resource allocation problems confronted by managers in a variety of industry settings. Emphasis on both theory and application. Topics include cost analysis, production decisions, and pricing policies of business managers within perfectly competitive, monopolistic, oligopolistic, and monopolistically competitive environments. Prereq: ADM 400, ECN 412 and sophomore standing or permission of instructor.

Education (EDUC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

EDUC 400 - Careers in Education: Exploring Professional Contexts
Credits: 1
Designed for students interested in learning about careers in education, this survey course explores professional opportunities in both formal and informal education settings within P-12 teaching and beyond (i.e., research, museum director, counseling, social work, educational software developer, etc.). Faculty from multiple disciplines and local professionals will present seminars and lead discussions about their role in addressing contemporary issues in education. Students will consider pathways that can be taken to pursue professional goals. Cr/F.

EDUC 401 - Current Issues in Education
Credits: 2
This survey course explores current issues in education through multiple professional lenses. Students will consider the relationship between their career pathways and key issues impacting educational settings including social media, poverty, curriculum, assessment and evaluation. Cr/F.

EDUC 444B - Be the Change You Want to See: Active Citizenship in a Multicultural World
Credits: 4
This is a first-year inquiry course intended primarily for students participating in the Common Purposes residential living program. The course offers multidisciplinary content focused on active citizenship in a pluralistic democracy. The primary organizing concept of the course is community; assignments focus on deliberative dialogue, public reasoning, collective action, and social justice. The course is taught as a seminar and includes on-campus and off-campus applied projects.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

EDUC 500 - Exploring Teaching
Credits: 4
For students considering a teaching career. In-school experiences to develop introductory skills in teaching. On-site seminars for analysis and evaluation. Assessment and advising related to teaching as a career. Prerequisite for further work toward teacher licensure. Minimum of 7 hours a week, plus travel time, required. Repeatable up to a maximum of 8 credits. Prereq: permission. Special fee. Cr/F.

EDUC 506 - Literacy Tutoring at the Elementary School Level
Credits: 2
Supports students volunteering as reading and writing tutors in local elementary schools. Explores student-tutor relationships, student engagement, mentoring, literacy best-practices, and lesson-planning. Includes a weekly tutoring commitment through Seacoast Reads. May be repeated up to 3 times (6 credits).
EDUC #507 - Mentoring Adolescents  
Credits: 2  
This seminar is intended for undergraduate men and women who are mentoring local middle-school students on a weekly basis. The mentoring involves minimally tutoring the mentees once a week at their schools. The seminar meets twice a month for two hours. Additionally, one tutoring session a month is reserved for a focus group discussion involving the mentors and their mentees at the school site. May be repeated for a maximum of 12 credits.

EDUC 520 - Education, Poverty, and Development  
Credits: 4  
An examination of the human and institutional relationships among education, poverty, and social development. This course will emphasize the ways in which access to universal, effective education is correlated with the incidence of childhood poverty and its reduction in the US and selected countries in the developed and developing world. Interactive, discussion-based classes. Prior coursework in social or political sciences, economics, international affairs, health sciences, or related fields suggested. Not open to freshmen. 4 credits.  
Attributes: Social Science (Discovery); Social Science GP 7

EDUC 525 - Teaching Race  
Credits: 4  
This course examines the idea of race from the perspective of science, history, and lived experience to help the student properly evaluate inequalities of treatment (on the basis of race or any other marker) in various sectors of life in the United States. The course aims at helping the student a) perceive what is taught about race and what is communicated in our schools and colleges about the meaning of racial ascription, of color, and whiteness and b) to figure out how the power of educational institutions can best be used to promote equality and racial justice in society.

EDUC 550 - Language and Linguistic Diversity in Schools  
Credits: 4  
The course offers a broad examination of language and linguistic diversity, drawing from education, sociolinguistics, anthropology, child development, and related fields. Through the critical examination of the language environments of schools, assumptions of linguistic diversity are examined. Various educational system interventions, presenting successes, challenges, limitations, and controversies are considered. A minimum of 20 hrs of fieldwork beyond classroom time is required. Students have the opportunity to identify age group preference for field placement. Prereq: permission.

EDUC 556 - Mentoring Adolescents with Disabilities in the Transition to Work  
Credits: 2  
This course introduces undergraduates to a mentoring experience with an adolescent with a disability in a supportive setting. Students develop a beginning understanding of disabilities and the impact those disabilities might have on learning; the development of work-related skills; and the importance of natural supports within the work environment. Each mentor/mentee relationship will be individualized based on the needs of the participants. May be repeated to a maximum of 12 credits.

EDUC 625 - Anthropological Thinking on Education  
Credits: 4  
Education is about, by, and for human beings. It takes place in a sociocultural context. It involves learning and, in many societies of the world, schooling. Education should, therefore, be understood from the viewpoint of what is known about human beings, i.e., from the viewpoint of anthropology. This course introduces the student to five key ideas in anthropology that help us think about education. The ideas are: Evolution, Culture, Structure, Function, and Relativism. The course is organized that the introduction of each idea is followed by select readings that illustrate how the idea bears on education. It is hoped that the course will provide the student with a conceptual framework for analyzing educational policies and practices.

EDUC 694 - Courses in Supervised Teaching  
Credits: 8  

EDUC 694D - Courses in Supervised Teaching  
Credits: 4  
Supervised teaching of Kinesiology. Kinesiology majors only. Special fee. Cr/F.

EDUC 700 - Educational Structure and Change  
Credits: 4  
To assume leadership roles, beginning teachers need to develop an informed understanding of how they can operate effectively as decision-makers and agents of change within educational institutions. Such understanding entails knowledge of the politics, history, organization, and function of schools from a variety of viewpoints: historical, sociological, political, and cross-cultural. This course focuses on the structure of public education, on the nature of educational change, and the teacher's role in the change process.

EDUC 701 - Human Development and Learning: Educational Psychology  
Credits: 4  
Child development through adolescence, theories of learning (including Piaget, information processing, and Vygotsky), conceptions of intelligence, moral education, research in teaching and teacher effectiveness, cross-cultural variability, gender and sexual orientation, management and discipline, and assessment and grading – all applied to problems of classroom and individual teaching and learning. Junior and Senior status. Writing intensive.  
Attributes: Writing Intensive Course

EDUC 703C - Classroom Management: Creating Positive Learning Environments  
Credits: 4  
This course is designed to help prospective and current teachers create and maintain caring, respectful classroom communities in which learners feel safe, valued, cared for, valued, and empowered. The course includes a strong emphasis on developing knowledge about the culture and backgrounds of children and families in order to establish positive interactions within the classroom community. The course addresses the challenges and opportunities in creating community in the increasingly diverse student populations in US schools. We will consider what it means to be culturally responsive in order to establish a classroom in which all students can succeed academically and socially.
EDUC 703D - Social Studies Methods for Middle and High School Teachers  
Credits: 4  
The social studies theory and methods course begins with an overview of the varied and, at times, competing goals and visions of the profession. Students examine these goals and their underlying rationales, and then develop their own philosophy of social studies teaching and learning. Students also examine state and national scope and sequence frameworks for the social studies, as well as the language arts Common Core standards. A variety of classroom strategies and methods are explored during the remainder of the course, including unit design, leading class discussions, how to approach controversial issues, teaching concepts and generalizations, increasing student engagement and empathy with the past, incorporating technology and the arts, management and discipline, and formats for assessment and grading.

EDUC 703F - Teaching Elementary School Science  
Credits: 2  
This course is designed to increase pre-service teachers’ pedagogical content knowledge and enthusiasm with respect to teaching science at the elementary level. Throughout this course, students will familiarize themselves with reform-based approaches to elementary science instruction through inquiry, readings, and class discussions. Science will be explored not only as an important element of elementary education, but also as a means by which to support a diverse class of elementary students in literacy and mathematics learning. 703F has a special fee when taught in Manchester.

EDUC 703M - Teaching Elementary Social Studies  
Credits: 2  
Social Studies Methods explores practical teaching models, techniques of implementation, and relationships to curricula in elementary classroom instruction. The New Hampshire Social Studies Frameworks and Common Core Curriculum Standards for instruction are identified and implemented in creating lesson plans for a mini unit.

EDUC 705 - Contemporary Educational Perspectives  
Credits: 4  
Students formulate, develop, and evaluate their own educational principles, standards, and priorities. Writing intensive.  
Attributes: Writing Intensive Course

EDUC 706 - Introduction to Reading in the Elementary School  
Credits: 4  
Methods in reading and writing instruction; current procedures and materials; diagnostic techniques. Course satisfies reading/language arts requirement for prospective elementary teachers in the five-year teacher education program. Special fee.

EDUC 707 - Teaching Reading through the Content Areas  
Credits: 2  
Approaches and methods for teaching reading through content materials; coursework includes practical applications through development of instructional strategies and materials. Required for candidates seeking certification in art, biology, chemistry, earth science, general science, physical science, physics, or social science.

EDUC 710E - Workshop in Adult and Occupational Education  
Credits: 1-4  
Modularized instruction of in-service education. Focus varies with the needs of the student. May be repeated for up to 8 credits.

EDUC 710F - Investigations  
Credits: 1-4  
Topics may include career education, secondary education, post-secondary education, adult education, extension education, exemplary education, cooperative education, disadvantaged and handicapped education, international agriculture, or teaching experience. Student-selected in one of the areas listed. Elective after consultation with instructor. Hours arranged. May be repeated.

EDUC 710H - Field Experience  
Credits: 2-16  
Work with an agency, institution, or organization to gain technical and/or professional competence not otherwise available. Student plans experience with departmental adviser. Credit approval subject to recommendation of faculty members and performance of student. Prereq: permission.

EDUC 712 - Teaching Multilingual Learners  
Credits: 4  
This course is for people interested in teaching English to speakers of other languages (ESOL) in schools and communities in NH and the U.S. Topics include: theories of first and second language acquisition, policies and laws affecting language minority students, strategies for teaching academic content in the mainstream classroom, creating classroom/school cultures that invite all students into learning, and the role of advocacy and professional collaboration in ESOL.

EDUC 717 - Growing up Male in America  
Credits: 4  
An integrative view of growing up male in the American culture from birth through adulthood. Analysis of major perspectives on male development and the implications in parenting with specific emphasis on male education. Participants are expected to develop awareness of their own development as a male or alongside males, using current male development perspectives as a guide. They also create an awareness of how this will affect their behavior toward boys in their classrooms.

EDUC 718 - Critical Social Justice in and Beyond Education  
Credits: 4  
Students will become familiar with key concepts and principles of critical theory, critical pedagogy, and social justice education so that they may use this body of work to inform their teaching, leadership, and scholarship. We will examine the role of a) schools in providing equity of educational access and outcomes, b) teacher agency to change unjust conditions, and c) micro experiences within schools and the macro layer of context (i.e., history, politics, economics, culture).

EDUC 720 - Integrating Technology into Classroom  
Credits: 4  
Participants gain practical experience that takes specific advantage of technology to enhance and extend student learning. State academic standards and national technology standards are used to make decisions about curriculum content and to plan technology-based activities. Participants use electronic management tools such as iMovie, Powerpoint, podcast, webcast, Comic Life, Audacity, and Garage Band are featured in this hands-on course.
EDUC 733 - Teaching Writing in the 21st Century
Credits: 4
An examination of the challenges to teaching writing in the present age of high stakes testing and audit culture. Course questions include 'best practices' for teaching writing in a complex society that values a range of expressive forms, including digital technologies, social media, film and video. Special emphasis on multi-modal literacies in K-12 classrooms. Exploration of language diversity, the relationship between reading, writing, and literacy development in content-specific areas, student centered assessments, and integrating the arts into the reading and writing workshop.

EDUC 734 - Children's Literature
Credits: 4
Interpretive and critical study of literature for children in preschool and elementary settings. Methods of using literature with children.

EDUC 741 - Exploring Mathematics with Young Children
Credits: 4
A laboratory course offering those who teach young children mathematics, and who are interested in children's discovery learning and creative thinking, offers a chance to experience exploratory activities with concrete materials, as well as mathematical investigations, on an adult level, that develop the ability to provide children a mathematically rich environment, to ask problem-posing questions, and to establish a rationale for doing so. Prereq: MATH 601.

EDUC 745 - Math with Technology in Early Education
Credits: 2
The primary goal of this course is that students gain knowledge of learning standards and teaching methods for the instruction of mathematics in early education settings with infants through 3rd grade. In addition, participants gain experience in applying their newfound knowledge in the areas of mathematics with technology through a combination of teaching and digital experiences. On-line course; no campus visits required. Please note the minimal technical requirements for a UNH e-course.

EDUC 750 - Introduction to Exceptionality
Credits: 4
A life span perspective of the social, psychological, and physical characteristics of individuals with exceptionalities including intellectual, sensory, motor, health, and communication impairments. Includes implications for educational and human service delivery.

EDUC 751A - Educating Exceptional Learners: Elementary
Credits: 4
Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, will be the primary focus.

EDUC 751B - Educating Exceptional Learners: Secondary
Credits: 4
Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, is the primary focus. Preparation for students' transitions to post-secondary life is included.

EDUC 751C - Educating Exceptional Learners: Related Services
Credits: 4
An overview of special education and related services in an educational setting. Focus on support services provided to general education and special education teachers, including laws relating to special populations, how related services interact with classroom and special educators, IEPs, and other topics that impact services provided to students with special needs.

EDUC 752 - Contemporary Issues in Learning Disabilities
Credits: 4
Critical analysis of current and historical conceptions of learning disability in the areas of definition, supporting theories, assessment practice, and teaching methodologies. Focus on contemporary issues in the field that relate to working with students labeled as learning disabled at both elementary and secondary levels.

EDUC 753 - Contemporary Issues in Behavioral Disabilities
Credits: 4
Nature and scope of emotional and behavioral disabilities in students for elementary through secondary levels. Theoretical perspectives, characteristics, assessment and educational intervention strategies are included.

EDUC 754 - Contemporary Issues in Developmental Disabilities
Credits: 4
The causal factors, physical and psychological characteristics, and educational and therapeutic implications of mental retardation, cerebral palsy, epilepsy, autism, and related conditions. A life span perspective is included, with major emphasis on the school-age population.

EDUC 756 - Supporting Families of Individuals with Exceptionalities
Credits: 4
An introduction to family system theory and the implications for families having members with exceptionalities. Issues addressed include diagnosis and prognosis, coping strategies, communication and team collaboration, cross-cultural competence, and agency and school delivery of services. Emphasis is on proactive collaboration with family members.

EDUC 757 - Contemporary Issues in Autism Spectrum Disorders
Credits: 4
The goal of this course is to enhance students' understanding of contemporary issues related to educating students with autism spectrum disorders (ASD). The course is grounded in a theoretical foundation that values the perspectives of individuals with ASD in academic, research, policy, and clinical endeavors. Learning outcomes focus on strategies for identifying opportunities for learning, communication, literacy, and social relationships in a variety of inclusive environments.

EDUC 760 - Introduction to Young Children with Special Needs
Credits: 4
Needs of children (birth to eight years) with developmental delays or who are at risk for disabilities. Strengths and special needs of such children; causes, identification, and treatment; current legislation; parent and family concerns; program models.

EDUC 761 - Inclusive Curriculum for Young Children with Special Needs
Credits: 4
Classroom applications of constructivist theory. Curriculum planning and implementation; overview of research and theory related to teaching and learning of specific content areas, with emphasis on integrated approach to early childhood curriculum. Stresses the reciprocal nature of student-teacher relationship. Prereq: permission.
EDUC 762 - Curriculum for Young Children with Special Needs: Evaluation and Program Design
Credits: 4
Overview of evaluation and intervention issues relevant to early childhood special education, focusing on ages three through eight. Norm-referenced and criterion-referenced assessment tools. Judgment-based evaluation and observation skills. Translation of evaluation information into goals and objectives for individual education programs. Developing appropriate programs in inclusive settings.

EDUC 767 - Students, Teachers, and the Law
Credits: 4
Our public schools play a vital role in our society. What shall be taught and who shall teach our children are perennial questions. This course explores how the law impacts the educational lives of students and teachers, including issues of church-state relations, free speech, dress codes, and search and seizure. (Also offered as JUST 767.)

EDUC 766 - Reading for Learners with Special Needs
Credits: 4
Techniques and procedures for teaching reading to learners with special needs. Emphasis on providing reading instruction in the least restrictive alternative.

EDUC 780 - Belize/New Hampshire Teacher Program
Credits: 4
International course involving teams of teachers from Belize and New England. The program offers teachers in both countries the opportunity to work collaboratively on developing effective teaching practices, develop an understanding of each other's cultural and educational perspectives, extend the experience to other teachers and students upon return. Special fee.

EDUC 784 - Educators as Researchers
Credits: 4
This course addresses the twofold aim of (a) preparing educational practitioners to conduct systematic inquiry in their classrooms and/or schools and (b) introducing strategies and criteria for understanding, evaluating, and applying educational research.

EDUC 785 - Educational Assessment
Credits: 4
Theory and practice of educational evaluation; uses of test results in classroom teaching and student counseling; introductory statistical techniques.

EDUC 791 - Methods of Teaching Secondary Science
Credits: 4
This course is designed to provide experiences and resources that will support individuals who are planning to teach middle or high school science. Through interactive activities, readings, and class discussions, the class explores key elements and challenges of secondary science teaching and provide a foundation for continued growth and reflection throughout the students' teaching careers. Some of the main topics discussed in this course are national and state science standards, reform-based approaches to instruction, the use of technology in science teaching, laboratory safety, curriculum evaluation, and assessment.

EDUC 795 - Independent Study
Credits: 2 or 4
Juniors and seniors only, with approval by appropriate faculty member. Neither course may be repeated.

EDUC 796 - Independent Study
Credits: 2 or 4
Juniors and seniors only, with approval by appropriate faculty member. Neither course may be repeated.

EDUC 797 - Special Topics in Education
Credits: 1-4
An experimental course for the purpose of introducing a new course or teaching a special topic for a semester in an area of specialization in Education.

Electrical & Computer Engineering (ECE)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECE 401 - Perspectives in Electrical and Computer Engineering
Credits: 4
An introductory course for electrical and computer engineering majors that introduces incoming students to the fundamental concepts of analysis and design. Concepts are presented through an examination of real-world problems. Students are introduced to electrical and computer engineering problem solving and design through active learning techniques in lecture and in a laboratory setting. Provides a context for the electrical engineering and computer engineering curriculum and introduces the profession and activities of electrical and computer engineering. Lab.

Attributes: Inquiry (Discovery)

ECE 444 - Bionics: Technology from Nature
Credits: 4
Bionics is the study of living systems with the intention of applying their principles to the design of useful technology for mankind. Students learn strategies to discover bio-inspired technology. The student investigates the fields of bio-inspired cyberogs, defense and attack mechanisms in biology leading to military applications including non-lethal weapons, bio-inspired sensors including brain-computer interfaces, bio-inspired robots, and animal and plants that generate energy for technology. Writing Intensive. Lab.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Inquiry (Discovery); Writing Intensive Course

ECE 537 - Introduction to Electrical Engineering
Credits: 4
Fundamentals of electrical engineering. Topics are circuit elements; signal waveforms; circuit laws and theorems; transfer functions; free, forced, and steady state responses; power calculations; amplifiers; and magnetic circuits. Non-ECE majors only. Prereq: PHYS 408. Pre- or Coreq: MATH 527. Lab.

ECE 541 - Electric Circuits
Credits: 4
Linear passive circuits beginning with resistive circuits, power and energy relations, mesh and node analysis. Transient and steady-state behavior of simple circuits containing energy storage elements (capacitors, inductors). Introduction to linear active circuits using dependent source models and ideal op amps. Introduction to transfer function and frequency response concepts. For ECE majors only. Pre- or Coreq: MATH 426; PHYS 408. Lab.
ECE 543 - Introduction to Digital Systems  
Credits: 4  
Fundamental analysis and design principles. Number systems, codes, Boolean algebra, and combinational and sequential digital circuits. Lab: student-built systems using modern integrated circuit technology and an introductory design session on a CAD workstation. Lab.

ECE 548 - Electronic Design I  
Credits: 4  
Introduction to electronic design for analog signal processing. Linear op amp circuits for amplification and filtering. Use of Laplace techniques for filter specification; simple passive and op amp filter realizations. Discrete active devices (FET and BJT): operating characteristics, biasing considerations, canonical amplifier configurations including differential amplifiers. Prereq: ECE 541. Lab.

ECE 562 - Computer Organization  
Credits: 4  
Basic computer structure, including arithmetic, memory, control, and input/output units; the trade-offs between hardware, instruction sets, speed, and cost. Laboratory experiments involving machine language programming and I/O interfacing using microcomputers. Prereq: CS 410 or CS 415; ECE 543. Lab.

ECE 583 - Designing with Programmable Logic  
Credits: 4  
Design methodologies for implementing digital systems in programmable logic. Covers topics related to the design, implementation, and testing of programmable logic devices. Students are introduced to the Very-High-Speed Hardware Description Language (VHDL) entry language and simulation procedures, along with common logic synthesis tools. Programmable logic families, device architectures, and testing procedures are covered in detail. Laboratory exercises lead the student through the complete programmable logic design cycle. Each student is required to prototype a digital system starting with VHDL entry, functional and timing simulations, logic synthesis, device programming, logic probing, and systems verification. Prereq: ECE 562. Lab.

ECE 602 - Engineering Analysis  
Credits: 4  

ECE 603 - Electromagnetic Fields and Waves I  
Credits: 4  
Maxwell's equations in integral and differential form with applications to static and dynamic fields. Uniform plane waves in free space and material media. Boundary conditions; simple transmission line theory; parallel plate and rectangular waveguides; simple radiating systems. Prereq: PHYS 408; ECE 602.

ECE 617 - Junior Laboratory I  
Credits: 4  
Application of laboratory instrumentation to the investigation of active and passive circuit characteristics; introduction to computer-aided design, analysis, and testing; development of report writing and oral presentation skills. Pre- or Coreq: ECE 633; ECE 651. Writing intensive.  
Attributes: Writing Intensive Course

ECE 618 - Junior Laboratory II  
Credits: 4  
Laboratory exercises in the design and analysis of active circuits, techniques of signal processing, and the properties of distributed circuits. Continued development of report writing and oral presentation skills. Prereq: ECE 617. Pre- or Coreq: ECE 603. Writing intensive.  
Attributes: Writing Intensive Course

ECE 633 - Signals and Systems I  
Credits: 3  

ECE 633H - Signals and Systems I/Honors  
Credits: 4  
Mathematical characterization of continuous-time systems using time- and frequency-domain concepts. Properties of linear systems described by ordinary differential equations. Fourier analysis of signals and system frequency response functions. Applications to communication and control systems. Introduction to system simulation using computer methods. Honors students will attend an additional one-hour meeting each week. Prereq: MATH 527, permission required.

ECE 634 - Signals and Systems II  
Credits: 3  
Transient response analysis of linear systems using Laplace transforms, application to feedback control systems. Introduction to discrete-time linear systems; system response determination using Z-transform; elementary design of digital filters and controllers. State variable formulation of dynamical systems. Prereq: ECE 633.

ECE 647 - Random Processes and Signals in Engineering  
Credits: 3  
Emphasis on applied engineering concepts such as component failure, quality control, noise propagation. Topics include random variables, probability distributions, mean and variance, conditional probability, correlation, power spectral density. Prereq: MATH 426; ECE 602.

ECE 647H - Random Processes and Signals/Honors  
Credits: 4  
Emphasis on applied engineering concepts such as component failure, quality control, noise propagation. Topics include random variables, probability distributions, mean and variance, conditional probability, correlation, power spectral density. Honors students attend an additional one-hour meeting each week. Prereq: MATH 426; ECE 602, permission required.

ECE 649 - Embedded Microcomputer Based Design  
Credits: 4  
An in-depth treatment of the design of embedded microcomputer systems. Topics include advanced architectures for embedded processors, hardware and software aspects of interfacing, handling interrupts, advanced programming including debugging of real time systems, embedded application implementations. Laboratory studies are required to reinforce theoretical and applied concepts in an actual embedded architecture. Prereq: ECE 562. Lab.
ECE 651 - Electronic Design II
Credits: 4
Design of fundamental circuit blocks in electronic systems. Multistage amplifiers; feedback systems and stability; power amplifiers. Nonlinear electronic circuits: oscillators, function generators; clippers and peak detectors; A/D and D/A conversion. Switching mode and logic circuits. Prereq: ECE 548.

ECE 681 - Teaching Experience
Credits: 1
Credit for assisting in the instruction of undergraduate laboratories. Available on a limited basis to students selected by the department chairperson. May be repeated for credit up to a total of 4 credits.

ECE 694 - Professional Principles of Engineering
Credits: 1
Provides background for the capstone design experience (ECE 791/ ECE 792). Topics include creativity, design methodology, specification development, project management, ethics, safety, reliability and preparation for oral and written reports. Includes initial capstone project selection. Prereq: ECE junior standing. Cr/F.

ECE 704 - Electromagnetic Fields and Waves II
Credits: 4
Loop antennas; aperture and cylindrical antennas; self and mutual impedance; receiving antennas and antenna arrays; bounded plane waves; rectangular and cylindrical waveguides; waveguide discontinuities and impedance matching; solid state microwave sources. Prereq: ECE 603.

ECE 711 - Digital Systems
Credits: 4
Principles, procedures and tools related to the design, implementation and testing of microprocessor-based embedded systems. Students prototype a complete embedded system using CAD tools, application specific integrated circuits, printed circuit board technology, and modern diagnostic/testing procedures and tools. Projects are designed to introduce diverse digital technologies. Lab.

ECE 714 - Introduction to Digital Signal Processing
Credits: 4
Introduction to digital signal processing theory and practice, including coverage of discrete time signals and systems, frequency domain transforms and practical spectral analysis, digital filter terminology and design, and sampling and reconstruction of continuous time signals. Laboratory component providing an introduction to DSP design tools and real-time algorithm implementation. Prereq: ECE 633. Lab.

ECE 715 - Introduction to VLSI
Credits: 4
Principles of VLSI (Very Large Scale Integration) systems at the physical level. CMOS circuit and logic design, CAD tools, CMOS system case studies. Students exercise the whole development cycle of a VLSI chip: design and layout performed during semester I. The chips are fabricated off campus and returned during semester II, when they are tested by students. An IA (continuous grading) grade is given at the end of semester I. Lab.

ECE 717 - Introduction to Digital Image Processing
Credits: 4
Digital image representation; elements of digital processing systems; multidimensional sampling and quantization; image perception by humans, image transformations including the Fourier, the Walsh, and the Hough Transforms; image enhancement techniques including image smoothing, sharpening, histogram equalization, and pseudo color processing; image restoration fundamentals; image compression techniques, image segmentation and use of descriptors for image representation and classification. Prereq: ECE 633; ECE 647. Lab.

ECE 724 - Ubiquitous Computing Fundamentals
Credits: 4
Ubiquitous computing, or ubicomp, explores embedded, interconnected computing devices that are part of everyday objects and activities. This course takes an interdisciplinary look at the foundations of ubiquitous computing. Topics include software and hardware for ubicomp, human-computer interaction in ubicomp, and issues related to privacy and security in ubicomp. Students undertake a research project inspired by the material. Registration by permission only.

ECE #734 - Network Data Communications
Credits: 4
Introduces basic concepts related to data transmission equipment and physical interfaces, data communication protocols, and the Open System Interconnection (OSI) Reference Model. Includes physical layer hardware, signaling schemes, protocol packets, computer interfaces, error detection, signal integrity, and data transmission protocols relative to both wired and wireless networks. Introduces both logical and wide-area networks, and how a networking system is constructed, tested, and managed. Network design and testing exercises. Prereq: ECE 633; ECE 649. Lab. Electrical Engineering majors only.

ECE 757 - Fundamentals of Communication Systems
Credits: 4
Spectra of deterministic and random signals; baseband and bandpass digital and analog signaling techniques; transmitter and receiver architectures; performance analysis of digital and analog signaling in additive noise channels; carrier and symbol timing synchronization methods. Prereq: ECE 633; ECE 647. Lab.

ECE 758 - Communication System Design
Credits: 4
System- and circuit-level design and implementation of communication hardware including: mixers, RF amplifiers, filters, oscillators and frequency synthesizers, modulators and detectors, carrier and symbol timing recovery subsystems. Issues in software-defined radio transmitter and receiver implementation. Communication link engineering including antenna selection and channel impairment effects. Prereq: ECE 651; ECE 757. Lab.

ECE 760 - Introduction to Fiber Optics
Credits: 4
Basic physical and geometric optics; solution of Maxwell's equations for slab waveguides and cylindrical waveguides, of both step index and graded index profiles; modes of propagation and cutoff; polarization effects; ground and phase velocity; ray analysis; losses; fabrication; sources; detectors; couplers; splicing; cabling; applications; system design. Prereq: ECE 603. Lab.
ECE 772 - Control Systems  
Credits: 4  
Development of advanced control system design concepts such as Nyquist analysis; lead-lag compensation; state feedback; parameter sensitivity; controllability; observability; introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ECE 634. Lab. (Also offered as ME 772.)

ECE 775 - Applications of Integrated Circuits  
Credits: 4  

ECE 777 - Collaborative Engineering  
Credits: 4  
Study of processes in which engineers from diverse disciplines cooperate to specify, design, manufacture, test, market, and maintain a product. Classes are organized in both technical and nontechnical flexible modules. Technical topics are advanced and relevant to project being developed, such as related research, technology, design methodology, and CAD tools. Nontechnical topics include ISO 9000 quality system, engineering management, budget considerations, building, communication and leadership skills, and concurrent engineering principles. The course utilizes collaborative engineering by team development of an engineering project, often a research oriented proof-of-concept prototype. Prereq: permission. Lab. Also listed as TECH 750.

ECE 784 - Biomedical Instrumentation  
Credits: 4  
Principles of physiological and biological instrumentation design including transducers, signal conditioning, recording equipment, and patient safety. Laboratory includes the design and use of instrumentation for monitoring of electrocardiogram, electromyogram, electroencephalogram, pulse, and temperature. Current research topics, such as biotelemetry, ultrasonic diagnosis, and computer applications. Prereq: ECE 651. Lab.

ECE 791 - Senior Project I  
Credits: 2  
First semester of the capstone design experience. Students develop project plans, and prepare and present written and oral project proposals. The project plans must include aspects of design, implementation and evaluation. At the end of the semester, students prepare a written progress report. Prereq: ECE 694; ECE senior standing. Writing intensive.  
Attributes: Writing Intensive Course

ECE 791H - Senior Honors Project I  
Credits: 4  
First semester of the capstone honors senior thesis research. Students develop research plans, prepare and present written and oral research proposals. The research plans must include aspects of design, implementation and evaluation, similar to ECE 791. However, honors thesis research must also include independent research beyond the normal scope of ECE 791. At the end of the semester students prepare a written progress report. Prereq: ECE 694; ECE senior standing, permission required. Writing intensive.  
Attributes: Writing Intensive Course

ECE 792 - Senior Project II  
Credits: 2  
This course requires the completion of the capstone design experience begun in ECE 791. At the end of the semester students prepare written final project reports, and present their results in a research poster session. Prereq: ECE 791. Writing intensive.  
Attributes: Writing Intensive Course

ECE 792H - Senior Honors Project II  
Credits: 4  
This course requires the completion of the capstone honors thesis research begun in ECE 791H. At the end of the semester students prepare honors theses, and present their research results in a research poster session. ECE 791H/792H fulfills the requirement of one professional elective. Prereq: ECE 791H, permission required. Writing intensive.  
Attributes: Writing Intensive Course

ECE 795 - Electrical and Computer Engineering Projects  
Credits: 1-4  
Laboratory course. Student undertakes a project of mutual interest with an ECE faculty advisor. A written final report must be filed with the ECE Department. Prereq: permission.

ECE 796 - Special Topics  
Credits: 1-4  
New or specialized courses and/or independent study. Prereq: permission. 1 to 4 credits some sections may use credit/fail grading.

Engineering Technology (ET)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ET 601 - Data Structures and Data Bases  
Credits: 4  
A brief review of fundamental container classes; stacks, queues and link lists followed by more advanced data structures and concepts using search algorithms, iterators, and efficiency indicators. The second part of the course will include the development and use of relational databases using a commercial database engine. Java console applications and minimal Graphic User Interface applications will be used throughout the course to develop and test concepts.

ET 625 - Technical Communications  
Credits: 4  
Designed to improve students' capabilities to prepare and present technical information in written and oral form and through electronic means. ET majors should take this course early in their program of study so that proficiencies developed can be utilized in later courses. (Also listed as ENGL 502.) Writing intensive.  
Attributes: Writing Intensive Course

ET 630 - Analytical Methods in Engineering Technology  
Credits: 4  
Review of college-level mathematics including differential and integral calculus with applications and advanced topics, e.g., Fourier analysis, Laplace transform technique, and probability and statistics. Prereq: engineering technology majors only.
ET 635 - Fluid Technology and Heat Transfer  
Credits: 4  
Fundamental principles of fluid technology and basic principles of heat transfer, with applications in solving practical problems, and how these concepts are used in the HVAC area. Prereq: Thermodynamics; Mechanical Engineering Tech majors.

ET 639 - Heating, Ventilation and Air Conditioning I  
Credits: 4  
First in a two course sequence designed to familiarize the student with the design and operation of fluid thermal systems with specific applications in the heating, ventilating, and air conditioning of occupied spaces and some reference to industrial process control. Prereq: thermodynamics, calculus, or permission. Lab. Special fee.

ET 640 - Heating, Ventilation and Air Conditioning II  
Credits: 4  
Second in a two course series designed to acquaint the student with the fundamentals of fluid thermal system design with specific topics in solar loads on buildings, air conditioning system requirements, pump and fan selection, piping and duct system design, and an introduction to controls. Prereq: ET 639 or permission. Lab. Special fee.

ET 641 - Production Systems  
Credits: 4  
Market forecasting; waiting line theory; manufacturing inventories and their control; production scheduling; quality control. Prereq: differential and integral calculus.

ET 644 - Mechanical Engineering Technology Concepts in Analysis and Design  
Credits: 4  
Kinematics, kinetics, work and energy, fluids, heat transfer; application of these concepts to problems in mechanical design. Prereq: strength of materials and dynamics and ET 637.

ET 647 - Advanced Perspectives on Programming  
Credits: 4  
Several programming languages will be selected for study and analysis. Students will gain knowledge regarding the languages studied and conduct analysis related to comparisons and divergence in capabilities. Prereq: intermediate programming skills in three or more programming languages. Major suggested languages of interest are: Java, C++, Visual Basic, Visual C++ Windows, Visual Basic.Net and C# or permission.

ET 655 - Engineering Tech Seminar Series  
Credits: 1  
Five talks will be given that introduce the ET student to the softer issues of technology. Talks will be given in the areas of Ethics, Diversity, Lifelong Learning, Functioning in technical teams, and the importance of timeliness, scheduling and product improvement. For the most part talks are given by outside industrial personnel dealing in these specific areas. Students are required to write a short paper on three of the five topic areas. Class discussion of each talk takes place during regular class time. No prerequisites.

ET 671 - Digital Systems  
Credits: 4  
Digital systems design and application using TTL and CMOS devices, design of systems, and interfacing. Digital design project required. Prereq: introductory digital design. Special fee. Lab.

ET 674 - Control Systems and Components  
Credits: 4  
Topics include linear systems analysis, the Laplace transform and its properties, controllers, root locus technique, transient response analysis, first- and second-order systems, error analysis, and control system design. Prereq: differential and integral calculus. Lab.

ET 675 - Electrical Technology  
Credits: 4  

ET 677 - Analog Systems  
Credits: 4  

ET 680 - Communications and Fields  
Credits: 4  
Topics include Fourier series analysis; the Fourier transform and its properties; convolution; correlation including PN sequences; modulation theory; encoding and decoding of digital data (NRZ-M, NRZ-S, RZ, Biphasic, Manchester), antennas and antenna pattern; Radar Range Equation; and an introduction to information theory. Prereq: differential and integral calculus. Lab.

ET 695 - Independent Study  
Credits: 1-4  
Individual reading, writing, or laboratory work carried out under the tutelage of a faculty member. Prereq: approval of the adviser. May be repeated up to a maximum of 4 credits.

ET 696 - Topics in Mechanical Engineering  
Credits: 4  
New or specialized courses not covered in regular course offerings. Prereq: permission. May be repeated to a maximum of 4 credits.

ET 697 - Topics in Electrical Engineering Technology  
Credits: 4  
New or specialized courses not covered in regular course offerings. Prereq: permission. May be repeated for a maximum of 4 credits.

ET 706 - Internship  
Credits: 1-4  
On-the-job skill development through fieldwork in industry. Normally, supervision is provided by a qualified individual in the organization with consultation by a faculty sponsor. Written report required. Internships may be part or full time, with course credits assigned accordingly. May be repeated to a maximum of 4 credits. Credit/Fail.

ET 707 - Object Oriented Design and Documentation  
Credits: 4  
Current design techniques and strategies, including State Transition Diagrams (STD) and United Modeling Language (UML), provide the core of the course. Case studies of large programming projects will be developed. Group programming projects will be completed based upon case studies. Prereq: intermediate programming skills in one or more of the following OOP language: Java, C_, Visual C++ Windows, Visual Basic.Net and C# or by permission.
ET 717 - Network Security
Credits: 4
The technical, operational, and managerial issues of computer systems and network security in an operational environment. Addresses the threats to computer security including schemes for breaking security, and techniques for detecting and preventing security violations. Emphasis on instituting safeguards, examining different types of security systems, and applying the appropriate level of security for the perceived risk. Prereq: Java programming.

ET 727 - CT Software Development Project
Credits: 4
This course requires the development of a real world project that responds to an engineering focused organizational need. The project is undertaken by a team of students. An iterative approach is used to incrementally address the project requirements while constructing a prototype of the software engineering solution to the original problem. Electrical Engineering Tech and EET: Computer Technology majors only.

ET 733 - Business Organization and Law
Credits: 4
Corporations; proprietorships; product liability; contracts; federal agencies; commercial paper; conditions of employment; business ethics; bankruptcy; U.C.C. Special fee. Writing intensive. Attributes: Writing Intensive Course

ET 734 - Economics of Business Activities
Credits: 4
Elementary financial accounting; compound interest and time value of money; sources of capital; cost estimating; depreciation; risk and insurance; personal finance. Prereq: differential and integral calculus. Special fee.

ET 747 - User Interface Design
Credits: 4
This course familiarizes students with Human Computer Interaction and the significant role it plays in product design and development. The principles of HCI, examples of good and bad applications, and factors that determine a design's effectiveness are covered. Stages of the product development life cycle are discussed to understand the progression of a project from conception to delivery and the impact it has on HCI. (Also listed as COMP 640.) Electrical Engineering Technology majors only.

ET 751 - Mechanical Engineering Technology Project
Credits: 4 or 8
Students are required to find solutions to actual technological problems in design, fabrication, and testing as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. A year-long course: 4 credits per semester; an IA grade (continuous course) given at the end of first semester. Withdrawal from course results in loss of credit.

ET 781 - Introduction to Automation Engineering
Credits: 4
Students are introduced to the topics needed to develop a good understanding of the basic principles of Automation Engineering. This introductory course covers a wide variety of topics such as performance of sensors, actuators, motors and drives, PLC's and HMI, environmental controls, robots, machine vision systems, and controls and system integration. Prereq: ET 674 Control Systems and Components. Open to Electrical Engineering, Mechanical Engineering, Electrical Engineering Technology, EET: Computer Technology, and Mechanical Engineering Technology majors only.

ET 788 - Introduction to Digital Signal Processing
Credits: 4
This course will deal with the topics of spectral representation of periodic and non-periodic analog signals followed by discrete sampling and aliasing and how it relates to Nyquist sampling theorem. The z-transform will be introduced as the required mathematical tool along with an introduction to MATLAB and its associated DSP tool box. Spectral analysis of digital signal will be accomplished using these tools. Convolution and digital filtering will also be covered. Lab. Prereq: ET 680 Communications and Fields or equivalent.

ET 790 - Microcomputer Technology
Credits: 4
Microcomputer systems design, including assembly language, interfacing, processor timing and loading, and inter-processor communications via local area networks. Hardware, software, and architecture of both Intel 80X86 and Motorola 68XX0 microprocessors. Microcomputer applications with emphasis on lab work using Motorola HCII microcontroller. Prereq: ET 671. Special fee. Lab.

ET 791 - Electrical Engineering Technology Project
Credits: 4 or 8
Students are required to find solutions to actual technological problems in design, fabrication, and testing, as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. Special fee. A year-long course: an IA grade (continuous course) given at end of first semester. Withdrawal from course results in loss of credit.

English (ENGL)

ENGL 400 - English for International Students
Credits: 1-4
Designed for international students to provide additional support in course work. Students continue to develop skills in listening comprehension, speaking, reading, and writing in English. This is a variable credit course and may be repeated up to a total of 4 credits. No letter grades. Course graded. Prereq: permission from ESL Institute. Cr/F. Writing intensive. Attributes: Writing Intensive Course

ENGL 400A - Academic English for ESL
Credits: 4
Preparation for the reading, writing, and speaking assignments that students encounter in academic courses. Students complete reading, writing, and speaking assignments every week, with close guidance from the instructor. In addition to the time they spend in class, students also have frequent individual conferences with the instructor. No more than 16 combined credits for ENGL 400 and ENGL 400A may be counted toward a UNH degree. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 401 - First-Year Writing
Credits: 4
Training to write more skillfully and to read with more appreciation and discernment. Frequent individual conferences for every student. Special fee. Writing intensive. Attributes: Writing Skills(Discovery); Writing Skills GP 1; Writing Intensive Course
ENGL 401A - First Year Writing for Multi-Lingual Students  
Credits: 4  
A special section of first-year writing for students whose native language is not English. Training to write more skillfully and to read with more appreciation and discernment, with special attention to the challenges of non-native speakers of English. Supplemental work on listening and speaking as necessary. Frequent individual conferences for every student. Students may not take both ENGL 401 and ENGL 401A for credit. Special fee. Writing intensive.  
Attributes: Writing Skills (Discovery); Writing Skills GP 1; Writing Intensive Course

ENGL 401H - Honors/First-Year Writing  
Credits: 4  
Training to write more skillfully and to read with more appreciation and discernment. Frequent individual conferences for every student. Special fee. Writing intensive.  
Attributes: Writing Skills (Discovery); Writing Skills GP 1; Writing Intensive Course

ENGL 405 - Introduction to Linguistics  
Intensive Course

ENGL 405H - Honors/Introduction to Linguistics  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

ENGL 401S - Literacy Studio  
Credits: 2  
Develops college-level literacy skills through scaffolded instruction, necessary for success in English 401.

ENGL 402 - Introduction to Literature for International Students  
Credits: 4  
The art of thoughtfully enjoying major literary works. This course is intended for students who are participating in the ESL program. Permission required from ESL Institute.

ENGL 403 - Exploring Literature  
Credits: 4  
The art of thoughtfully enjoying major literary works.  
Attributes: Humanities (Disc); Literature, Phil, Ideas GP 8

ENGL 403W - Exploring Literature  
Credits: 4  
The art of thoughtfully enjoying major literary works. Writing intensive.  
Attributes: Humanities (Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 405 - Introduction to Linguistics  
Credits: 4  
Overview of the study of language: universal properties of human language, Chomsky's innateness of hypothesis, language acquisition in children, dialects and language variation, language change. Includes introduction to modern grammar (phonology, syntax, semantics) and to scientific linguistic methodology. (Also offered as LING 405.)  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

ENGL 405H - Honors/Introduction to Linguistics  
Credits: 4  
Overview of the study of language: universal properties of human language, Chomsky's innateness of hypothesis, language acquisition in children, dialects and language variation, language change. Includes introduction to modern grammar (phonology, syntax, semantics) and to scientific linguistic methodology. (Also offered as LING 405.)  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

ENGL 415A - Literature and Law  
Credits: 4  
From the gritty mean streets to the marble columned courthouse, 'Literature and Law' addresses issues of interpretation and moral judgement. Students will examine the literary explorations of various facets of the legal system and criminality and address fundamental questions raised by the law. Writing intensive. Ideal for students interested in: Justice Studies, Sociology, Political Science, and Psychology. Prereq: ENGL 401 (B or better). Writing intensive.  
Attributes: Humanities (Disc); Writing Intensive Course

ENGL 415B - Literature and Business  
Credits: 4  
Reading literature provides fresh ways to consider the purposes, benefits, strategies, ethics, and risks of business. Using a variety of literary forms (poetry, short fiction, novels, plays, and essays) this course serves as a reflective study of business practices and how they affect individuals and groups. This course asks students to consider how literature can help us think more broadly about the function business. Ideal for students interested in Business Administration, Marketing, and Economics. Prereq: ENGL 401 (with a B or better). Writing intensive.  
Attributes: Humanities (Disc); Writing Intensive Course

ENGL 415C - Literature and Medicine  
Credits: 4  
Literary representations of medical practice are used to prompt discussion of broad issues concerning medical philosophy and medical ethics, the image of the medical professional in the media, differing conceptions of healing in various social contexts worldwide, and changes in biological science and medicine on the larger society. Ideal for students interested in: Health Care, Biomedical Sciences, Physical therapy, and Nutrition. Prereq: ENGL 401 (with a B or better). Writing intensive.  
Attributes: Humanities (Disc); Writing Intensive Course

ENGL 415D - Literature and the Animal World  
Credits: 4  
Our ability to define what it is to be human, what essential struggles and dilemmas humans face, depends on our understanding of the relationship between human and animal identity. In this course students address questions fundamental for those engaged in animal-related professions. Ideal for students interested in: Equine Studies, Pre-Vet, Biology, and Zoology. Prereq: ENGL 401 (with a B or better). Writing intensive.  
Attributes: Humanities (Disc); Writing Intensive Course

ENGL 415E - Literature and Cyberculture  
Credits: 4  
What is "cyberculture" and how has it been portrayed in various forms of literature? This course explores the very nature of what cyberculture is, and looks at various aspects of this culture - computers, coders and hackers, online communities, cyber-commerce, digitization, e-mail, and so on. Students study how essayists, novelists, and dramatists have raised fundamental questions about the nature and effects of digitization upon our society. Ideal for students interested in: Business, Communications, and Computer Science. Prereq: ENGL 401 (with a B or better). Writing intensive.  
Attributes: Humanities (Disc); Writing Intensive Course
ENGL 415F - Literature and the Psyche
Credits: 4
Literature has long been fascinated with the inner lives of characters, with altered states of mind, madness and recovery, the development of a sense of selfhood and the place of mental deviance in society. This course will examine how literary texts have portrayed the psychological dimensions of human life and the personal, social and therapeutic challenges such portrayals raise. Ideal for students interested in: Psychology and Gender Studies. Prereq: ENGL 401 (with a B or better). Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

ENGL 415G - Literature and the Visual Arts
Credits: 4
This course considers how the sister arts communicate with each other, how writers -- sometimes sassy, sometimes ecstatic -- talk back to paintings, and how painters -- and artists in other mediums -- find inspiration in myth, poetry, and the written word. Students discuss a range of questions that result from such an investigation. Ideal for students interested in: Art, Humanities, Communications, and Theater and Dance. Prereq: ENGL 401 (with a B or better). Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

ENGL 415J - Literature and Religion
Credits: 4
Most major religions are founded on basic literary principles of "word" or "text", such as the Hebrew Torah, the Christian Bible, the Koran of Islam or the Vedas of Hinduism. While many people in our own time see literature as a "secular scripture" others see literature as a natural conduit for channeling the divine. Ideal for students interested in: Philosophy, Anthropology, Sociology, and History. Prereq: ENGL 401 (with a B or better). Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

ENGL 419 - Introduction to Literary Analysis
Credits: 4
Critical analysis of fiction, poetry, and drama. Frequent short papers. This course is a prerequisite with a minimum grade of C for those intending to declare one of the four majors offered in the English Department. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 419H - Honors/Introduction to Literary Analysis
Credits: 4
Critical analysis of fiction, poetry, and drama. Frequent short papers. This course is a prerequisite with a minimum grade of C for those intending to declare one of the four majors offered in the English Department. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 440A - On Race in Culture and Society
Credits: 4
Of our special concern will be the claim that race is a culturally or socially, not biologically, constructed category. The reading list will include literary texts (Toni Morrison's "Recitatif"), works of African American comedians (Bill Cosby, Richard Pryor, Eddie Murphy, etc.), philosophical texts (Immanuel Kant, W.E.B. DuBois, K.A. Appiah, etc.) as well as some legal documents (recent U.S. Supreme Court decisions concerning affirmative action). We will also do two case studies, one on the name of Redskins and one the Whiteness Project. The general goal of the course is to improve the student's ability to speak and think critically about race and race relations in the U.S. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 441 - On Race and Culture in Society
Credits: 4
Of our special concern will be the claim that race is a culturally or socially, not biologically, constructed category. The reading list will include literary texts (Toni Morrison's "Recitatif"), works of African American comedians (Bill Cosby, Richard Pryor, Eddie Murphy, etc.), philosophical text (Immanuel Kant, W.E.B. DuBois, K.A. Appiah, etc.) as well as some legal documents (recent U.S. Supreme Court decisions concerning affirmative action). We will also do two case studies, one on the name of the Redskins and one the Whiteness Project. The general goal of the course is to improve the student's ability to speak and think critically about race and race relations in the U.S. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 444D - Irish Identity
Credits: 4
Explores the historical causes and literary effects of emigration from Ireland to other regions in the North and South Atlantic. Considers the political and economic conditions of Ireland itself and asks how Irish identities are first formed dialectically through contact with indigenous others and then nostalgically constituted through the experience of migration. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 444G - Ethnic America: Readings in African American, Asian American, Native American and Latino/a Literature
Credits: 4
This course introduces students to literature by and about African Americans, Asian Americans, Natives, and Latino/as. It introduces approaches in American Studies that will guide students in understanding and appreciating what we call ethnic literature. Secondary sources might include readings in and about ideological criticism, historical analysis, race and ethnic studies, multicultural education, formal narrative, and genre analysis. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course
ENGL 444K - People Stories: Investigating Identity as Literary Construction
Credits: 4
Plato's Republic, Shakespeare's As You Like It, Thoreau's Walden, Narrative of Frederick Douglass, Austen's Mansfield Park, Palahniuk's Fight Club, Eugenides' Middlesex, Satrapi's Persepolis, Hall's Without a Map, poetry, and seminar texts in criticism are read as we complicate our notions of what shapes identity across time, race, cultures, genders, economic statuses, and through the media of dialogue, novel, drama, poetry, graphic novel, and memoir. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 444M - Food and Class: America's Food Industry and the (Im)migrant Worker
Credits: 4
Students explore the implications of food production and labor in the US through the stories artists and writers have given us, specifically, those of migrant and immigrant food workers. Texts include Fast Food Nation, The Jungle, The Grapes of Wrath and Diary of an Undocumented Immigrant. Through writing, close reading, and collaboration, students map a path of inquiry for their study, culminating in one research and one multi-media project. Field trips to a local farm, the Dreams of Freedom Museum, and New York over spring break. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 444N - Monsters!!!
Credits: 4
This course will introduce students to a number of critical thinking processes by examining one of the most symbolically significant human archetypes, Monsters. By engaging works of historical significance and popular texts, students will explore a familiar subject from historical, political, psychological, and literary points of view. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 501 - Introduction to Creative Nonfiction
Credits: 4
A writing course that explores types of creative nonfiction such as nature writing, the profile, the memoir, and the personal essay. Extensive reading of contemporary authors to study the sources and techniques used in creative nonfiction. Regular papers, conferences, and workshops. Prereq: ENGL 401. Special fee. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ENGL 501H - Honors/Introduction to Creative Nonfiction
Credits: 4
A writing course that explores types of creative nonfiction such as nature writing, the profile, the memoir, and the personal essay. Extensive reading of contemporary authors to study the sources and techniques used in creative nonfiction. Regular papers, conferences, and workshops. Special fee. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ENGL 502 - Professional and Technical Writing
Credits: 4
A writing course introducing students to the effective communication of technical information through various workplace documents including resumes, memos, business letters, reports, brochures, etc. Special emphasis on an introduction to professional conventions and genres and to the transferable skills of rhetorical and audience analysis, document design and collaborative work. Prereq: ENGL 401. Special fee (no fee for students taking ENGL 502 at UNHM). Writing intensive.
Attributes: Writing Intensive Course

ENGL 502H - Honors/Technical Writing
Credits: 4
A writing course introducing students to the effective communication of technical information through various workplace documents including resumes, memos, business letters, reports, brochures, etc. Special emphasis on an introduction to professional conventions and genres and to the transferable skills of rhetorical and audience analysis, document design and collaborative work. Special fee. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

ENGL 503 - Persuasive Writing
Credits: 4
Writing of all types of persuasive nonfiction prose, including argumentative essays and position papers. Special attention to argumentative structures and analysis of audiences. Weekly papers of varying lengths and formats, frequent conferences. Prereq: ENGL 401. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 504 - Resume Writing
Credits: 2
Write your resume now! Readings from recruiters, scholars, and managers reveal what employers want in resumes and cover letters, and what they don't want. Topics include: understanding ATS (applicant tracking systems); analyzing purpose and audience; learning cutting-edge designs; writing detailed and efficient content; tailoring your resume to the job advertisement; writing persuasive cover letters; and formatting and editing tips. Students will identify two job advertisements and write a resume and letter for each. Cr/F.

ENGL 511 - Major Writers in English
Credits: 4
In-depth study and discussion of a few American and/or British writers. Topics and approaches vary depending on instructors. May be repeated for credit, barring duplication of topic. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 512 - Survey of British Literature I
Credits: 4
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. Anglo-Saxons to the Elizabethans. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course
ENGL 513 - Survey of British Literature II  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. The Stuart Monarchy to the Age of Enlightenment.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 513H - Honors/Survey of British Literature II  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. The Stuart Monarchy to the Age of Enlightenment. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 513W - Survey of British Literature II  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. 1800 to the present.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 514 - Survey of British Literature  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. 1800 to the present.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 514H - Honors/Survey of British Literature  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. 1800 to the present. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 514W - Survey of British Literature  
Credits: 4  
Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. 1800 to the present.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 515 - Survey of American Literature  
Credits: 4  
From the beginning of American literature to the Civil War.  
Attributes: Humanities(Disc); Historical Perspectives GP 4

ENGL 515H - Honors/Survey of American Literature  
Credits: 4  
From the beginning of American literature to the Civil War. Writing intensive.  
Attributes: Humanities(Disc); Historical Perspectives GP 4; Writing Intensive Course

ENGL 515W - Survey of American Literature  
Credits: 4  
From the beginning of American literature to the Civil War. Writing intensive.  
Attributes: Humanities(Disc); Historical Perspectives GP 4; Writing Intensive Course

ENGL 516 - Survey of American Literature  
Credits: 4  
From the Civil War to the present. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 516H - Honors/Survey of American Literature  
Credits: 4  
From the Civil War to the present. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 517 - Introduction to African American Literature and Culture  
Credits: 4  
An introduction to African American literature in the context of a variety of cultural perspectives. Course topics may include major writers, literary genres, historical periods, Harlem Renaissance, Black Arts Movement, fine and folk arts, religion, music, and film. (Also offered as AMST 502.) Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 517H - Honors/Introduction to African American Literature and Culture  
Credits: 4  
An introduction to African American literature in the context of a variety of cultural perspectives. Course topics may include major writers, literary genres, historical periods, Harlem Renaissance, Black Arts Movement, fine and folk arts, religion, music, and film. (Also offered as AMST 502.) Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 518 - Bible as Literature  
Credits: 4  
Literature of the Old and New Testaments and the Apocrypha, primarily in the King James version.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 518H - Honors/Bible as Literature  
Credits: 4  
Literature of the Old and New Testaments and the Apocrypha, primarily in the King James version. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 518W - Bible as Literature  
Credits: 4  
Literature of the Old and New Testaments and the Apocrypha, primarily in the King James version. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course
ENGL 520 - Literature and the History of Ideas: Dystopian and Post Apocalyptic Fiction  
Credits: 4  
Our survey of short stories and novellas spans historical periods and national literatures. Together these stories offer a context for literary terms, subgenres, and historical contexts, as well as diverse opportunities for close-reading. Writing assignments (blog posts and a range of analytical and creative writing options) will enable further investigations of these perennial and new classics.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 521 - Nature Writers  
Credits: 4  
Fiction, poetry, and nonfiction books on the natural environment. Such books as Thoreau's Walden or Maine Woods, Leopold's Sand County Almanac, Boston's Outermost House, Dillard's Pilgrim at Tinker Creek--books by naturalists who observe nature vividly and knowledgeably and who write out of their concern for the environment. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 521H - Honors/Nature Writers  
Credits: 4  
Fiction, poetry, and nonfiction books on the natural environment. Such books as Thoreau's Walden or Maine Woods, Leopold's Sand County Almanac, Boston's Outermost House, Dillard's Pilgrim at Tinker Creek--books by naturalists who observe nature vividly and knowledgeably and who write out of their concern for the environment. Writing intensive.  
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 526 - Introduction to Fiction Writing  
Credits: 4  
Writing fiction asks us to say: who am I? What's happening in the world around me? Awakening to the story in your life, and thus to your own imagination, will change your life. Repeatedly, we see fiction writers find their power as creative people. You might become the head of a major corporation! You might just write a great novel or short story. Or just be happier. Join us: write stories, change your life. Prereq: ENGL 401. Special fee. Writing intensive.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ENGL 527 - Introduction to Poetry Writing  
Credits: 4  
Writing poetry is training for life - its practice deepens both the liveliness and rigor of the mind. This course is run in a workshop/discussion format - it uses innovative exercises, guided prompts, language games, and readings that teach the basics of craft, while showing you how to think like a writer, opening up to the pleasures and surprises of the creative process. No prior experience necessary. Prereq: ENGL 401. Special fee. Writing intensive.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

ENGL 530 - Introduction to Poetry  
Credits: 4  
American and British poetry. Various poetic techniques and their demonstration. See course descriptions available in department office for further information. (Not offered each semester.) Writing intensive.  
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 531 - Introduction to Drama  
Credits: 4  
Introduction to the art of drama, through study of British and American plays, as well as plays translated from other languages. How to read a play. Live and filmed performances studied as available. See course descriptions available in department office for further information. (Not offered each semester.) Writing intensive.  
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 533 - Introduction to Film Studies  
Credits: 4  
A survey of the international development of the motion picture from the silent period to the present, emphasizing film's narrative practices. Introduces students to the study of the art, history, technology, economics, and theory of cinema. Films and film makers of various nations, periods, movements, and genres examined. Mandatory weekly screenings in addition to class. Students cannot receive credit for both ENGL 533 and CMN 550. Special fee.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 533H - Honors/Introduction to Film Studies  
Credits: 4  
A survey of the international development of the motion picture from the silent period to the present, emphasizing film's narrative practices. Introduces students to the study of the art, history, technology, economics, and theory of cinema. Films and film makers of various nations, periods, movements, and genres examined. Mandatory weekly screenings in addition to class. Students cannot receive credit for both ENGL 533 and CMN 550. Special fee. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 534 - 21st Century Journalism: How the News Works  
Credits: 4  
This class explores ways new technology, including social media, has affected the practice of journalism, and examines journalism past and present. Students discuss libel law, ethics and how to define plagiarism in the digital age. This survey is meant not only to lay a foundation for prospective journalists, but also to provide a broad understanding of the news media for those interested in how the news works.  
Attributes: Environment, TechSociety(Disc); Technology GP 3T
ENGL 549 - In the Groove: African American Music as Literature
Credits: 4
This is a music appreciation course that focuses on getting students into, behind, and under "the groove" of African American music and its intertextual traditions of black pride, power, and cultural expressivity. This course will contain a broad introduction to African American music origins but it will also consider the impact of cultural contexts such as slavery and Euro-American musical influences on African American culture. Students will gain new appreciation for the multi-faceted and wide-ranging ways in which African American music is performed, and how this music has helped unite one nation under its soulful groove.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

ENGL 550 - Introduction to the Literature and Culture of Race
Credits: 4
This course introduces students to readings across the field of ethnic literature and culture in order to form their capacity to speak and think critically about race relations in America. Readings will include those in race theory, racial construction and authenticity, histories of raced subjects in America, the rise of ethnic studies, white ignorance and whiteness studies, the intersectionality of race with gender, sexual orientation, economic class, religion, and faith. Includes Asian American, African American, Native, and Latino/a literature. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ENGL 555 - Science Fiction
Credits: 4
This course examines stories, novels, and film from the popular genre of science fiction. A variety of literary critical approaches are deployed to discuss a number of key authors and texts from the nineteenth century to the present.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 557 - Crime and Espionage
Credits: 4
This course examines stories, novels, and film from the popular genre of Crime Fiction and Espionage. A variety of literary critical approaches are deployed to discuss a number of key authors and texts from the nineteenth century to the present.

ENGL 575 - Sex and Sensibility: The Rise of Chick Lit from Jane Austen to Bridget Jones
Credits: 4
This course focuses on the novel of manners, a literary tradition that began in the nineteenth century, but enjoys widespread popularity in the contemporary phenomenon dubbed as "chick lit". We will survey how this qualitative sociology negotiates the interplay between romantic and economic concerns. Texts may include works by major writers of this subgenre, e.g. Jane Austen, Edith Wharton, and Evelyn Waugh, as well as new incarnations like 'Bridget Jones Diary' and 'Sex and the City'.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ENGL 581 - Introduction to Postcolonial Literatures in English
Credits: 4
Survey of contemporary Asian, African, and Caribbean fiction, drama, travelogues, essays, and poetry from the 1950s to the present. Introduces political, historical, and cultural contexts within which these forms are produced. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ENGL 581H - Honors/Introduction to Postcolonial Literatures in English
Credits: 4
Survey of contemporary Asian, African, and Caribbean fiction, drama, travelogues, essays, and poetry from the 1950s to the present. Introduces political, historical, and cultural contexts within which these forms are produced. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ENGL 585 - Introduction to Women in Literature
Credits: 4
Survey of images of women in literature. Context and approach vary depending on instructor. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL #585H - Honors/Introduction to Women in Literature
Credits: 4
Survey of images of women in literature. Context and approach vary depending on instructor. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 595 - Literary Topics
Credits: 1-4
Various faculty members investigate topics of special interest at a level appropriate for non-majors. Past topics have included Irish literature, animals in literature, and literature of the Vietnam War. See department for details of current offerings. May be repeated for credit, barring duplication of topic.

ENGL 595H - Honors/Literary Topics
Credits: 1-4
Various faculty members investigate topics of special interest at a level appropriate for non-majors. Past topics have included Irish literature, animals in literature, and literature of the Vietnam War. See department for details of current offerings. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 595W - Literary Topics
Credits: 1-4
Various faculty members investigate topics of special interest at a level appropriate for non-majors. Past topics have included Irish literature, animals in literature, and literature of the Vietnam War. See department for details of current offerings. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 600 - English for International Students
Credits: 1-4
Designed for international students to provide additional support in course work. Students continue to develop skills in listening comprehension, speaking, reading, and writing in English. This is a variable credit course and may be repeated up to a total of 4 credits. No letter grades. Prereq: permission from ESL Institute. Cr/F. Writing intensive. Credits received for this course can help satisfy the requirements for student visa, but they will normally not count towards a graduate degree. Students are encouraged to check with their individual academic advisors.
ENGL 602 - Advanced Professional and Technical Writing
Credits: 4
An advanced writing course focusing on writing in a global and technological workplace. In addition to fluency in the documents of the workplace, students focus on visual rhetoric in a technological environment through web design and usability while studying the issues of globalism, ethics, and the environment that affect all professional writing today. Writing intensive.
Attributes: Writing Intensive Course

ENGL 605 - Intermediate Linguistic Analysis
Credits: 4
Introduces analysis methods and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis will be both practical (learning how to describe the grammar and sound system of a language) and theoretical (understanding languages' behavior). Prereq: ENGL 405/LING 405, or permission. (Also offered as LING 605.)

ENGL 606 - Languages of the World
Credits: 4
A survey of the languages of the world from genetic, areal, and typological perspectives. Students learn about the geographic and demographic distribution of language families and language isolates, as well as about structural characteristics of languages, language families and language areas. Additional topics include language endangerment and the question of linguistic universals. Students work collaboratively on a project investigating a particular language family, giving in class presentations and writing up a final project report. Some prior knowledge of phonetics, phonology, morphology, and syntax is necessary. Prereq: ENGL 605/LING 605 or ENGL 405/LING 405 and permission of the instructor.

ENGL 609 - Ethnicity in America: The African American Experience in the 20th Century
Credits: 4
Investigation of the music, literature, and social history of African American America in the period of the Harlem Renaissance, in the Great Depression, World War II, and in the 1960s. Special attention to the theme of accommodation with and rejection of dominant white culture. (Also offered as AMST 609, HUMA 609.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 616A - Studies in Film/Genre
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. Barring duplication of any four of the subject areas, and/or duplication of material taken for credit in CMN 650, course may be repeated for credit. Detailed course descriptions available in English department office during pre-registration. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 616B - Studies in Film/Authorship
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. Barring duplication of any four of the subject areas, and/or duplication of material taken for credit in CMN 650, course may be repeated for credit. Detailed course descriptions available in English department office during pre-registration. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 616C - Studies in Film/Culture and Ideology
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. Barring duplication of any four of the subject areas, and/or duplication of material taken for credit in CMN 650, course may be repeated for credit. Detailed course descriptions available in English department office during pre-registration. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 616D - Studies in Film/Narrative and Style
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. Barring duplication of any four of the subject areas, and/or duplication of material taken for credit in CMN 650, course may be repeated for credit. Detailed course descriptions available in English department office during pre-registration. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 618 - Film Theory
Credits: 4
Examines basic theories of film and their relationship to the practice of close analysis of film. Theories are meant to provide students with a vocabulary for critical analysis and stress the many ways of seeing film.

ENGL 619 - Critical Approaches to Literature
Credits: 4
Selected methods of literary criticism applied to fiction, poetry, and/or drama with critical approaches varying from year to year. A follow-up of 419 (previously 519), course provides a second semester of training in critical reading and writing, and examining such major modern strategies as formalist, biographical, archetypal, psychological, sociological, historical, feminist, and structuralist criticism. Prereq: ENGL 419(previously ENGL 519) or equivalent. Writing intensive.
Attributes: Writing Intensive Course
ENGL 620 - English Major Internship
Credits: 1-4
Open to all English majors. Internships allow students to use skills learned in the major in a supervised work setting. In addition to the job experience, the English major internship requires research and writing assignments overseen by a faculty sponsor. These supplementary assignments must be outlined in a written proposal describing the work involved in the internship and how it relates to the student's academic training. Registration requires permission from the employer, faculty sponsor, major advisor, and department chairperson. The employer must be an established organization approved by Career Services. This course does not count toward the English major or substitute for English 720, the Journalism Internship. May be repeated for a maximum of 8 credits. Cr/F.

ENGL 621 - Writing and Reporting the News I
Credits: 4
Students get a strong journalistic foundation with hands-on experience reporting and writing compelling news stories for print and digital platforms. Skills taught include finding news stories and tracking down sources; conducting interviews and verifying facts; and drafting and revising stories. Prereq: ENGL 401, ENGL 534 and permission of the instructor. ENGL 621 may be taken more than once for credit with the approval of the Journalism Program Director, up to a maximum of 8.00 credits. Students must fill out a Permission to Repeat an English Course form, available in the department office. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 622 - Writing and Reporting the News II
Credits: 4
An intermediate workshop that asks students to report in greater depth and experiment with different storytelling methods. Students delve into feature writing as well as newswriting. Prereq: B or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 623 - Creative Nonfiction
Credits: 4
Intensive writing course emphasizing the blend of basic elements that constitute creative nonfiction: research, observation, and personal experience. Also readings and discussion of some of the best published creative nonfiction. Prereq: ENGL 501. May be taken more than once for credit, recommended with two different instructors. Students may repeat ENGL 623 up to a maximum of 8 credits. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 625 - Intermediate Fiction Writing Workshop
Credits: 4
Students continue to explore the aspects of fiction writing. Through short exercises students learn to create visual scenes, integrate exposition with dramatic scene, and construct convincing characters in believable situations. We'll continue to explore the basic elements of what makes a short story, such as point of view, dialogue, dramatization, voice, meaning, language. Students write short stories and significantly revise them. Through discussion of student writing in a workshop format, as well as reading and responding to short stories by published authors, we'll address the questions: What is a short story? How do we create a world in which the reader is fully involved? Where does the story evoke emotion or meaning? Prereq: ENGL 526 or ENGL 501. ENGL 625 may be taken more than once for credit, recommended with two different instructors. Students may repeat ENGL 625 up to a maximum of 8 credits. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 626 - Intermediate Poetry Writing Workshop
Credits: 4
Workshop discussion of poems written by students, with focus on more complex techniques and forms. Individual conferences with instructor. Prereq: ENGL 527 or 501. ENGL 626 may be taken more than once for credit, recommended with two different instructors. Students may repeat ENGL 626 up to a maximum of 8 credits. Special fee. Writing intensive. Attributes: Writing Intensive Course

ENGL 627 - Intermediate Poetry Writing Workshop
Credits: 4
This course immerses students in the digital news landscape and teaches them to report across multiple platforms. Students learn reporting tools and strategies for producing dynamic digital journalism. Prereq: ENGL 534, ENGL 621 with a 'B' or better and written permission of the instructor. Writing intensive. Attributes: Writing Intensive Course

ENGL 631 - Introduction to Digital Reporting
Credits: 4
Literary and geographical approaches to place and space; readings and other materials exploring how cultures or authors represent nature. Writing intensive. May be repeated for credit if topic differs. Attributes: Writing Intensive Course

ENGL 636 - Literature and the Environment
Credits: 4
Special topics in British studies, varying from year to year. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive. Attributes: Writing Intensive Course

ENGL 649 - Studies in British Literature and Culture
Credits: 4
Special topics in British studies, varying from year to year. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive. Attributes: Writing Intensive Course

ENGL 650 - Studies in American Literature and Culture
Credits: 4
Special topics in American studies, varying from year to year. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive. Attributes: Writing Intensive Course
ENGL 651 - Comparative Literature
Credits: 4
Comparative studies of major authors representative of important periods of world literary achievement. Homer to Dante; common themes and the development of the epic tradition in early Western literature. Topics and approaches vary from semester to semester. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 657 - Shakespeare
Credits: 4
Ten major plays representative of the main periods of Shakespeare's career and the main types of drama which he wrote (tragedy, comedy, history). Live and filmed performances included as available. Restricted to undergraduates and designed for both English majors and students majoring in other fields. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 657H - Honors/Shakespeare
Credits: 4
Ten major plays representative of the main periods of Shakespeare's career and the main types of drama which he wrote (tragedy, comedy, history). Live and filmed performances included as available. Restricted to undergraduates and designed for both English majors and students majoring in other fields. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 680 - Early British Drama
Credits: 4
A survey of the development of British drama from the Middle Ages to the closing of the theatres in 1642.

ENGL 681 - Introduction to African Literatures in English
Credits: 4
In-depth study of writers, literary movements, political contexts, and historical pressures that have shaped and continue to shape African literatures in the colonial and postcolonial periods. Primary focus on Anglophone texts but possibly some literature in translation. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL #685 - Women's Literary Traditions
Credits: 4
Intensive study of themes, topics, and techniques in women's literature. Topics vary from year to year. May be repeated for credit, barring duplication of topic.
Attributes: Literature, Phil, Ideas GP 8

ENGL 685W - Women's Literary Traditions
Credits: 4
Intensive study of themes, topics, and techniques in women's literature. Topics vary from year to year. May be repeated for credit, barring duplication of topic. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ENGL 690 - Introduction to African American Literature in America
Credits: 4
Selected prose, fiction, drama, and poetry. Individual works and historical-cultural background. Course varies from year to year. Writing intensive.
Attributes: Writing Intensive Course

ENGL 693 - Special Topics in Literature
Credits: 4
Attributes: Writing Intensive Course

ENGL 694 - Special Topics in Creative Writing
Credits: 4
Courses offered under this number feature a variety of topics having to do with creative writing. Barring duplication of subject, course may be repeated for credit. For details, see the course descriptions available in the English Department. Writing intensive.
Attributes: Writing Intensive Course

ENGL 701 - Advanced Fiction Writing Workshop
Credits: 4
Students come to this course with a firm grasp of all the elements of fiction, ready to write short stories that construct convincing characters in believable situations. In a workshop format, students give and receive critiques on classmate's work. Significant revisions of short stories and thorough discussions of work by published authors will round out the course as students continue to explore the art of writing the short story. Students are responsible for leading discussion of published stories. Prereq: ENGL 625 with a grade of B or better. ENGL 701 may be taken more than once for credit, recommended with two different instructors. Students may repeat ENGL 701 up to a maximum of 8 credits. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 703 - Travel Writing
Credits: 4
A Workshop devoted to reading and writing and writing narratives of place. Travel writing requires the author to research and reflect, exploring both the external— the place— and the internal— the author’s experience. Students write multiple travel pieces and read widely essays of place by writers such as John Steinbeck, Joan Didion, Pico Iyer and Eliza Griswold. Permission of instructor required. Prereq: ENGL 501, 621 or 623. Writing intensive.
Attributes: Writing Intensive Course

ENGL 703T - Travel Writing
Credits: 4
A Workshop devoted to reading and writing and writing narratives of place. Travel writing requires the author to research and reflect, exploring both the external— the place— and the internal— the author’s experience. Students write multiple travel pieces and read widely essays of place by writers such as John Steinbeck, Joan Didion, Pico Iyer and Eliza Griswold. Permission of instructor required. Prereq: ENGL 501, ENGL 621 or ENGL 623. Writing intensive.
Attributes: Writing Intensive Course
ENGL 705 - Advanced Poetry Writing Workshop
Credits: 4
Workshop discussion of advanced writing problems and submitted poems. Individual conferences with instructor. Prereq: ENGL 627 with a grade of B or better. ENGL 705 may be taken more than once for credit, especially with two different instructors. Student may be repeat ENGL 705 up to a maximum of 8 credits. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 708 - Nonfiction: Form and Technique
Credits: 4
A writer’s view of contemporary nonfiction, emphasizing the choices the writer faces in the process of research writing. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL #709 - Poetry: Form and Technique
Credits: 4
A writer’s view of the problems, traditions, and structures of poetry. Writing intensive.
Attributes: Writing Intensive Course

ENGL 710 - Teaching Writing
Credits: 4
This course will introduce you both to the theories and practices of teaching writing in middle and high school at a time of increased accountability. The course is designed for students who are interested in exploring teaching as a possible career. In the course we will try out varied literacy activities and study teaching writing using a process approach. We discuss different approaches to planning instruction and various forms of writing assessment, including state-wide tests. Open to juniors and seniors only. Writing intensive.
Attributes: Writing Intensive Course

ENGL 711 - Editing
Credits: 4
Emphasis on newspaper editing but principles applicable to magazine and book editing are also covered. Prereq: B or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 712 - Multimedia Storytelling
Credits: 4
In this course, students explore the theory and practice of visual storytelling – including composition, lighting, editing and more – to produce short yet vibrant journalistic video documentaries. Students learn to shoot and edit audio and video. They explore narrative techniques and structure. They broaden their reportorial range, bringing visual sensitivity to storytelling. Prereq: ENGL 621 and ENGL 631 and permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

ENGL 715 - Teaching English as a Second Language: Theory and Methods
Credits: 4
How linguistic, psychological, sociological, and neurological theory influence or even determine the choice methods of language teaching. Research on second language acquisition and bilingualism, language aptitude, and the cultural context of language acquisition. Introduction to standard and exotic methods of language teaching. Writing intensive.
Attributes: Writing Intensive Course

ENGL 716 - Curriculum, Materials and Assessment in English as a Second Language
Credits: 4
Study of the problems in designing an effective teaching program for various types of ESL students. Competence and aptitude testing; choosing and adapting materials for ESL classes. Writing intensive.
Attributes: Writing Intensive Course

ENGL 719 - Sociolinguistics Survey
Credits: 4
How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationship to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq: ENGL or LING 405 (previously numbered 505) or permission.

ENGL 720 - Journalism Internship
Credits: 1-16
Students intending to pursue careers in journalism spend a semester working full or part time for a daily newspaper under close supervision of editors. Reporting is stressed, but students may do some editing as well. The number of internships is very limited. Prereq: ENGL 622 required; ENGL 722 recommended; permission. Writing intensive.
Attributes: Writing Intensive Course

ENGL 721 - Advanced Reporting
Credits: 4
While the theme of this course is teaching students advanced techniques of writing and reporting, each semester the course is offered it focuses on different areas of journalism. One semester, students may learn multimedia reporting - storytelling across multiple platforms, including video and audio - and in other semesters the course may focus on sportswriting. Yet in others, students will develop their news reporting skills. The course may be taken multiple times for credit with the approval of the Journalism Program Director. Prereq: ‘B’ or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 723 - Issues in Journalism
Credits: 4
This upper-level seminar focuses on the shifts in technology and public perception that are changing the definition of excellence in journalism. Special attention to legal and ethical issues reshaping journalism’s public service role. Prereq: Grade of B in ENGL 621 and written permission. May be repeated once for credit with permission of the journalism director. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ENGL 724 - Sports Writing
Credits: 4
This class immerses students in all aspects of professional sports writing. Using in-class and real-world assignments, the class exposes students to such practical applications as covering live events; feature writing; covering breaking news; column writing/bloggling; and writing a running game story on a real-time deadline. Prereq: ENGL 621 Newswriting with a ‘B’ or better.
ENGL 725 - Seminar in English Teaching  
Credits: 4  
In this seminar on teaching English at the middle- and secondary-school levels, students meet the requirements for both English 710, Teaching Writing and English 792, Teaching Secondary School English. The two-semester course integrates the teaching of reading, writing, speaking, and listening, addressing both theoretical and practical issues. Through the study of different approaches, students develop their own philosophies of instruction. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 726 - Seminar in English Teaching  
Credits: 4  
In this seminar on teaching English at the middle- and secondary-school levels, students meet the requirements for both English 710, Teaching Writing and English 792, Teaching Secondary School English. The two-semester course integrates the teaching of reading, writing, speaking, and listening, addressing both theoretical and practical issues. Through the study of different approaches, students develop their own philosophies of instruction. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 727 - Issues in Second Language Writing  
Credits: 4  
Study of various issues in second language writing theory, research, instruction and administration. Topics include the characteristics and needs of second language writers, second language writing processes, contrastive rhetoric, grammar instruction, teacher and peer feedback, assessment, course design and placement. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 729 - Special Topics in Composition Studies  
Credits: 4  
Advanced course on a topic chosen by the instructor. Precise topics and methods of each section vary. Possible topics include alternative discourses and rhetorics, contrastive rhetoric, electronic discourse and digital rhetoric, women's rhetorics and feminist pedagogies, Montaigne and the essay tradition, theories of literacy, theories of persuasive writing, theories of transactional writing, and written discourse analysis. Barring duplication of subject, may be repeated for credit. For details see descriptions available in the English Department. Writing intensive when topic is studies in rhetoric and composition.  
Attributes: Writing Intensive Course

ENGL 730 - Practicum in Teaching English and the Language Arts  
Credits: 1-6  
A site-based course for practicing teachers that features in-class observations and demonstrations, individual consultation, and group meetings in the schools. Prereq: permission. May be repeated to a maximum of 8 credits.

ENGL #732 - Folklore and Folklife  
Credits: 4  
Examines the materials and methods used to study folklife, emphasizing the historical context and development of folklore studies in North America and Europe, field research, performance theory, and other topics. (Also offered as ANTH #698.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 733 - Special Studies in Film  
Credits: 4  
Specialized and advanced study in film and cinema studies. Topics vary and may include literature and film, Asian-American film, film genres, and advanced film theory. May be repeated once for credit as long as topics are different. Special fee.  
Attributes: Writing Intensive Course

ENGL 733W - Special Studies in Film  
Credits: 4  
Specialized and advanced study in film and cinema studies. Topics vary and may include literature and film, Asian-American film, film genres, and advanced film theory. May be repeated once for credit as long as topics are different. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 734 - Special Topics in Literary Theory  
Credits: 4  
Covers various topics dealing with diverse issues in literary and cultural theory. Prerequisite ENGL 619 or equivalent theory/philosophy class. Offered irregularly. For a specific description see English course offerings. Only open to English majors.

ENGL 735 - Entrepreneurial Journalism  
Credits: 4  
This course teaches journalism students to think like business people so they can compete in the exploding world of online publishing. Students work on ways to monetize good journalism practices by studying opportunities available and applying what they learn to a publishing project. Those who prefer print will find the course valuable as they learn to balance business objectives with quality journalism. Prereq: ENGL 621 with a B or better and written permission of the instructor. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 736 - Environmental Theory  
Credits: 4  
Theoretical approaches to nature writing. Topics vary but may include eco-memoirs, environmental rhetoric, native peoples and the land, land and national identity, animals in literature, and environmental activist non-fiction. Writing intensive. May be repeated for credit if topic differs.  
Attributes: Writing Intensive Course

ENGL 738 - Topics in Asian American Studies  
Credits: 4  
Study of the literature, history, scholarship, and current thought by and about Asian America. Representative works from among Japanese Americans, Chinese Americans, Korean Americans, Southeast Asian Americans, and South Asian Americans. (Also listed as AMST 615.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 739 - American Indian Literature  
Credits: 4  
Close study of traditional and/or contemporary American Indian literature and folklore with historical and cultural background. Writing intensive.  
Attributes: Writing Intensive Course

ENGL #740 - Indigenous New England  
Credits: 4  
An interdisciplinary introduction to the literatures, histories, and cultures of indigenous people located in what is now called New England. Course topics may include U.S. American Indian policy, tribal government structures and resistance, the history and forms of indigenous literacy, contemporary sovereignty struggles, popular culture, and film. Curricular activity with regional Native people required such as a visit to a Native community, work with tribal guest speakers, participation in a lecture or film series. (Also offered as AMST 611.) Writing intensive.  
Attributes: Writing Intensive Course
ENGL 741 - Literature of Early America  
Credits: 4  
Prose and poetry of the periods of exploration, colonization, early nationalism, Puritanism, Enlightenment. Individual works and historical-cultural background. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 742 - American Literature, 1815-1865  
Credits: 4  
Fiction, nonfiction, and poetry in the period of romanticism, transcendentalism, nationalism. Individual works and cultural background. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 743 - American Literature, 1865-1915  
Credits: 4  
Fiction, nonfiction, and poetry in the period of realism, naturalism, industrialism, big money. Individual works and background. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 744 - American Literature, 1915-1945  
Credits: 4  
Fiction, poetry, and drama in the period of avant-garde and leftism, jazz age, and Depression. Individual works and cultural background. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 745 - Contemporary American Literature  
Credits: 4  
A gathering of forms, figures, and movements since 1945. Individual works and cultural background. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 746 - Studies in American Drama  
Credits: 4  
Topics vary from year to year. Examples: 20th-century American drama; contemporary playwrights; theatricality in American life. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 747 - Studies in American Poetry  
Credits: 4  
Topics vary from year to year. Examples: poets of the open road, Pound and his followers, major American poets, contemporary American poetry. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL #748 - Studies in American Fiction  
Credits: 4  
Topics vary from year to year. Examples: the romance in America, the short story, realism and naturalism, the city novel, fiction of the thirties. May be repeated for credit, barring duplication of topic. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 749 - Major American Authors  
Credits: 4  
Intensive study of two or three writers. Examples: Melville and Faulkner; Fuller, Emerson, and Thoreau; James and Wharton; Dickinson and Frost. May be repeated for credit, barring duplication of topic. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 750 - Special Studies in American Literature  
Credits: 4  
Topics vary from year to year. Examples: the Puritan heritage, ethnic literatures in America, landscape in American literature, five American lives, pragmatism, American humor, transcendentalism, women regionalists. May be repeated for credit, barring duplication of topic. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 751 - Medieval Epic and Romance  
Credits: 4  
The two major types of medieval narrative; comparative study of works from England, France, Germany, and Iceland, including Beowulf, Song of Roland, the Nibelungenlied, Njal's Saga, and Malory's Morte d'Arthur. All works read in modern English translations. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 752 - History of the English Language  
Credits: 4  
Evolution of English from the Anglo-Saxon period to the present day. Relations between linguistic change and literary style. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 753 - Old English  
Credits: 4  
Introduction to Old English language and literature through the reading of selected poetry and prose.  

ENGL 754 - Chaucer  
Credits: 4  
The Canterbury Tales in its original language. Writing intensive.  

ENGL 755 - Shakespeare  
Credits: 4  
A few plays studied intensively. Live and filmed performances included as available. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 756 - Chaucer  
Credits: 4  
The Canterbury Tales in its original language. Writing intensive.  

ENGL 757 - Shakespeare  
Credits: 4  
A few plays studied intensively. Live and filmed performances included as available. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 758 - Shakespeare  
Credits: 4  
A few plays studied intensively. Live and filmed performances included as available. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 759 - Milton  
Credits: 4  
Milton and his age. Generous selection of Milton's prose and poetry, with secondary readings of his sources and contemporaries. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

ENGL 760 - Literature of the Restoration and Early 18th Century  
Credits: 4  
Poetry, drama, fiction, letters, journals, and essays from the period following the restoration of Charles II to the throne of England after the English Civil War. Works by such figures as John Dryden, Aphra Behn, Daniel Defoe, Jonathan Swift, Alexander Pope, and Lady Mary Wortley Montagu studied in the historical context. Examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.  
Attributes: Writing Intensive Course
ENGL 768 - Literature of the Later 18th Century
Credits: 4
Poetry, drama, fiction, letters, journals, essays, and biography from the period that culminated in the American and French Revolutions. Works by such figures as Henry Fielding, Samuel Johnson, Frances Burney, Laurence Sterne, William Blake, and Mary Wallstonecraft studied in historical context. Examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.
Attributes: Writing Intensive Course

ENGL 769 - English Romantic Period
Credits: 4
Major literary trends and authors, 1798 to 1832. Focus on poetry but attention also to prose works and critical theories. Wordsworth, Coleridge, Lamb, Hazlitt, DeQuincey. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 770 - English Victorian Period
Credits: 4
Fiction, nonfiction, and poetry from 1832-1870. The growth of the city and middle-class life, with particular emphasis on money and love. Authors include Charlotte and Emily Bronte, Charles Dickens, E.B. Browning, A.L. Tennyson. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 771 - English Victorian Period
Credits: 4
Fiction, nonfiction, and poetry from 1870-1900. The social conflicts created by gender politics and imperial expansion, with particular emphasis on aesthetics and gothic horror. Thomas Hardy, Oscar Wilde, R.L. Stevenson, Bram Stoker. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 772 - English Victorian Period
Credits: 4
Attributes: Writing Intensive Course

ENGL 773 - British Literature of the 20th Century
Credits: 4
Attributes: Writing Intensive Course

ENGL 774 - British Literature of the 20th Century
Credits: 4
Poets and novelists of the modernist and postmodernist periods. A selection of postmodernist or contemporary writers, such as William Golding, Doris Lessing, John Fowles, Philip Larkin, Seamus Heaney, Margaret Drabble, and others. Writing intensive.
Attributes: Writing Intensive Course

ENGL 775 - Irish Literature
Credits: 4
Survey from the beginnings to present; works in Irish (read in translation) such as The Cattle Raid of Cooley, medieval lyrics, and Mad Sweeney; and works in English from Swift to the present. 20th-century authors: Joyce, Yeats, Synge, O'Casey, Beckett, and Flann O'Brien. (Not offered every year.)

ENGL 776 - Writing Intensive Course

ENGL 777 - Postcolonial Novel
Credits: 4
Representative novels from writers such as Salman Rushdie, Amitava Ghosh, Bapsi Sidhwa, R. K. Narayan, Raja Rao, Romesh Gunesekara, Arundati Roy, Mahasweta Devi, U.R. Anantamoorthy, and others. Study of the development of the novel in English in South Asia from the mid-nineteenth century to the present day. Focus is on novels originally written in English; English translations from other South Asian languages when appropriate. Writing intensive.
Attributes: Writing Intensive Course

ENGL 778 - Race and Gender in Film and Popular Culture
Credits: 4
This course explores representations of race and gender in American cinema and popular culture and features weekly readings in contemporary race and gender theories. Topics include the black women's gaze; woman as object; the action hero and hyper-masculinity; hybridity; race/ethnicity and hypersexuality; the crisis of white masculinity; white privilege; sexual orientation; transsexual and transgender performance. This course is reading and Canvas intensive, requiring weekly writing assignments and papers. It is NOT writing intensive.
Attributes: Writing Intensive Course

ENGL 779 - Linguistic Field Methods
Credits: 4
Study of a non-Indo-European language by eliciting examples from an informant, rather than from written descriptions of the language. Students learn how to figure out the grammar of a language from raw data. Prereq: ENGL 405/LING 405. (Also offered as LING 779.) Special fee. (Not offered every semester) Writing intensive.
Attributes: Writing Intensive Course

ENGL 780 - Drama of Shakespeare's Contemporaries
Credits: 4
Study of the drama of Renaissance England, emphasizing Tudor and Stuart drama. Special attention to dramatic forms, acting conventions, theatre architecture, women as patrons, writers, and subjects of drama, and the politics and social significance of theatre in the period. Writing intensive.
Attributes: Writing Intensive Course

ENGL 781 - English Drama, 1660-1800
Credits: 4
Study of the selected plays, their performance and their publication. Works by such figures as William Wycherley, Thomas Otway, Mary Pix, George Lillo, Susanna Centlivre, Richard Sheridan, and Elizabeth Inchbald. Special attention to the new prominence of women in the drama of this period, changes in theatre architecture, forms of non-dramatic spectacle, and the political and social significance of drama. Writing intensive.
Attributes: Writing Intensive Course

ENGL 782 - Modern Drama
Credits: 4
Major English, American, and (translated) European plays of the modern period by such playwrights as Shaw, Ibsen, Chekhov, Strindberg, Pirandello, O'Neill, Brecht, Beckett, Williams, Miller, Pinter. Live and filmed performances studied as available. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course
ENGL 783 - English Novel of the 18th Century
Credits: 4
Study of the rise and development of the novel in the eighteenth century. Works by such figures as Daniel Defoe, Eliza Haywood, Samuel Richardson, Henry Fielding, Charlotte Lennox, Laurence Sterne, Frances Burney, and Jane Austen. Focus on writers who published their work in England but with examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.
Attributes: Writing Intensive Course

ENGL 784 - English Novel of the 19th Century
Credits: 4
Representative novels from among Austen, Scott, Dickens, Thackeray, Emily Bronte, Charlotte Bronte, Trollope, George Eliot, Hardy, and Conrad. Writing intensive.
Attributes: Writing Intensive Course

ENGL 785 - Major Women Writers
Credits: 4
Intensive study of one or more women writers. Selections vary from year to year. May be repeated for credit, barring duplication of topic. Writing intensive.
Attributes: Writing Intensive Course

ENGL 787 - English Major Seminar
Credits: 4
Intensive study of specialized topics that vary from year to year. Enrollment in each seminar is limited to 15 so that all students can take an active part in discussion and work closely with the instructor on their papers. For details, see course description available in the department office. Prereq: ENGL 419 with a grade of B or better. This course may be repeated for credit (up to a maximum of 8 credits) with the approval of the English Department. Writing intensive.
Attributes: Writing Intensive Course

ENGL 788 - Senior Honors
Credits: 4
Open to senior English majors who, in the opinion of the department, have demonstrated the capacity to do superior work; permission required. An honors project consists of supervised research leading to a substantial thesis or writing of poetry or fiction portfolio. Required of students in the honors in major program. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 789 - Special Topics in English Teaching
Credits: 4
Advanced theories and practices course on English Teaching. Topics such as A) Teaching Young Adult Literature, C) Teaching English in Diverse Contexts, D) Teaching Drama, N) Teaching Nonfiction, R) English Teachers as Researchers, and T) Alternate Literacies and Teaching Technologies. Barring duplication of subject, course may be repeated for credit. For details see course descriptions available in the English department. Writing intensive.
Attributes: Writing Intensive Course

ENGL 790 - Special Topics in Linguistics
Credits: 4
Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as LING 790.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 791 - English Grammar
Credits: 4
Survey of the grammar of English (pronunciation, vocabulary, sentence structure, punctuation, dialect variation, historical change) with special attention to the distinction between descriptive and prescriptive grammar and to the problems students have with formal expository writing. Writing intensive.
Attributes: Writing Intensive Course

ENGL 792 - Teaching Literature and Literacy
Credits: 4
This course introduces theories and practices of teaching literature and literacy, including teaching reading and writing as well as teaching literary analysis at the secondary level. Students also learn to plan lessons, choose texts, and create learning activities for speaking, listening, and viewing in grade five through twelve. The course is designed for students who are interested in teaching as a possible career.
Attributes: Writing Intensive Course

ENGL 793 - Phonetics and Phonology
Credits: 4
The sound system of English and other languages as viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as stress and intonation. (Also offered as LING 793.) Prereq: a basic linguistics course or permission.

ENGL 794 - Syntax
Credits: 4
Relationship of grammar and meaning as viewed from the standpoint of modern linguistic theory. Emphasizes the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. (Also offered as LING 794.) Prereq: a basic linguistics course or permission.

ENGL 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit up to a maximum of 8 credits. Writing intensive.
Attributes: Writing Intensive Course
ENGL 797 - Special Studies in Literature
Credits: 4
Attributes: Writing Intensive Course

ENGL 799 - Study Abroad in Cambridge England
Credits: 0
UNH Cambridge Summer Program at Gonville & Caius College of Cambridge University in Cambridge, England. This course number is a place-holder. Students register for both the administrative course number and two of the courses being offered through the program. These courses will vary from year to year. To view the courses offered visit http://www.unh.edu/cambridge. Permission required. Special fee. Cr/F.
Attributes: World Cultures(Discovery), Foreign Culture GP 5

ENGL 799A - Study Abroad in Cambridge England Bonus Weekend
Credits: 0
UNH Cambridge Summer Program Bonus Weekend excursion. This course is a place-holder. Location may change from year to year. To view Bonus Weekend description and location visit http://www.unh.edu/cambridge. Permission required. Special fee.

English/Speakers of Other Languages (ESL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ESL 410 - Elementary Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required. May be repeated to a maximum of 8 credits.

ESL 411 - Speaking and Listening, Elementary Level
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required. May be repeated to a maximum of 8 credits.

ESL 420 - Intermediate Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required. May be repeated to a maximum of 8 credits.

ESL 421 - Intermediate Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required. May be repeated to a maximum of 8 credits.

ESL 430 - Advanced Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an advanced level. Students will develop an extensive vocabulary in English and sufficient English proficiency to function successfully in American university courses that do not rely heavily on language. Permission required. May be repeated to a maximum of 8 credits.

ESL 431 - Advanced Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an advanced level. Students will develop an extensive vocabulary in English and sufficient English proficiency to function successfully in American university courses that do not rely heavily on language. Permission required. May be repeated to a maximum of 8 credits.

ESL 434 - High Advanced Integrated Skills
Credits: 2-8
Intensive English with a focus on incorporating, analyzing, and synthesizing information from lectures and readings into academic writing. This course is intended for students whose skills are uneven in the reading, writing, listening, and speaking modalities. Students enrolled in ESL 434/ESL 634 will be simultaneously enrolled in ESL 430/ESL 630 or ESL 431/ESL 631. Permission required. May be repeated to a maximum of 8 credits.

ESL 440 - English as a Second Language Bridge Program
Credits: 4-8
This course is intended for speakers of other languages who have already achieved a 500 score on the TOEFL (or an equivalent score on another standardized test of English proficiency). Students will learn to read academic materials, write coherent essays on academic topics, and participate in group work and class discussion. Students enrolled in ESL 440/ESL 640 are also eligible to enroll in one University of New Hampshire course. Permission required. May be repeated to a maximum of 8 credits.

ESL 450 - Academic English for English as a Second Language Students
Credits: 4
This course is intended for speakers of other languages who have already achieved a score of 525 or higher on the TOEFL (or an equivalent score on another standardized test of English language proficiency). Students will learn to read academic materials, do basic library research, write short papers in standard academic form, understand academic lectures, and participate in group work and class discussion. Writing Intensive. Students enrolled in ESL 450/ESL 650 are also eligible to enroll in two University of New Hampshire courses. Permission required. May be repeated to a maximum of 8 credits.
ESL 610 - Elementary Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required. May be repeated to a maximum of 8 credits.

ESL 611 - Speaking and Listening, Elementary Level
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required. May be repeated to a maximum of 8 credits.

ESL 620 - Intermediate Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required. May be repeated to a maximum of 8 credits.

ESL 621 - Intermediate Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required. May be repeated to a maximum of 8 credits.

ESL 630 - Advanced Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an advanced level. Students will develop an extensive vocabulary in English, facility with complex sentence structures, and an ability to write coherent, comprehensible essays in English. Permission required. May be repeated to a maximum of 8 credits.

ESL 631 - Advanced Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an advanced level. Students will develop an extensive vocabulary in English and sufficient English proficiency to function successfully in American university courses that do not rely heavily on language. Permission required. May be repeated to a maximum of 8 credits.

ESL 634 - High Advanced Integrated Skills
Credits: 2-8
Intensive English with a focus on incorporating, analyzing, and synthesizing information from lectures and readings into academic writing. This course is intended for students whose skills are uneven in the reading, writing, listening, and speaking modalities. Students enrolled in ESL 434/634 will be simultaneously enrolled in ESL 430/ESL 630 or ESL 431/ESL 631. Permission required. May be repeated to a maximum of 8 credits.

ESL 640 - English as a Second Language Bridge Program
Credits: 4-8
This course is intended for speakers of other languages who have already achieved a 500 score on the TOEFL (or an equivalent score on another standardized test of English proficiency). Students will learn to read academic materials, write coherent essays on academic topics, and participate in group work and class discussion. Students enrolled in ESL 440/ESL 640 are also eligible to enroll in one University of New Hampshire course. Permission required. May be repeated to a maximum of 8 credits.

ESL 650 - Academic English for English as a Second Language Students
Credits: 4
This course is intended for speakers of other languages who have already achieved a score of 525 or higher on the TOEFL (or an equivalent score on another standardized test of English language proficiency). Students will learn to read academic materials, do basic library research, write short papers in standard academic form, understand academic lectures, and participate in group work and class discussion. Writing Intensive. Students enrolled in ESL 450/ESL 650 are also eligible to enroll in two University of New Hampshire courses. Permission required. May be repeated to a maximum of 8 credits.

Environmental & Resource Economics (EREC)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

EREC #409 - Catastrophe and Terrorism
Credits: 4
Impacts of terrorism and natural and non-natural catastrophes on infrastructure, public and private policy, and the economy. Analysis of case studies and research data is emphasized. Invited speakers complement lectures and assignments.

Attributes: Social Science (Discovery); Social Science GP 7

EREC 411 - Environmental and Resource Economics Perspectives
Credits: 4
Microeconomic theory and analysis in resource management and use decisions. Survey of significant resource problems from an economic perspective and the application of economic analysis. Cannot be taken for credit after ECON 402 or equivalent.

Attributes: Social Science (Discovery); Social Science GP 7

EREC 444 - The New Pirates of the Caribbean
Credits: 4
Inquiry into many facets of tourism from the standpoint of tourists and tour destination. Economic and institutional factors affecting human well-being from the use of land and water resources; discussions of distributional aspects of benefits from tourism activities; environmental impacts; ownership patterns and uses; cultural attributes; and local economies in small Caribbean island nations. Cruise ships, time-shares, all-inclusive resorts, hurricanes, casinos, bars, rum, sex, and drugs are investigated through extensive readings and web surfing. Writing intensive.

Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery); Writing Intensive Course
EREC 525 - Statistical Methods and Applications
Credits: 4
Applications of elementary statistical concepts and methods including probability, descriptive techniques, statistical inference and bivariate and multivariate statistical analysis. Orientation is toward analysis and interpretation of data commonly encountered in social science disciplines. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; HHS #540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

EREC 535 - Being a Locavore
Credits: 4
Explores the growth of the Locavore movement in the United States, starting with the evolution of the mainstream agricultural system. Topics such as the Agricutural Adjustment Act, farm subsidies, the development of mono-culture large scale farms, as well as the Magnusen-Stevens Act and the current state of fisheries. Ethical, economic, and social phenomenon will be discussed, followed by nutrition, and environmental impacts. Students will keep a food journal, which will be used as a basis to source, budget, and plan for years of eating local food. The class concludes with an investigation into the growing trend of local farmers’ markets, CSAs, and on farm sales. How and why more and more people are going local and perhaps becoming "Locavores".
Attributes: Social Science (Discovery); Social Science GP 7

EREC 572 - Introduction to Natural Resource Economics
Credits: 4
Introduces theory, methods of analysis, and current literature of natural resource economics and policy. Topics include multiple use, taxation, optimal harvest scheduling, market failure, property rights, public goods, benefit-cost analysis, amenity values, non-market resource services and natural resource policy. Topics applied to forests and forestry, wildlife management, outdoor recreation, public lands, agriculture, fisheries, water, energy and mining/nonrenewable resources.

EREC 595 - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission.

EREC 595W - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

EREC 596 - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

EREC 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

EREC 601 - Agribusiness Economics and Management
Credits: 4
Applications of economic and management principles in production, marketing, finance, and other operational decisions facing small agribusiness firms. Prereq: EREC 411 or ECON 402 or equivalent.

EREC 606 - Land Economics Perspectives: Uses, Policies, and Taxes
Credits: 4
Economic and institutional perspectives affecting human use of land resources; discussion of land ownership patterns and uses; land rent, location, and resource use; institutional constraints; partial ownership policies; and local planning for more efficient use of land. Real estate markets, transfers, valuation, and taxation. Prereq: EREC 411 or equivalent or permission. Special fee.

EREC 608 - Environmental Economics for Non-Economists
Credits: 4
This course will examine different aspects of natural resource allocation and protection of environmental quality from an economic standpoint. The course will examine the economic factors which lead to environmental problems such as air and water pollution, the common property problem, and other areas where existing markets do a less than satisfactory job of resource allocation. Economic incentives for alleviating these environmental problems will also be surveyed. Specific topics covered will include benefit cost analysis, valuation of “nonmarket” goods, policy tools which have economic bases, and sustainable development. Where possible, guest lecturers from other disciplines and selected films will be used to present alternative viewpoints and stimulate discussion. Class participation is encouraged and expected. Students completing this course will gain an overview of key issues in environmental economics, and how economics can be used as an aid in policy decisions regarding natural resources. Prereq: EREC 411, ECON 401 or their equivalents or permission. Does not count toward major requirements for EREC electives.
EERC 627 - Community Economics
Credits: 4
Emphasizes use of economic theory for decision making and community problem solving. Prereq: EREC 411 or equivalent.

EERC 680 - Agricultural and Food Policy
Credits: 4
Analysis of issues that led to government involvement in the agricultural and food sector. Application of economic concepts and tools to the evaluation of public policies affecting agriculture and food. Prereq: EREC 411 or equivalent.

EERC 708 - Environmental Economics
Credits: 4
Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy; property right issues. Prereq: intermediate microeconomic theory; permission. Writing intensive.
 Attributes: Writing Intensive Course

EERC 710 - Seminar
Credits: 2-4

EERC #711 - Marine Resource Economics
Credits: 4
Economic overview of the marine environment; interactions/conflicts surrounding this multiple-use resource. Economics of fisheries; marine recreation; aquaculture; endangered species; non-market ecosystem services. Prereq: EREC 411, ECON 401 or ECON 402 or equivalent or permission. (Offered every other semester.)

EERC 756 - Rural and Regional Economic Development
Credits: 4
 Attributes: Writing Intensive Course

EERC 760 - Ecological-Economic Modeling for Decision Making
Credits: 4
In this course, students will develop ecological-economic models and use them to inform economic decision making related to the management of natural resources. These models range from analytical models using algebra and calculus, to computational models using coding and simulations. The course will focus on spatial-dynamic computational bio-economic models because of their ability to capture economic decision making and ecological processes over time and space. Prereq: ECON 605 or equivalent; MATH 420, or equivalent.

EERC 775 - Research Methods
Credits: 4
Study of the process, methods, and techniques of conducting scientific research in the social sciences. Includes problem identification, data collection and management, qualitative quantitative data analyses, and communicating scientific research. Prereq: EREC 411 or equivalent; EREC 525 or equivalent; junior/senior standing.

EERC 795 - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated.

EERC 795W - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated. Writing intensive.
 Attributes: Writing Intensive Course

EERC 799 - Honors Senior Thesis
Credits: 1-4
Honor/thesis students conduct an independent research project, relevant to the student's area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. One or two semester sequence. Restricted to Senior/Natural Resource Majors. Permission required. Writing intensive.
 Attributes: Writing Intensive Course

Exchange (EXCH)

EXCH 595 - Exchange
Credits: 18
Special fee. Cr/F.

Forest Technology (FORT)

FORT 461 - Dendrology
Credits: 3
Identification and nomenclature of forest trees and shrubs which are important to the ecology and economy of the Northeastern forest. The study of forested plant relationships with other plants, animals, soil, and site regimes. 1 lec/1 2-hr lab.

FORT 463 - Forest Ecology
Credits: 3
Study the interactions of forest trees with their environment, both as individuals and as tree communities; explore environmental problems affecting plant communities; the history and classification of North American forests. Study of soils as they affect forest distribution and tree growth. Includes a series of field-based exercises used to reinforce the principles introduced in lectures.
FORT 465 - Forest Orientation Seminar  
Credits: 1  
Seminar to prepare first year students for study and placement in the broad area of forest technology. Focus on history and development of modern forestry systems and agencies at the state, regional and federal levels. The lives of key individuals like John Muir, Gifford Pinchot, and Aldo Leopold will help place forest management philosophies in perspective. Cr/F.

FORT 466 - Forest Surveying and Mapping  
Credits: 4  
Provides instruction and experience in running cruise lines and in the survey and identification of rural property lines. The focus is on field surveying techniques and problem solving of special importance to foresters. Use of magnetic survey data in rural property measurement. Skill and efficiency is developed in analyzing field survey data, plotting, lettering and finishing topographic and planimetric maps, and road plans, both manually and by Computer Assisted Drafting using multiple software applications.

FORT 470 - Applied Silviculture  
Credits: 4  
Silvicultural practices in the U.S. including reforestation systems. Improvement of forest stands employing the basic tending practices of weeding, thinning, and pruning. Marking of stands prior to logging operations. Prereq: permission of instructor or FORT 461 and FORT 463. 2 lec/1 4-hr lab.

FORT 475 - Forestry Field Practice  
Credits: 1  
A week long introduction to the various components of the forest industry of the northeast. Students visit with members of the forest industry in the workplace and learn how they are interrelated. Students gain background experience that will prove beneficial in understanding their studies during their second year in the Forest Technology curriculum. One week of concentrated field study. Forest Technology majors only.

FORT 490 - NH Sustainable Forest Resource  
Credits: 4  
An overview of forestry in New Hampshire and the northeast. History shows how our forests have been used in the past and how they developed into what we see today. Discover the science of Forest Ecology and Silviculture and how foresters use these to manage our forests sustainably for a variety of forest products. Learn how these products are harvested, processed and used. Understand how pathogens and pests can threaten our forests. On-line course.

FORT 497 - Applied Silviculture  
Credits: 4  
Silvicultural practices in the U.S. including reforestation systems. Improvement of forest stands employing the basic tending practices of weeding, thinning, and pruning. Marking of stands prior to logging operations. Prereq: permission of instructor or FORT 461 and FORT 463. 2 lec/1 4-hr lab.

FORT 564 - Arboriculture  
Credits: 3  
Tree selection, care, and maintenance in the urban environment. Includes climbing, safety practices, pruning, hazard tree assessment, and removals. Prereq: FORT 463 or permission. 1 lec/1 4-hr lab.

FORT 567 - Leadership, Supervision & Safety  
Credits: 2  
Fundamentals of leadership and supervision including effective communication in the workplace and public sector are explored. Project management, personnel training and motivation, plus problem-solving and conflict resolution applied through a practical community service forestry project. Accident prevention, first aid, and CPR instruction also included. 2 lec.

FORT 569 - Wildlife Ecology & Conservation  
Credits: 3  
Foresters directly influence wildlife by manipulating habitat through silvicultural operations. Course focuses on the ecology of New England wildlife species with emphasis on their habitat requirements and the enhancement of habitat through silviculture and the use of best management practices. 1 lec/1 4-hr lab.

FORT 572 - Mensuration  
Credits: 4  
Field application of forest inventory and timber cruising techniques. Measurement of tree form, volume, quality, and defect. Growth prediction of individual trees and stands. Use of basic statistical methods as a tool in cruising. Prereq: FORT 461 or instructor permission. 2 lec/1 4-hr lab.

FORT 573 - Management Operation & Analysis  
Credits: 3  
Forest appraisal and valuation methods, timber sale contracts, depreciation and depletion calculations, forest taxation. Essentials of forest regulation and management planning. 2 lec/1 2-hr lab.

FORT 574 - Industrial Forest Management Tour  
Credits: 1  
Concentrated field experience and intensive observations of industrial, private, and federal forest holdings and facilities; emphasizing forest utilization and management operations as currently practiced in New England. One week of concentrated field study. Cr/F. Forest Technology majors only.

FORT 576 - Forest Products  
Credits: 4  
Basics of structure and properties of wood as a raw material. Conversion of logs to lumber at Thompson School sawmill. Lumber and log grading and measuring. Studies in processing efficiency, lumber drying, and physical plant operations. Introduction to paper, veneer, and chip products. Marketing of forest products. 2 lec/1 4-hr lab.

FORT 577 - Forest Harvesting Systems  
Credits: 4  
A study in harvesting methods and their relation to forest management and silviculture of the state and region. Theory and practice of conventional harvesting systems including hands-on application of techniques with a strong emphasis on protection of the environment and the safety and health of workers. Department permission for non-majors. 2 lec/4-hr lab.

FORT 578 - Forest Insects & Diseases  
Credits: 2  
An introduction to the role of forest insects and microorganisms in the context of managing woodlands. Students learn to recognize the signs and symptoms of insect and disease damage in forest trees and products. They study the life cycles and identify common forest insect and disease pests impacting North American tree species. Pest management methods are introduced. 1 lec/3-hr lab.

FORT 579 - Forest Fire Control and Use  
Credits: 2  
A study in basic fire ecology and instruction in forest fire suppression methods. Interactions of forest fuels, topography, and weather as they affect forest fire behavior. Use of controlled fire as a tool in forest and wildlife management. When appropriate, field work will include actual burning.
FORT 581 - Applied Geographic Information Systems (GIS) Techniques
Credits: 4
Geographic Information Systems (GIS) are integral to natural resource management and these technologies/software have become widespread throughout various fields. Proficiency in fundamental GIS skills is imperative for resource managers. Students will 1) develop an understanding of imagery acquisition and remote sensing systems/technologies; 2) develop skills in identification, interpretation, and mapping of land/vegetation features, including an understanding of map projection; 3) gain experience in GIS software to perform fundamental geoprocessing and mapping techniques.

FORT 591 - Independent Studies in Forest Technology/Urban Tree Care
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples include forest management, forest products, forest protection, wildlife management, or urban tree care. Permission required. Course may be repeated up to a maximum of 8 credits.

FORT 592 - Independent Studies in Forest Technology/Urban Tree Care
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples include forest management, forest products, forest protection, wildlife management, or urban tree care. Permission required. Course may be repeated up to a maximum of 8 credits.

FORT 597 - Work Experience
Credits: 0
Career-related employment (10 weeks, generally in the summer following freshman year) in a forestry, urban tree care, or other department-approved natural resources area. Cr/F.

French (FREN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

FREN 401 - Elementary French I
Credits: 4
Conducted in French, the course introduces students to French language and culture through speaking, listening, reading, writing, labs and films. Designed for students without previous training in French. Credit only for students who have had less than two years of French in secondary school. 401-402 taken together satisfies the foreign language requirement. Special fee.

FREN 402 - Elementary French II
Credits: 4
See description for FREN 401. FREN 401 is a prerequisite for this course. Cannot be taken separately except with permission of instructor.
Attributes: Foreign Language Requirement

FREN 403 - Review of French
Credits: 4
Conducted in French. Course emphasizes the active use of French through speaking, listening, reading, writing, labs, and films while providing a review of basic grammar. Designed for those students whose study of French has been interrupted for a significant amount of time or who have had two or more years of high school French. Special fee. FREN 403 does not satisfy the foreign language requirement.

FREN 500 - Selected Topics in World Literature
Credits: 4
Topics will be chosen that introduce students to major themes and genres. (Also offered as CLAS 500, GERM 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Credit/Fail. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

FREN 503 - Intermediate French I
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 503H - Honors/Intermediate French I
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 504 - Intermediate French II
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 504H - Honors/Intermediate French II
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 525 - Introduction to French Civilization and Culture
Credits: 4
Taught in English. French civilization from a variety of perspectives and topics. Includes historical, geographical, and artistic expressions of French culture. Not for major credit. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery); Writing Intensive Course
FREN 526 - Introduction to Francophone Cultures
Credits: 4
Taught in English. Focus on French-speaking cultures other than France. Includes historical, geographical, and artistic expressions of these cultures. Not for major credit. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery); Writing Intensive Course

FREN 585 - Intermediate Language Study in France
Credits: 4
Equivalent to FREN 503, requires four weeks of intensive study of French language and culture at the Centre International d'Etudes Francaises (CIEF) in Dijon, France. Prereq: FREN 403 or French 4 in a U.S. high school, with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. (Offered summers only.)

FREN 586 - Intermediate Language Study in France
Credits: 4
Equivalent to FREN 504, requires four weeks of intensive study of French language and culture at the Centre International d'Etudes Francaises (CIEF) in Dijon, France. Prereq: FREN 503 or FREN 585 with a GPA 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. (Offered summers only.)

FREN 595 - French Practicum
Credits: 2
Practical use of French language or cultural skills outside the classroom through special projects. May be repeated up to 4 credits. Prereq: Permission. Special fee. Cr/F.

FREN 625 - Cuisine, Culture, and the Creation of French Identity
Credits: 4
What makes France, France, and how did it evolve that way? How do strong regional identities complement and compete with national identity in a globalizing world? Using film, short stories, scholarly articles, and mass media, we examine the development of regional cuisine, literature, art, music, and folk traditions in light of broader French history and politics. Focus on Provence, Alsace, the Southwest, and Burgundy, emphasizing Dijon. Works by Varda, Berri, Zola, Colette, and Merimee. Special fee.

FREN 631 - Advanced French Conversation and Composition I
Credits: 4
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from various media. Students develop phonetics and oral/aural skills in lab and class. Prereq: C or better in FREN 504. Required for majors. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 632 - Advanced French Conversation and Composition II
Credits: 4
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from various media. Students develop phonetics and oral/aural skills in lab and class. Prereq: C or better in FREN 504. Required for majors. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

FREN 651 - Readings in French Literature
Credits: 4
Reading and rigorous oral and written analysis of texts selected to illustrate important themes/genres in French literature. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631 and FREN 632. Required for majors. Special fee. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

FREN 651H - Honors/Readings in French Literature
Credits: 4
Reading and rigorous oral and written analysis of texts selected to illustrate important themes/genres in French literature. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631 and FREN 632. Required for majors. Special fee. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

FREN 652 - Readings in French Literature
Credits: 4
Reading and rigorous oral and written analysis of texts selected to illustrate important themes/genres in French literature. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631 and FREN 632. Required for majors. Special fee. Writing intensive. May be taken before or after FREN 651. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

FREN 652H - Honors/Readings in French Literature
Credits: 4
Reading and rigorous oral and written analysis of texts selected to illustrate important themes/genres in French literature. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631 and FREN 632. Required for majors. Special fee. Writing intensive. May be taken before or after FREN 651. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

FREN 675 - Topics in French Civilization
Credits: 4
Topics drawn from all aspects and periods of French civilization. Prereq: FREN 631, FREN 632, and FREN 651 or FREN 652. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course
### FREN 676 - Topics in Francophone Culture
**Credits:** 4
Topics drawn from all aspects and periods of French civilization. Prereq: FREN 631, FREN 632 and FREN 651 or FREN 652. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 677 - France in the European Union
**Credits:** 4
Topics drawn from all aspects of contemporary French culture in its relationship with the fifteen member states of the European Union, with emphasis on the role of France in the building of the European Union. Special fee. Prereq: FREN 631-FREN 632. Coreq: FREN 651 or FREN 652. (Not offered every year.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 683 - Advanced Language Study in France
**Credits:** 4
Equivalent to FREN 631, this course requires four weeks of intensive study of French language at the Centre International d'Etudes Francaises (CIEF) in Dijon, France. Prereq FREN 504 with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. Offered summers only.

### FREN 684 - Advanced Language Study in France
**Credits:** 4
Equivalent to FREN 632, this course requires four weeks of intensive study of French language at the Centre International d'Etudes Francaises (CIEF) in Dijon, France. Prereq FREN 504 or FREN 683, with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. (Offered summers only.)

### FREN 690 - Study Abroad in Dijon France
**Credits:** 16
Spring semester at the University of Burgundy (Dijon, France) for juniors. This one-semester program is open to majors who have completed with a B- or better FREN 631 and FREN 632 and FREN 651 or FREN 652, or equivalent. Non-majors need to speak with the program director to determine their eligibility. Non-credit orientation meetings are required during the fall semester prior to departure. The normal UNH requirements for studying abroad apply to this program. For further information, interested students should consult with the director in the French program. Special fee. Prereq: FREN 504 with a C or better and permission. Non-majors FREN 631, 632; FREN 651 or FREN 652 for majors. Special fee. May be repeated. Cr/F.

**Attributes:** World Cultures(Discovery); Foreign Culture GP 5

### FREN 691 - Summer in Dijon Program
**Credits:** 8
This program is open to all students interested in an immersion program during the summer. It provides 8 weeks of intensive courses in French at the CIEF (Centre International des Etudes Francaises) at the Universite de Bourgogne in Dijon, France. Minimum GPA of 2.5. Pre-requisite for non French majors: a minimum of 1 year of elementary French. Pre-requisite for French majors: FREN 631, FREN 632, FREN 651 and/or FREN 652. For French majors, the course is only open to those who cannot fulfill their semester-long study abroad requirement for documented academic reasons. By petition only. Special fee.

### FREN 691A - Summer in Dijon Program
**Credits:** 4
This program is open to all students interested in an immersion program during the summer. It provides four weeks of intensive courses in French at the CIEF (Centre International des Etudes Francais) at the Universite de Bourgogne in Dijon, France. Courses cover a variety of levels in language, literature, culture, and civilization. Minimum GPA of 2.5. Prereq for non French majors: a minimum 1 year of elementary French. Permission required. Special fee. Cr/F.

### FREN 695 - Special Advanced Language Study in France
**Credits:** 4
Four weeks of intensive language study at the Centre International d'Etudes Francaises (CIEF) in Dijon, France. Prereq: FREN 631 and FREN 632 with grade of B- or better and permission. Special UNH fee and DCE administrative fee. Student responsible for personal and travel expenses as well as tuition and other costs at CIELF. (Offered summer only.) Special fee.

### FREN 762 - 17th Century French Literature
**Credits:** 4
Prereq: FREN 651 and FREN 652 or equivalent. Special fee. (Offered fall semester in alternate years.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 765 - 18th Century French Literature
**Credits:** 4
Prereq: FREN 651 and FREN 652 or equivalent. Special fee. (Offered spring semester in alternate years.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 775 - 19th Century French Literature
**Credits:** 4
Prereq: FREN 651 and FREN 652 or equivalent. Special fee. (Offered fall semester in alternate years.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 785 - Topics in Francophone Literatures
**Credits:** 4
Readings in French literatures from outside of France (e.g., Quebec, Africa, the Caribbean). Taught in French. Prereq: FREN 651 and FREN 652. Special fee. (Not offered every year.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 790 - Advanced Language and Style
**Credits:** 4
Translation of contemporary texts, intensive study of major writing techniques (such as narration, explication de texte, compte rendu, dissertation). Required for major. Prereq: at least two literature courses in French numbered above 652. Special fee. (Fall semester only.) Writing intensive.

**Attributes:** Writing Intensive Course

### FREN 795 - Special Studies in French Language and Literature
**Credits:** 1-4
Individual guided study of the work of a major author, a genre, or specific topics in literature. Training in bibliography and organization of material. Prereq: permission. Special fee. (Not offered every year.)

### FREN 796 - Special Studies in French Language and Literature
**Credits:** 1-4
Individual guided study of the work of a major author, a genre, or specific topics in literature. Training in bibliography and organization of material. Prereq: permission. Special fee. (Not offered every year.)
FREN 798 - Special Topics in French Translation
Credits: 4
Selected topics in language, literature, and culture, "hands on" training in translation of the student's target language and individual focus area. Translation from and into the target language. Pre- or Coreq: FREN 651, FREN 652, FREN 790, LLC #642. Special fee.

FREN 799 - Honors Senior Thesis
Credits: 2
Yearlong course leading to an honors senior thesis. Open only to seniors seeking honors in major whose individually designed research projects have been approved by the department honors committee and who have been assigned an adviser. Students must enroll for both fall and spring semesters. Students defend the resulting written thesis in an oral presentation before department members and others. Prereq: permission. Special fee.

Genetics (GEN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GEN 401 - Professional Perspectives in Genetics
Credits: 1
Introduction to the fields of genetics and genomics and to the genetics faculty and their research. Careers and professional opportunities for genetic majors presented by invited speakers. Emphasis on skills needed for academic success and strategies for achieving professional goals. Cr/F.

GEN 600 - Field Experience
Credits: 1-4
Supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Permission required. May be repeated to a maximum of 4 credits. Cr/F.

GEN 604 - Principles of Genetics
Credits: 4
Chemical structure of genetic material, gene recombination, mutation, and chromosome mapping. Gene expression and regulation; recombinant DNA; evolutionary, quantitative, and population genetics. Prereq: BIOL 411 and BIOL 412 or equivalent; CHEM 403 and CHEM 404 or equivalent; or permission. College math or statistics suggested.

GEN 606 - Genetics Lab
Credits: 4
Hands-on experience with some of the important model organisms used for research in genetics (fruit flies, bacteria, yeast, nematodes, and plants). Investigation of fundamental genetic concepts in the laboratory, experience with transmission and molecular genetic techniques, introduction to bioinformatics, analysis and interpretation of data. Prereq: GEN 604. Special fee.

GEN 704 - Genetics of Prokaryotic Microbes
Credits: 5
Maintenance, exchange, and expression of genetic material in bacteria and their viruses. Historical overview of the role microbial genetics played in development of modern molecular biology. Contemporary perspective on methods used to understand the function of genes and their applications to basic science, biomedical research, and biotechnology. Prereq: BMS 503 and BMS 504; GEN 604; or permission. Lab. Special fee. Writing intensive.
Attributes: Writing Intensive Course

GEN 705 - Population and Quantitative Genetics
Credits: 4
Exploration of the forces (mutations, selection, random, drift, inbreeding, assortative mating) affecting the frequency and distribution of allelic variation in natural populations. Quantifying the structure of populations. Analysis of continuous variation in populations simultaneously at multiple loci. Interactions between genes and their environment underlying phenotypic variation. Methods of analysis for theoretical and practical applications. Prereq: GEN 604; BIOL 528 or equivalent; MATH 424B or equivalent. Computer Lab.

GEN 706 - Human Genetics
Credits: 4
Genetic basis of human traits and diseases including both traditional methods of diagnosis and contemporary molecular genetic approaches stemming from the human genome project. Case studies exemplify common practices in human genetic counseling and integrate the scientific basis of diagnosis with the special ethical implications of human genetic analysis. Prereq: GEN 604 or permission.

GEN 711 - Genomics and Bioinformatics
Credits: 4
The methods, applications, and implications of genomics—the analysis of whole genomes are addressed. Medical, ethical and legal implications of genomic data. Computer lab provides exposure and experience in a range of bioinformatics approaches used in genome analysis. Prereq: GEN 604. Computer Lab.

GEN 711W - Genomics and Bioinformatics
Credits: 4
The methods, applications, and implications of genomics—the analysis of whole genomes. Microbial, plant and animal genomics are addressed, as well as medical, ethical and legal implications. The lab provides exposure and experience on a range of bioinformatics approaches—the computer applications used in genome analysis. Prereq: GEN 604. Lab. Writing intensive. Only offered in Manchester.
Attributes: Writing Intensive Course

GEN 712 - Introduction to Programming for Bioinformatics
Credits: 4
Development of programming skills that enable life science students to ask fundamental biological questions that require computers to automate repetitive tasks and handle query results efficiently. Topics include: computer values of important parameters of biological sequence data; pattern search and motif discovery scripts; accessing, querying, manipulating, retrieving, parsing, analyzing, and saving data from local and remote databases. Prereq: GEN 604 or permission.
GEN 713 - Microbial Ecology and Evolution
Credits: 4
Evolutionary and ecological forces that generate the tremendous diversity of microbial life on Earth with emphasis on viruses, archaea and bacteria. Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in a variety of environmental settings, including natural communities and laboratory microcosms. Prereq: GEN 604, BMS 503 and BMS 504; or equivalent. Writing intensive.
Attributes: Writing Intensive Course

GEN 714 - Personal Genomics
Credits: 4
Analysis and implications of personal genomic data is the focus of this course. Students understand and appreciate all aspects of the availability of personal genomic information and tools including scientific, medical, social, ethical and legal issues. Students have the opportunity to analyse their own individual genome or one of the publicly available genomes to learn about all various aspects of this emerging field. The course will be an entirely online format. Prereq: GEN 604. UNHM only.

GEN 715 - Molecular Evolution
Credits: 4

GEN 717 - Molecular Microbiology
Credits: 5
Fundamental physiological and metabolic processes of archaea, bacteria and fungi with a strong emphasis on prokaryotes. Literature-based course. Topics include regulation of and coordination of microbial metabolism, bacterial cell cycle, global control of gene expression, signal transduction, and microbial cell differentiation. Prereq: BMS 503 and BMS 504; GEN 604; or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

GEN 721 - Comparative Genomics
Credits: 4
Explores the central questions and themes in contemporary comparative genomics, including genome biology, phylogenomics, human origins, population genomics, and ecological genomics. Provides the conceptual framework required to evaluate new work in this fast-changing field. Prereq: GEN 604 or equivalent.

GEN 772 - Evolutionary Genetics of Plants
Credits: 4
Mechanisms of genetic change in plant evolution, both in nature and under human influence. Topics include neo-Darwinian theory; speciation and hybridization; origins and co-evolution of nuclear and organelle genomes; gene and genome evolution; transposable elements; chromosome rearrangements; polyploidy; genetic modification. Lab introduces methods in information gathering, bioinformatics, genome analysis, plant breeding, and genetic manipulation. Prereq: GEN 604 or equivalent. Lab. Special fee. Writing intensive.
Attributes: Writing Intensive Course

GEN 774 - Techniques in Plant Genetic Engineering and Biotechnology
Credits: 4
Theory and hands-on experience with techniques used in plant genetic engineering, including cell and tissue culture, gene cloning, and analysis of foreign gene expression. Discussion of role of plant biotechnology in sustainable agriculture and climate change, modifying plants for better nutrition and stress response, environmental remediation, and production of pharmaceuticals; controversies associated with this technology. Lab. Special fee. Prereq: GEN 604 or permission.

GEN 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, an executing Genetics lectures or labs. May be repeated up to a maximum of 4 credits. Permission required.

GEN 795 - Investigations in Genetics
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required. May be repeated for a maximum of 4 credits.

GEN 795W - Investigations in Genetics
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required. May be repeated for a maximum of 4 credits.
Attributes: Writing Intensive Course

GEN 799 - Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in genetics. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive.
Attributes: Writing Intensive Course

GEN 799H - Honors Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in genetics and in the Honors Program. Final product is a written thesis. One or two semesters. May be repeated to a maximum of 8 credits. Permission required. Writing intensive.
Attributes: Writing Intensive Course
Geography (GEOG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GEOG 401 - Regional Geography of the Western World
Credits: 4
An introduction to the people, places, and problems of six Westernized regions of the world – Europe, Russia, Latin America, the Caribbean, North America, and Australia and Oceania. The course emphasizes five themes: environmental geography, population and settlement, cultural coherence and diversity, geopolitical framework, and economic and social development.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GEOG 401H - Honors/Regional Geography of the Western World
Credits: 4
An introduction to the people, places, and problems of six Westernized regions of the world – Europe, Russia, Latin America, the Caribbean, North America, and Australia and Oceania. The course emphasizes five themes: environmental geography, population and settlement, cultural coherence and diversity, geopolitical framework, and economic and social development.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GEOG 402 - Regional Geography of the Non-Western World
Credits: 4
Major culture areas of the non-Western world and the unique interaction of human and physical phenomena that produces the distinctive character of these areas. Emphasizes the manner in which people of different cultures have made use of opportunities and solved problems existing in the major regions occupied by non-Western cultures: the Middle East and North Africa, Africa south of the Sahara, Oriental Asia and the Pacific Islands.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GEOG 402H - Honors/Regional Geography of the Non-Western World
Credits: 4
Major culture areas of the non-Western world and the unique interaction of human and physical phenomena that produces the distinctive character of these areas. Emphasizes the manner in which people of different cultures have made use of opportunities and solved problems existing in the major regions occupied by non-Western cultures: the Middle East and North Africa, Africa south of the Sahara, Oriental Asia and the Pacific Islands.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GEOG 405 - Human-Environment Geography
Credits: 4
Introduces human-environment relations as a central focus of geography, spanning social and environmental sciences. Considers mapping, natural resource use, commons and markets, hazards, political ecology, and land use change. Case studies link core concepts with examples from local to international scales.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

GEOG 473 - Elements of Weather
Credits: 4
Basic principles of weather phenomena and the physical processes underlying these phenomena. Emphasis on weather patterns of New England. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

GEOG 514 - Geography of the United States and Canada
Credits: 4
An introduction to the physical and human geography of the United States and Canada, including landforms, climate and biogeography, environmental issues, population and settlement, culture and identity, political geography, urban patterns, natural resources and economic development. Course content alternates between topics that are large in scope and scale, and others that are more narrowly focused.

GEOG 520 - Geography of Latin America and the Caribbean
Credits: 4
Utilizes regional and topical approaches to explore the physical, cultural, and historical geography of Latin America and the Caribbean. Particular aspects of the economy, politics, language, religion, and ethnicity is examined. The goal of the course is to lay a foundation for critical analysis of historical and contemporary concerns such as environmental issues, uneven development and poverty, social conflict and violence, and international relations.
Attributes: Foreign Culture GP 5

GEOG 530 - Geography of China
Credits: 4
This course will examine China's diverse physical environments, politics, economies, and cultures across her vast territory. Students will learn to adopt a relational and spatial perspective to study the contemporary issues in China. Writing Intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

GEOG 540 - Geography of the Middle East
Credits: 4
Environmental, cultural, political-geographic, and ecological foundations of the Middle East. Selected regional problems and issues, e.g., geographical dimensions of the Arab-Israeli conflict, oil, urbanization, population growth, and nomadism. (Not offered every year.)

GEOG 550 - Geography of Sub-Saharan Africa
Credits: 4
Overview of major physical features and human patterns, with an emphasis on the interaction between people and place and the dynamic issues and challenges facing contemporary African societies. Environmental and resource issues, historical impacts on development, culture and social characteristics, rural and urban organization, industrialization and trade, and prospects for the future.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GEOG 560 - Geography of Natural Hazards
Credits: 4
A survey of natural hazards with a focus on what makes them hazardous to humans and how humans respond to those risks. Hazards that are considered include earthquakes, volcanoes, tsunami, floods, hurricanes and other severe weather events. The geography of community vulnerability to natural hazards is also examined.
Attributes: Environment, TechSociety(Disc)
GEOG 572 - Geography of the Natural Environment  
Credits: 4  
Provides an introduction to geography of the natural environment, including landforms, weather and climate, water resources, and biogeography. Examines the processes that shape the different elements of the environment and the relationships between them.  
Attributes: Physical Science (Discovery); Technology GP 3T

GEOG 573 - Biogeography  
Credits: 4  
Explores the introductory concepts of plant geography and biogeography, two interconnected disciplines that document and explain the changing distributions of plants and animals from both a spatial and temporal context. Gives equal emphasis to ecology (biomes, climates, soils), evolution (migration, speciation, dispersal), and applied biogeography and plant geography.

GEOG 574 - Geography of Landforms  
Credits: 4  
Explores the geography of earth's major landforms and the geographic factors that influence their development, distribution, and morphology. Topics include mountain building, river systems, desert migration and expansion, glacial and periglacial environments, shoreline evolution, and how these processes interact to form surface features that are unique to their geographic environment. Students analyze geographic information in class and in the field using air photos, topographic maps, and spatial data.  
Attributes: Physical Science (Discovery); Physical Science GP 3P

GEOG 576 - Human Geography  
Credits: 4  
Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

GEOG 577 - Human Geography  
Credits: 4  
Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.  
Attributes: Social Science (Discovery); Social Science GP 7

GEOG 578 - Global Trade and Local Development  
Credits: 4  
This course examines the ways in which global trade interacts with local development across the world. It studies the special organization of economic activities through basic approaches in economic geography. It also studies the history and contemporary state of international competition and collaboration.  
Attributes: Social Science (Discovery); Social Science GP 7

GEOG 579 - Global Trade and Local Development  
Credits: 4  
This course examines the ways in which global trade interacts with local development across the world. It studies the special organization of economic activities through basic approaches in economic geography. It also studies the history and contemporary state of international competition and collaboration. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

GEOG 581 - Human Geography  
Credits: 4  
Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.  
Attributes: Social Science (Discovery); Social Science GP 7

GEOG 582 - Global Trade and Local Development  
Credits: 4  
This course examines the ways in which global trade interacts with local development across the world. It studies the special organization of economic activities through basic approaches in economic geography. It also studies the history and contemporary state of international competition and collaboration. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

GEOG 583 - Political Geography  
Credits: 4  
Interactions between geographic and political phenomena at the sub-national, national, and international levels. Emphasis on geographical aspects of current political problems within and between states. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

GEOG 584 - Political Geography  
Credits: 4  
Interactions between geographic and political phenomena at the sub-national, national, and international levels. Emphasis on geographical aspects of current political problems within and between states. (Not offered every year.) Writing intensive.  
Attributes: Writing Intensive Course

GEOG 585 - Statistics for Spatial Science  
Credits: 4  
Introduces elementary statistics to students of social sciences from a spatial perspective. It is designed to help students approach introductory-level quantitative analysis using basic statistical problem-solving techniques with social and physical science data models. These elementary statistical tools and concepts will be explained during classroom lectures and proficiency obtained during practical exercises.  
Attributes: Physical Science (Discovery); Social Science GP 3P

GEOG 586 - Field Methods in Geography  
Credits: 4  
a survey of selected geographical field methods and the application of these methods - both qualitative and quantitative. It is designed around a series of field techniques, research and lab exercises, and the classroom setting which will introduce students to techniques widely used in gathering and analyzing spatial data in the geographical context. Special fee.

GEOG 587 - Introduction to Geographic Information Systems  
Credits: 4  
An introduction to the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data/quality standards. Hands-on using ArcView 3.x GIS software. Students are strongly encouraged to complete an introductory course in statistics before enrolling in course. Majors only. (Also offered as NR 658.)

GEOG 588 - Introduction to Geographic Information Systems  
Credits: 4  
An introduction to the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data/quality standards. Hands-on using ArcView 3.x GIS software. Students are strongly encouraged to complete an introductory course in statistics before enrolling in course. Majors only. (Also offered as NR 658.)

GEOG 589 - Introduction to Geographic Information Systems  
Credits: 4  
An introduction to the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data/quality standards. Hands-on using ArcView 3.x GIS software. Students are strongly encouraged to complete an introductory course in statistics before enrolling in course. Majors only. (Also offered as NR 658.)

GEOG 590 - Climate and Society  
Credits: 4  
An introduction to climate science and the interaction between humans and climate. Examines the processes that control climate, the mechanisms that drive climate change, and the impact of climate change on society. Writing intensive.  
Attributes: Writing Intensive Course

GEOG 591 - Climate and Society  
Credits: 4  
An introduction to climate science and the interaction between humans and climate. Examines the processes that control climate, the mechanisms that drive climate change, and the impact of climate change on society. Writing intensive.  
Attributes: Writing Intensive Course

GEOG 592 - Weather Forecasting  
Credits: 4  
Examines in depth, the physical processes that govern the development and movement of weather systems. Topics include the relationship between surface and upper-level winds, vertical motion and pressure systems, storm development, and techniques used in weather forecasting.  
Attributes: Writing Intensive Course

GEOG 593 - Political Ecology  
Credits: 4  
Examines human-environment relations through the geographic subfield of political ecology, integrating social and biophysical sciences. Emphasizes cross-scalar relationships in resource decisions and community development, with substantial coverage of rural, non-US contexts. Seminar-style course with regular readings, writings and discussion. Writing intensive.  
Attributes: Writing Intensive Course
GEOG 680 - Historical Geography
Credits: 4
An introduction to major themes, important scholars, and commonly used research techniques in historical geography. Course is reading and research oriented. Focus will be on North America. (Also listed as HIST 680.) Writing intensive.
Attributes: Historical Perspectives GP 4, Writing Intensive Course

GEOG 685 - Geography of Population and Development
Credits: 4
A regional approach to the study of population geography with concern for the interaction between the focus of economic growth and the components of population change and development. Considers the environmental impact of developing trends in the developed and developing worlds and the relationship of these trends to sustainable growth and population patterns. Writing intensive.
Attributes: Writing Intensive Course

GEOG 686 - World Economy and Globalization
Credits: 4
Emphasizes the spatial development of the world economy and the evolution into today's "globalized" economy. Topical emphasis includes the processes of global economic production changes, the role of transnational corporations, and the role of the state in globalization. Writing intensive.
Attributes: Writing Intensive Course

GEOG 690 - Geography of Third World Development
Credits: 4
Explores the geography of development in the Third World (Africa, Asia, Latin America, and Oceania). Addresses factors that affect development spatially and temporally. Emphasis on geographic scale (local, national, regional, and global). Students write and present critical thinking papers that address the interactions of development factors at different scales.

GEOG 695 - Internship
Credits: 1-4
Internships provide an opportunity for on-the-job skill development and practical experience in a closely supervised work setting. The student must provide a written proposal to a supervising faculty member before an internship program is approved. At the end of the semester, the student must make a presentation, provide work samples, or submit a detailed report, log, or portfolio describing the internship experience. May be repeated for up to 8 hours of credit. Cr/F.

GEOG 757 - Remote Sensing of the Environment
Credits: 4
Practical and conceptual presentation of the use of remote sensing and other geospatial technologies for mapping the environment. The course begins with the use of aerial photographs (photogrammetry and photo interpretation) and includes measures of photo scale and area, parallax and stereo viewing, object heights, flight planning, photo geometry, the electromagnetic spectrum, camera image analysis, global positioning systems (GPS), and geographic information systems (GIS). Conceptual lectures are augmented with practical homework assignments and hands-on lab exercises. Prereq: Algebra. Special fee. Lab. (Also offered as NR 757).

GEOG 759 - Digital Image Processing for Natural Resources
Credits: 4
Introduction to digital remote sensing, including multispectral scanners (Landsat and SPOT), radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: GEOG 757 or equivalent and permission. (Also offered as NR 759).

GEOG 760 - Geographic Information Systems in Natural Resources
Credits: 4
Introduces the use of geographic information systems (GIS) for use with natural resources including data input, manipulation, storage, analysis, and display. Accuracy of spatial data and use of digital elevation models. Discussion of practical applications. Use of PC Arc/Info software. Prereq: permission. Lab. (Also listed as NR 760.)

GEOG 795 - Special Project
Credits: 2 or 4
Attributes: Writing Intensive Course

GEOG 796 - Special Topics
Credits: 4

GEOG 797 - Seminar
Credits: 2
Exploration of geography as a research discipline. Definition and investigation of research problems. Primarily for geography seniors. May be repeated up to a maximum of 4 credits.

GEOG 799 - Honors Thesis
Credits: 4
Independent research project conducted under supervision of a faculty sponsor culminating in a written thesis. Students must also make a public presentation of their thesis. Required for all honors students. Open only to geography majors who are part of the honors program. Before registering for the course, students must secure a faculty sponsor, obtain approval for a thesis topic, and complete an honors thesis student/sponsor agreement. Open only to Geography majors.

German (GERM)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GERM 401 - Elementary German I
Credits: 4
For students without previous training in German. Aural comprehension, speaking, writing, reading, language labs. No credit for those with two or more years of German in secondary school. Special fee.

GERM 402 - Elementary German II
Credits: 4
See description for GERM 401.
Attributes: Foreign Language Requirement
GERM 500 - Selected Topics in World Literature
Credits: 4
Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Credit/Fail. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

GERM 503 - Intermediate German I
Credits: 4
Review of grammar; practice in oral and written expression; readings and cultural material. Prereq: GERM 401-GERM 402 or equivalent. Labs. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GERM 504 - Intermediate German II
Credits: 4
Review of grammar; practice in oral and written expression; readings and cultural material. Prereq: GERM 401-GERM 402 or equivalent. Labs. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GERM 521 - Major German Authors in English
Credits: 4
Selected masterpieces of the 18th, 19th, and 20th centuries by authors such as Goethe, Mann, Kafka, Hesse, Bachmann, Koeppen, Brecht, Frisch, Wolf, and Durrenmatt. Readings and discussions in English. May be taken for major credit. Special fee.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

GERM 524 - German Cinema
Credits: 4
Aquaints students with major German film texts. Using analytical and critical tools, students read film texts as aesthetic works (with a form and a narrative) and as historical works (with a social function). Through cinema the course explores German society and history. The course is conducted in English. Special fee.
Attributes: Humanities(Disc); Foreign Culture GP 5; Writing Intensive Course

GERM 524H - Honors/Special Topics in German Film
Credits: 4
Using analytical and critical tools, students read film texts as aesthetic works (with a form and a narrative) and as historical works (with a social function). Culminates in an investigation of a distinct historical period of German film or of a particular theme through the history of German film. Special fee.
Attributes: Foreign Culture GP 5

GERM 525 - Introduction to German Culture and Civilization
Credits: 4
Aspects of the political, social, and cultural life of Germany, Austria, and Switzerland. Conducted in English. Required of German majors; strongly recommended for any students planning study abroad in a German-speaking country. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery)

GERM 525H - Honors/Introduction to German Culture and Civilization
Credits: 4
Aspects of the political, social, and cultural life of Germany, Austria, and Switzerland. Conducted in English. Required of German majors; strongly recommended for any students planning study abroad in a German-speaking country. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery)

GERM 586 - Study in Berlin
Credits: 8
Gives students a immersion experience in the German language and culture. Students will study one week at UNH and 5 weeks in Berlin, where they will take an intensive language course (80 hours) at the BSI Private Language School, receive cultural instruction from the on-site UNH faculty member, and pursue an individual research project. Permission required. Special fee. May be repeated for a maximum of 8 credits.

GERM 595 - Internship
Credits: 2-4
The German Internship consists of unpaid placement in an approved business, social service or educational organization in a German-speaking context with on-site supervision. Student is responsible for keeping a journal to be evaluated by a UNH faculty mentor. Site supervisor evaluates intern’s work on location in consultation with UNH mentor. Prereq: GERM 504. Variable credit 2 to 4 credits per unit. May count up to 4 credits toward German major or minor and an additional 4 as graduation elective. Does not replace Study Abroad requirement for major. Special fee.

GERM 596 - Practicum
Credits: 2
Practical use of German language and culture through special projects outside the classroom. May be repeated for a maximum of 4 credits. Prerequisite. Credit/Fail.

GERM 601 - Introduction to German Literature
Credits: 4
Reading and analysis of poems, dramas, and short prose; introduction to theory of literary forms and methods of analysis. Required of all German majors; must be taken as soon as possible after GERM 504. Prereq: knowledge of German. Special fee.

GERM 631H - Honors/Advanced Communications Skills I
Credits: 4
Intensive practice in vocabulary building and developing a sense of appropriate style for various contexts of oral and written communication. Special emphasis on conversational and expository speaking. Discussion of topics of current interest, oral reports, role play, and simulation of everyday situations, reinforced by written work. Required for the German major and minor. Special fee. Prereq: GERM 504. Writing intensive.
Attributes: Writing Intensive Course

GERM 631W - Advanced Communications Skills I
Credits: 4
Intensive practice in vocabulary building and developing a sense of appropriate style for various contexts of oral and written communication. Special emphasis on conversational and expository speaking. Discussion of topics of current interest, oral reports, role play, and simulation of everyday situations, reinforced by written work. Required for the German major and minor. Special fee. Prereq: GERM 504. Writing intensive.
Attributes: Writing Intensive Course
GERM 632 - Advanced Communications Skills II
Credits: 4
Intensive practice in vocabulary building and coherent expression in a variety of stylistic contexts. Special emphasis on writing skills, from expository prose to letter and resume writing, essays, journalistic reports, and creative writing, focusing on topics of current interest. Required for the German major. Special fee. Prereq: GERM 504.

GERM 685 - Study Abroad
Credits: 16
A summer, semester, or year of study in one or a combination of the departmentally recognized programs such as the New England Universities Salzburg Program (UNH students as consortium members receive a discount on this program), the work-study program in Hamburg, or any other appropriate, approved programs. Open to students of any major with GERM 504 or equivalent training. Financial aid applies to all approved programs. Interested students should inquire at department for program brochures and specific requirements and should apply in consultation with a German adviser. For information on other study abroad programs, students should contact the Center for International Education. Cr/F. An IA (continuous grading) grade will be assigned until an official transcript is received from the foreign institution.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GERM 686 - Study Abroad
Credits: 16
A summer, semester, or year of study in one or a combination of the departmentally recognized programs such as the New England Universities Salzburg Program (UNH students as consortium members receive a discount on this program), the work-study program in Hamburg, or any other appropriate, approved programs. Open to students of any major with GERM 504 or equivalent training. Financial aid applies to all approved programs. Interested students should inquire at department for program brochures and specific requirements and should apply in consultation with a German adviser. For information on other study abroad programs, students should contact the Center for International Education. Cr/F. An IA (continuous grading) grade will be assigned until an official transcript is received from the foreign institution.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

GERM 728 - Modern German Literature
Credits: 4
Major literary movements from 1872 to 1945. Reading and analysis of selected works. Special fee. Writing intensive.
Attributes: Writing Intensive Course

GERM 728H - Honors/Modern German Literature
Credits: 4
Major literary movements from 1872 to 1945. Reading and analysis of selected works. Special fee. Writing intensive.
Attributes: Writing Intensive Course

GERM 745 - Contemporary German Literature and Culture
Credits: 4
Literary trends in the German-speaking countries since 1945. Analysis and interpretation of works by major authors. Special fee. Prereq: GERM 504. Writing intensive.
Attributes: Writing Intensive Course

GERM 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

GERM 795H - Honors/Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

GERM 796 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

GERM 796H - Honors/Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

GERM 797 - Special Studies in German Language and Literature
Credits: 4
Selected topics in language, culture, and literature.

GERM 798 - Special Studies in German Language and Literature
Credits: 2 or 4
Selected topics in language, culture, and literature. Special fee.

Gerontology (GERO)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GERO 500 - I'm Old, So What! An introduction to aging in the United States
Credits: 4
This is the first of two mandatory courses for the GERO Minor, but any student may take it as an elective. It introduces the learner to the field of gerontology (the study of how people age). It explores the biological, psychosocial, and cognitive changes within the context of society. The history of ageism and its influence on how it has affected the individual, families, and society is presented. The range of independence among older people is examined. Various disciplines that work within the field of gerontology are reviewed. Lectures, novels, films and guest speakers help to examine growing old in the U.S. Writing intensive.
Attributes: Social Science GP 7; Writing Intensive Course

GERO 795 - Independent Study
Credits: 1-6
Open to Gerontology Minor students only. Content area determined by student and faculty mentor; topic must have a major aging component. A proposal of work must be signed by both student and faculty mentor and given to the Gerontology Minor Coordinator for final approval. Proposals are filed in the student's declared major academic folder. Work may be completed over two semesters, especially if it involves thesis/internship work. Credits compensatory with work: 1 to 6. Prereq: GERO 500 and KIN 607.
Greek (GREK)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**GREK 401 - Elementary Classical Greek I**  
Credits: 4  
Grammar, simple composition, and translation. For students without previous training in Greek. Special fee.

**GREK 402 - Elementary Classical Greek II**  
Credits: 4  
Grammar, simple composition, and translation. For students without previous training in Greek. Special fee.  
**Attributes:** Foreign Language Requirement

**GREK 403 - Elementary Modern Greek I**  
Credits: 4  
Aural-oral practice and the study of fundamental speech patterns, reading, and writing to achieve a firm basis for an active command of the language. (No credit for students who have had two or more years of modern Greek in secondary school.) Special fee.

**GREK 404 - Elementary Modern Greek II**  
Credits: 4  
Aural-oral practice and the study of fundamental speech patterns, reading, and writing to achieve a firm basis for an active command of the language. (No credit for students who have had two or more years of modern Greek in secondary school.) Special fee.  
**Attributes:** Foreign Language Requirement

**GREK 503 - Intermediate Classical Greek I**  
Credits: 4  
**Attributes:** World Cultures(Discovery); Foreign Culture GP 5

**GREK 504 - Intermediate Classical Greek II**  
Credits: 4  
**Attributes:** World Cultures(Discovery); Foreign Culture GP 5

**GREK 505 - Intermediate Modern Greek I**  
Credits: 4  
Short selections from modern Greek literature with grammar review and oral practice. Readings from such authors as Solomos, Cavafy, Palamas, Kazantzakis, Venezis, Myrivilis, Seferis, and Elytis. Prereq: GREK 404 or equivalent. Special fee.  
**Attributes:** World Cultures(Discovery); Foreign Culture GP 5

**GREK 506 - Intermediate Modern Greek II**  
Credits: 4  
Short selections from modern Greek literature with grammar review and oral practice. Readings from such authors as Solomos, Cavafy, Palamas, Kazantzakis, Venezis, Myrivilis, Seferis, and Elytis. Prereq: GREK 404 or equivalent. Special fee.  
**Attributes:** World Cultures(Discovery); Foreign Culture GP 5

**GREK 509 - Directed Reading in Greek**  
Credits: 2 or 4  
Independent study of a classical, Byzantine, or modern Greek author. May be repeated for a maximum of 8 credits. Prereq: GREK 503, GREK 504, GREK 505, and GREK 506, or equivalent. Special fee.  

**GREK 596 - Directed Reading in Greek**  
Credits: 2 or 4  
Independent study of a classical, Byzantine, or modern Greek author. May be repeated for a maximum of 8 credits. Prereq: GREK 503, GREK 504, GREK 505, and GREK 506, or equivalent. Special fee.

**GREK 635 - Third Year Modern Greek I**  
Credits: 4  
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent compositions and oral presentations using materials on contemporary culture and literary texts as well as various media. Students develop oral/aural skills in lab and class. Prereq: GREK 505 and GREK 506; or GREK 595 and GREK 596 (if approved) with a grade of C or better. Special fee.

**GREK 636 - Third Year Modern Greek II**  
Credits: 4  
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent compositions and oral presentations using materials on contemporary culture and literary texts as well as various media. Students develop oral/aural skills in lab and class. Prereq: GREK 505 and GREK 506; or GREK 595 and GREK 596 (if approved) with a grade of C or better. Special fee.

**GREK 751 - Homer and the Archaic Period**  
Credits: 4  
Readings from the Iliad, the Odyssey, the Homeric hymns, Hesiod, Pindar, and the lyric poets. Prereq: permission. Special fee.

**GREK 753 - Advanced Study in Athenian Literature**  
Credits: 4  

**GREK 754 - Advanced Study in Athenian Literature**  
Credits: 4  

**GREK 795 - Special Studies**  
Credits: 4  
A) Pre-Socratic Philosophers; B) Hellenistic Greek Authors; C) Menander; D) Callimachus; E) Apollonius of Rhodes; F) Theocritus; G) Polybius; H) Greek Authors of the Roman Empire; I) Plutarch; J) Septuagint; K) New Testament; L) Greek Church Fathers; M) Byzantine Authors; N) Spoken Greek O) Advanced Greek Composition; P) Introduction to Classical Scholarship; Q) Greek Epigraphy; R) Greek Dialects; S) Comparative Grammar of Greek and Latin; T) Homer: A Linguistic Analysis; U) Greek Institutions; V) Paleography and Textual Criticism. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.  
**Attributes:** Writing Intensive Course
GREK 796 - Special Studies
Credits: 4
A) Pre-Socratic Philosophers; B) Hellenistic Greek Authors; C) Menander; D) Callimachus; E) Apollonius of Rhodes; F) Theocritus; G) Polybius; H) Greek Authors of the Roman Empire; I) Plutarch; J) Septuagint; K) New Testament; L) Greek Church Fathers; M) Byzantine Authors; N) Spoken Greek O) Advanced Greek Composition; P) Introduction to Classical Scholarship; Q) Greek Epigraphy; R) Greek Dialects; S) Comparative Grammar of Greek and Latin; T) Homer: A Linguistic Analysis; U) Greek Institutions; V) Paleography and Textual Criticism. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.
Attributes: Writing Intensive Course

Health & Human Services (HHS)

HHS 401 - Baseline for Collegiate Learning Assessment (CLA+)
Credits: 0
Longitudinal assessment of critical thinking skills in Health Care programs.

HHS 444 - The Right to be Disabled in the Extreme Makeover Society
Credits: 4
Explores how society's view of disability, its "construction," is influenced by a variety of cultural variables and the implications of that construction on institutions such as medicine and health care, education, the arts, the legal system, architecture and engineering, etc.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

HHS #540 - Statistics for Health and Human Service Professionals
Credits: 4
A conceptual and analytical approach to the use of statistics in the health and human service professions. Emphasizes the logic and purpose of statistics. Attention to special problems of statistical design such as random assignment, single subject trials, and the ethics of control groups. Basic computer skills for manipulating data. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; EREC 525; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

HHS 698 - Special Topics
Credits: 1-4

HHS 798W - Special Topics
Credits: 1-4
Attributes: Writing Intensive Course

Health Management & Policy (HMP)

HMP 401 - United States Health Care Systems
Credits: 4
Nature and functions of health care services and health professionals; impact of social, political, economic, ethical, professional, legal, and technological forces on health care systems. Current health policy issues.
Attributes: Social Science (Discovery); Social Science GP 7

HMP 401H - Honors/United States Health Care Systems
Credits: 4
Nature and functions of health care services and health professionals; impact of social, political, economic, ethical, professional, legal, and technological forces on health care systems. Current health policy issues. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

HMP 401W - United States Health Care Systems
Credits: 4
Nature and functions of health care services and health professionals; impact of social, political, economic, ethical, professional, legal, and technological forces on health care systems. Current health policy issues. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

HMP 403 - Introduction to Public Health
Credits: 4
This course describes and defines "what is public health" and seeks to convey its critical importance and relevance to both public and individual (personal) wellbeing. It presents an overview of the structure, function, and organization of the public health system/services (government, proprietary, and voluntary sectors) and how they operate, emphasizing core functions and major divisions (public health administration, epidemiology and biostatistics, environmental health, social and behavioral health). Addresses the social, ethical, issues; bioterrorism; epidemics; obesity; tobacco, alcohol, and opioid use; violence. Seeks to challenge students to think critically about existing and emerging U.S. and global public health issues. Introduces public health careers.
HMP 440A - Honors/Global Public Health Issues
Credits: 4
This course is designed to provide students with an introduction to and overview of the key areas of global health by addressing the major determinants of health and how health status is measured to determine the burden of disease in the developing world. This course is part of the Honors Symposium titled: Reinventing Healty Communities Nationally and Globally: Medical, Legal, and Cultural Perspectives. This course is the same course as HMP 444A Honors/Global Public Health Issues, that was approved by the Discovery Program as an Inquiry, World Cultures Category course. HMP 440A will not be offered as an Inquiry course, but will maintain the World Cultures Category. Prereq: Permission.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HMP 444 - From Frankenstein to Dolly, and Beyond
Credits: 4
This course is an interdisciplinary introductory course designed specifically for first year students. It seeks to stimulate, provoke, and support student inquiry, discussion, and exploration of a wide variety of social and ethical issues associated with scientific research and advances, with an emphasis on ones related to the biomedical and health sciences. It explores the value-laden questions that they often precipitate, and their impact on individuals, population groups, and society at large. (Also listed as MICR 444.)
Attributes: Environment,TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

HMP 444A - Global Public Health Issues
Credits: 4
This course is designed to provide students with an introduction to and overview of the key areas of global health by addressing the major determinants of health and how health status is measured to determine the burden of disease in the developing world. Using the perspectives of public health, the course will cover factors associated with the development of health problems and efforts to prevent disease in impoverished areas. Students will also explore the role of social communication, politics, religion, economics, education and culture in contributing to global public health issues and will integrate these factors and values in developing solutions to the widespread public health issues impacting communities worldwide. Students will learn about the magnitude of disease in the developing world (e.g., communicable and non-communicable disease, women and child health, nutrition, and unintentional injuries), how health is assessed and how health systems effectively work together to improve global health.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery)

HMP 501 - Epidemiology and Community Medicine
Credits: 4
The distribution and determinants of disease, illness, and health in the community. Community health and illness measures, health status, and source of data. Development of hypotheses and study designs to reduce community health problems using epidemiological reasoning, methods, and analyses. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

HMP 501H - Honors/Epidemiology and Community Medicine
Credits: 4
The distribution and determinants of disease, illness, and health in the community. Community health and illness measures, health status, and source of data. Development of hypotheses and study designs to reduce community health problems using epidemiological reasoning, methods, and analyses. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

HMP 505 - Public Health: History and Practice
Credits: 4
Blends a board overview of the historical development of public health with important areas of contemporary public health practice. Traces the history and practices of public health and disease prevention from classical times, through the Middles Ages, the Renaissance, and European Enlightenment, and more modern times. Special emphasis on the historical evolution, development, and future of public health in the U.S. The latter includes the organization of public health in the U.S., its major functions and practices, its infrastructure, its programs and services, and its future challenges. It examines the historical close interrelationships and influences of religion, culture, social determinants, environment, science, and politics on public health through the ages.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HMP 511 - Introduction to Health Information Systems
Credits: 4
This course introduces the student to the nomenclature and foundations of health information technology and systems in health care delivery settings and the management and strategic uses for those systems. It is relevant for those studying health care management and those using clinical health information systems. It examines health care information flow, information systems, technology standards and information security, and presents relevant examples, patrical applications and case studies. Prereq: HMP 401.

HMP 569 - Human Behavior and the Public Health
Credits: 4
Provides a grounding in fundamental concepts of the behavioral sciences as they illuminate public health. Individual and community responses to prevention, identification of symptoms, diagnoses, treatments, chronic ailments, and rehabilitation are discussed. In each of these areas, the course explores the interaction between community, family, patient, and health care provider.

HMP 600 - Special Topics
Credits: 1-4
A) Hospital Management, B) Long-term Care Management, C) Ambulatory Care Management, D) Clinical Services Management, E) Home Care Management, F) Mental Health Management, G-Z) Interdisciplinary. May repeat, but may not duplicate subject areas. Prereq: junior major or permission. Special fee on some sections.

HMP 621 - Pre-practicum Seminar
Credits: 1-2
Preparation for field practicum experience, orientation to experiential learning and competency development. Prereq: major, HMP 401m 403, 501, MATH 420 MATH 424/MATH 425.
HMP 622A - Field Practicum in Organizational Analysis  
Credits: 1  

HMP 622B - Field Practicum in Management Skills Development  
Credits: 1  

HMP 622C - Field Practicum in Project Analysis  
Credits: 1  

HMP 624 - Post Practicum Seminar  
Credits: 2  
Summary and conclusion from field practicum experience. Individual analysis and panel discussions to include site assessment, project description and methodologies employed, critique of individual skills and knowledge base in relation to internship. Major only.

HMP 631 - Health Issues Seminar  
Credits: 2  
Discussion of current issues in the fields of health management, health policy and public health. Prereq: major or permission.

HMP 642 - Health Economics  
Credits: 4  
Theoretical and empirical analysis of the U.S. health care delivery sector. Topics include health insurance markets and their effects on patients demand, uninsured populations and their access to health care services, breakdowns in the principal/agent relationship between patients and providers, competition in the medical sector, technology, pharmaceuticals and the scope and effect of government involvement in the delivery of health care. (Also listed as ECON 642.)

HMP 711 - Health Systems Research I  
Credits: 4  
Introduces intermediate techniques for data manipulation and analysis for the health care field. Also introduces methods for survey research and large data set manipulation and analysis. There is a lab section utilizing a statistical software package where students perform tasks from a large national data set. Prereq: introduction to statistics.

HMP 712 - Health Analytics  
Credits: 4  
This course introduces students to the field of health analytics and data science. It expands upon introductory statistical and data manipulation methods to include data mining, predictive analytics, cluster analysis, trend and pattern recognition, and data visualization. It couples data skills with interpretive and communication skills. Students will also be exposed to basic statistical programming. There will be a graduate component of the course (812) where students will work on advanced concepts and complete a separate culminating project.

HMP 715 - Environmental Health  
Credits: 4  
This course offers a general introduction to environmental health from the community, regional, and global perspective by addressing fundamental topics and current controversies such as air pollution, water pollution, built environment/urban sprawl, food safety, waste disposal, and occupational health. Students learn about environmental health assessment methods. Major issues in environmental health and related regulatory efforts and public health policy reform are examined. Prereq: HMP 403 & HMP 501.

HMP 721 - Managing Health Care Organizations  
Credits: 4  
Organizational characteristics of ambulatory, acute, and long-term care facilities. Management issues and strategies involving governance, clinical services, human and fiscal resources, and community-based services. Prereq: major or permission.

HMP 722 - Health Care Management II  
Credits: 4  
A continuation of HMP 721 - Managing Health Care Organizations with specific lectures and assignments devoted to organizational behavior, leadership, and managerial skills. Case studies and examples will relate specifically to health care organizations. Prereq: HMP 721; HMP majors only.

HMP 723 - Health Planning  
Credits: 4  
Theoretical and historical foundations of health planning; the relationship of health planning and regulation; the application of planning methods; and the utilization of strategic planning and its relationships to marketing. Prereq: major or permission. Special fee.
HMP 735 - Social Marketing
Credits: 4
An introduction to the vocabulary and tools of social marketing. Expanding upon the traditional principles of marketing and consumer behavior, students are exposed to the challenges of trying to effect behavior change.

HMP 740 - Health Care Financial Management
Credits: 4
Techniques, principles, and practices of managing fiscal aspects of health care organizations. Exploration of concepts and techniques associated with variance analysis, cost allocation, management of working capital, and capital decision analysis. Analysis of the impact of reimbursement on health care organizations. Prereq: Major or permission.

HMP 741 - Health Care Financial Management II
Credits: 4
This course focuses on issues related to effective financial management of health care organizations and programs, building upon material covered in HMP 740, Health Care Financial Management. Topics include the time value of money, long-term debt, stocks and equity, and evaluation of capital projects. Prereq: HMP 740; HMP majors only.

HMP 742 - Strategic Management for Health Care Organizations
Credits: 4

Attributes: Writing Intensive Course

HMP 744 - Health Ethics and Law
Credits: 4
Ethical theories, core legal principles and cases, and decision-making models; patient's rights and professional responsibilities; social justice and resource allocation; critical ethical dilemma's facing health care managers, policy makers, and executives; managerial versus medical care conflicts. Prereq: Major or permission.

HMP 744 L - Health Law
Credits: 2
This course provides an introduction to the legal foundations of health care in the U.S. Health law is examined as it applies to professionals entering the field of health management and other health professions. The legal system, regulations affecting health and safety, and issues facing practitioners are presented. Current status of the law, future directions, and its complexity are explored. Topics include privacy, liberty, and proprietary interests, from the perspective of the provider and the patient; laws related to the regulation of medical services, medical professionals, and standards of care; medical malpractice, institutional and corporate liability; antitrust; contracts; and patient rights. This course will complement HMP 744E Health Ethics.

HMP 744E - Health Ethics
Credits: 2
Ethical theories, principles, and decision making models that facilitate argumentation and critical analysis related to health issues where values often conflict; patient and employee rights, responsibilities/duties; the relationship between ethics and the law; selected ethical dilemmas and conflicts facing health professionals. Issues may include confidentiality and privacy, personnel/managerial communications, advertising and marketing, health care and profits, quality of life, pre-birth and end-of-life, electronic medical records and personal health information, immunization and communicable disease, human genetics, human rights and social justice, the right to health care and human experimentation. Students examine ethical issues, and the implications of alternatives and decisions on multiple stakeholders, including patients and family members, various health care providers and their respective organizations, health policy makers, and the public at large. Prereq: Major or permission.

HMP 744L - Health Law
Credits: 2

HMP 744 L - Health Law
Credits: 2
This course provides an introduction to the legal foundations of health care in the U.S. Health law is examined as it applies to professionals entering the field of health management and other health professions. The legal system, regulations affecting health and safety, and issues facing practitioners are presented. Current status of the law, future directions, and its complexity are explored. Topics include privacy, liberty, and proprietary interests, from the perspective of the provider and the patient; laws related to the regulation of medical services, medical professionals, and standards of care; medical malpractice, institutional and corporate liability; antitrust; contracts; and patient rights. This course will complement HMP 744E Health Ethics.

HMP 746 - Health Policy
Credits: 4
Analysis of the public policy process, the development of health policies in the U.S., and discussion of specific health policy issues. Prereq: major or permission. Writing intensive.

Attributes: Writing Intensive Course

HMP 748 - Health Policy Analysis
Credits: 4
Public policy outputs analyzed for effectiveness, efficiency, and equity, focusing on public policies in the United States. Prereq: major or permission. Lab. Special fee.

HMP 796 - Independent Study
Credits: 1-4
In-depth study with faculty supervision. Prereq: permission of major advisor and faculty in the area concerned.

HMP 798H - Honors Project/Research Design
Credits: 2
Examines selected research designs and methods used in health services research/program evaluation. Establishes theoretical and methodological foundation for honors-in-major research project to be conducted during the subsequent semester under a faculty member’s supervision. Prereq: senior honors-in-major status and permission.

HMP 799H - Honors Project/Research
Credits: 2-4
In-depth research project (conducting and analysis) under supervision of faculty member. Includes scholarly presentation of findings to faculty and other interested parties and preparation of manuscript suitable for publication in peer-viewed journal. Prereq: HMP 798H and permission. Writing intensive.

Attributes: Writing Intensive Course

History (HIST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HIST 405 - History of Early America
Credits: 4
America from the early era of European discovery to the mid-19th century. Emphasizes the interaction of European, Native American, and African peoples; the separation of the English colonies from Great Britain; and the establishment and early history of the United States. Course meets the History major requirement for Group 1.

Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
HIST 405H - Honors/History Early America  
Credits: 4  
America from the early era of European discovery to the mid-19th century. Emphasizes the interaction of European, Native American, and African peoples; the separation of the English colonies from Great Britain; and the establishment and early history of the United States. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 405W - History of Early America  
Credits: 4  
America from the early era of European discovery to the mid-19th century. Emphasizes the interaction of European, Native American, and African peoples; the separation of the English colonies from Great Britain; and the establishment and early history of the United States. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 406 - History of the Modern United States  
Credits: 4  
History of the United States since the mid-19th century. Political, social, and economic developments as well as relationships of the modern U.S. with other countries. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 406H - Honors/History of the Modern United States  
Credits: 4  
History of the United States since the mid-19th century. Political, social, and economic developments as well as relationships of the modern U.S. with other countries. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 406W - History of the Modern United States  
Credits: 4  
History of the United States since the mid-19th century. Political, social, and economic developments as well as relationships of the modern U.S. with other countries. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 410 - Historic Survey of American Civilization  
Credits: 4  
Topical survey, within broad chronological divisions, of the development of American civilization since 1600. Students may take the course up to two times as long as the topic for the two courses is different. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 410H - Honors/Historic Survey of American Civilization  
Credits: 4  
Topical survey, within broad chronological divisions, of the development of American civilization since 1600. Writing intensive. Course meets the History major requirement for Group 1.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 421 - World History to the 16th Century  
Credits: 4  
The global experience of human communities with special emphasis on the development of the major civilizations and their interactions. Comparisons of social, cultural, religious, and political life and the emergence of distinctive and diverse human societies are examined. Course meets the History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 422 - World History in the Modern Era  
Credits: 4  
Emergence of major global human interactions due to the growth of major civilizations. The global context for the rise of the modern West. The rise and decline of Western global domination and the emergence of new states and changing societies throughout the world. Course meets the History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 422H - Honors/World History in the Modern Era  
Credits: 4  
Emergence of major global human interactions due to the growth of major civilizations. The global context for the rise of the modern West. The rise and decline of Western global domination and the emergence of new states and changing societies throughout the world. Course meets the History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 425 - Foreign Cultures  
Credits: 4  
Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics. Course meets the History major requirement for Group II or III, depending on the topic.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HIST 425H - Honors/Foreign Cultures  
Credits: 4  
Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics. Writing intensive. Course meets the History major requirement for Group II or III, depending on the topic.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

HIST 425W - Foreign Cultures  
Credits: 4  
Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics. Writing intensive. Course meets the History major requirement for Group II or III, depending on the topic.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

HIST 435 - Origins of European Society  
Credits: 4  
This course traces the contours of human experience in what has come to be called "Western Civilization," from its beginnings in the ancient Near East, Greece, and Rome, to the dawn of the modern global world in sixteenth-century Europe. Although topics will vary by instructor, all sections examine the myriad forms of social, political, religious, military, and economic organization that emerged in this rich tradition, Course meets the History major requirements for Group II.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
HIST 435H - Honors/Origins of European Society
Credits: 4
This course traces the contours of human experience in what has come to be called "Western Civilization," from its beginnings in the ancient Near East, Greece, and Rome, to the dawn of the modern global world in sixteenth-century Europe. Although topics will vary by instructor, all sections examine the myriad forms of social, political, religious, military, and economic organization that emerged in this rich tradition, Course meets the History major requirements for Group II. Writing intensive. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 435W - Origins of European Society
Credits: 4
This course traces the contours of human experience in what has come to be called "Western Civilization," from its beginnings in the ancient Near East, Greece, and Rome, to the dawn of the modern global world in sixteenth-century Europe. Although topics will vary by instructor, all sections examine the myriad forms of social, political, religious, military, and economic organization that emerged in this rich tradition, Course meets the History major requirements for Group II. Writing intensive. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 436 - Europe and the Modern World
Credits: 4
The course focuses on major encounters between Europe and its Global rivals from the Age of the Revolution to the rise of modern terrorism. While the topics covered will vary by instructor, all sections address the rise of Democracy, the birth of Capitalism, the apocalyptic destruction of the two World Wars, and the emergence of a diverse multi-cultural Europe in the years following World War II. Course meets the History major requirements for Group II. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 436H - Honors/Europe and the Modern World
Credits: 4
The course focuses on major encounters between Europe and its Global rivals from the Age of the Revolution to the rise of modern terrorism. While the topics covered will vary by instructor, all sections address the rise of Democracy, the birth of Capitalism, the apocalyptic destruction of the two World Wars, and the emergence of a diverse multi-cultural Europe in the years following World War II. Course meets the History major requirements for Group II. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 436W - Europe and the Modern World
Credits: 4
The course focuses on major encounters between Europe and its Global rivals from the Age of the Revolution to the rise of modern terrorism. While the topics covered will vary by instructor, all sections address the rise of Democracy, the birth of Capitalism, the apocalyptic destruction of the two World Wars, and the emergence of a diverse multi-cultural Europe in the years following World War II. Course meets the History major requirements for Group II. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 440A - Martin Luther King, Jr., and the Struggle for Racial Justice
Credits: 4
This course examines Martin Luther King's life, philosophy, and career on the front lines of the civil rights movement. In our study of King as well as the larger black freedom struggle, we seek an understanding of how certain questions related to racial justice played out in American history. We focus on issues of civil disobedience, just and unjust laws, love and hate, violence and non-violence. Students will read many of King's famous writings such as the Letter from Birmingham Jail, as well as his lesser-known speeches - among them king's 1967 address denouncing the Vietnam War. More generally, this seminar introduces students to the rudiments of historical thinking and asks broader questions about the role of individuals in history and how social change happens. Course meets the History major requirement for Group I. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

Credits: 4
Every person interacts with the health care system – including you. In this class, students will study the interactions between law, society, science, and medicine to gain an understanding about how the American health care system developed and who has and does make decisions about health. Topics covered include vaccination, health care providers, discrimination, and epidemics. Course meets the History major requirement for Group I.

HIST 440C - Honors/Collective Guilt and Collective Responsibility in History
Credits: 4
Most Americans recognize the Holocaust as an extraordinary crime, though there is less agreement about who was responsible, whether justice was rendered and appropriate compensation was awarded survivors. Things become more complicated when examining what might be considered crimes committed by Americans. This course concentrates both on the Holocaust and the underside of American history and poses questions about the connections between the past and the responsibility of citizenship in the present. Writing intensive. Course meets the History major requirement for Group I or II.

HIST 440D - Honors/Citizens and Persons
Credits: 4
The definition and substance of citizenship have changed dramatically in the course of history. Modern societies in particular have experienced struggles over who belongs to the nation, who deserves to protect it and be protected by it, as well as ideas about individual and group rights. Theses conflicts continue to the present day, as seen in the public and legal debates over access to the ballot box, immigrant rights, marriage equality, inclusion of people with disabilities, state violence, and other issues. In this class, we will trace the evolution of expanding (and occasionally contracting) political and civil rights and responsibilities over time, with a comparative focus on United States, Europe, and Latin America. Some of the questions we will explore in this course include: By which mechanisms have Atlantic world societies decided who belongs and who does not belong to the nation? How has the relationship of citizenship to equality changed over time? Have any countries achieved full equality, and where does this ideal remain unfulfilled? Permission required. Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
HIST 440E - Honors/Drugs and Addiction in World History
Credits: 4
As drug addiction rates in the US are reaching epidemic proportions, new solutions and perspectives are becoming increasingly important. This course teaches students how a variety of cultures, including the Aztecs, Maya, Vedic India, China, and Greco-Roman antiquity, confronted the problems of drug use and addiction in their own societies. By examining these phenomena through the lens of other culture’s values, students will gain a valuable perspective by which to address these problems today.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HIST 440F - Honors/Islam, Art, and the Past
Credits: 4
While the world is all too familiar with images of ISIS using explosives and frills to destroy ancient sites and artifacts in Iraq and Syria, there has been little attention given to the dynamic role of art within past and present Islamic societies. Yet, Islam has a rich and vibrant artistic tradition, one in which ancient civilizations played and continue to play a major role. This course introduces students to Islamic art and cultural heritage through a study of Islam’s engagement with past artistic traditions in the fields of architecture and the fine arts. It also addresses how the recent actions of ISIS have changed questions about cultural heritage and stewardship in the Middle East and the West. Finally, the course asks students what they can and should do to preserve cultural heritage.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

HIST 444 - Through Their Eyes: The American Civil War from Primary Sources
Credits: 4
Introduces the nature of historical research through an intensive study of the Civil War era, including slavery, abolitionism, and political conflict before the war, as well as the military, social, and political history of the war itself. Use of primary sources such as newspapers, public documents, letters, and diaries, including unpublished manuscripts held in Special Collections, Dimond Library. Writing intensive. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 444B - Revolutions Across the Atlantic
Credits: 4
An exploration of the Age of Revolution, 1776-1800 on both sides of the Atlantic. Beginning with Tom Paine’s declaration "Tis Time to Part" that launched the American Revolution and ending with the spread of the French Revolution by bayonets into Switzerland, we investigate the clubs organized against the slave trade, we read the plays that projected imaginary revolutions onto desert islands, and we follow the rumors that spread news of Caribbean revolts to Philadelphia and Paris. This course will be primarily discussion, with some student writing assignments in the first half of the course. Students will research and write their own histories of some facet of revolutionary history in the second half of the course. Writing intensive. Course meets the History major requirements for Group I or II.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 444C - World War Propaganda in Britain and the United States
Credits: 4
Examines multi-media propaganda in World War I and World War II Britain and the U.S. to investigate the total war experience, the relationship between these two nations, and the workings of a critical weapon. Propaganda was a bloodless weapon in an era of high-tech tools, but it was also a feared and ubiquitous one. Some of the issues addressed in this course include: Who were some of the targets of propaganda? How were posters different from films or radio broadcasts? What were the messages of propaganda? What does propaganda say about these nations as cultures and societies as well as about their war efforts? We analyze multimedia primary sources as well as use secondary ones in our discussions. Writing intensive. Course meets the History major requirements for Group I or II.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 444D - Slavery and Society in Pre-Colonial Africa
Credits: 4
Examines the evolution and practice of the institution of slavery in Africa from the earliest times to the era of European colonialism. Using contemporary personal narratives by the slaves, the course examines specific historical contexts of various slave systems, continuity and change in the ideologies and practices of slavery, religion and slavery, race and slavery, gender and slavery, conditions of slaves, as well as the making and uses of slaves - as domestics, concubines, eunuchs, officials, soldiers, labor and capital. Using films, slide images, and a comparative approach, African slavery will be examined within the context of the early evolution of slavery in the Mediterranean and Islamic worlds as well as its later expressions in the Atlantic world of the Americas. Course meets the History major requirements for Group III.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 444E - American at War: Society, Culture, and the Home Front
Credits: 4
Course will examine how the preparation for war, war itself, and the legacy of war shape American society, culture, and national identity. Students explore the relationship of war to topics such as American politics, literature, music, visual arts, popular culture, as well as gender, ethics, and race relations. Primarily discussion with short writing assignments in the first part of the course. Students research topics of their choice in the second and third parts of the course. Writing intensive. Course meets the History major requirements for Group I.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course
HIST 444G - Voices from Modern China  
Credits: 4  
Human voices—written or vocal—left records of history. Yet too often we hear only the voice of the statesman, which is too partial to bring to life a colorful history like China’s. This seminar explores China’s dramatic changes in modern times through revolution, reform, and war as experienced by a wide range of individuals who witnessed or participated in these huge events and left their voices in record. We will read and discuss the lived experiences of some iconic (well-known) political or cultural leaders, as well as working women, male and female revolutionaries, youthful rebels, a leading industrialist, and foreign observers during China’s extraordinary transformations over the past two centuries. Writing intensive. Course meets History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 444J - Global Citizenship: In Pursuit of Liberty  
Credits: 4  
What does it mean to be a global citizen? Are we? What are human rights? Are they universal? This honors discovery course will explore with the mean and women who traveled and thought beyond the borders of their locality and their moment of time and who imagined themselves citizens of the world. We will start with early revolutions that traversed oceans and national borders. We’ll read utopias and perform plays that saw their world differently. In the end, we will investigate major global challenges of our own world. We will move backwards, but also forwards in history. We will read novels, and perform plays. We will listen to Beethoven and Berlioz, in class and in larger questions of international community, from sustainability to diversity as they echo through different disciplines. Course restricted to members of the University Honors Program. UHP members should use the preregistration form before attempting to register. It is an Inquiry course and Writing intensive.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 483 - History of World Religions  
Credits: 4  
Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. Begins with the religions of small and tribal societies (e.g., African, Native American), moves through religions of complex societies (e.g., Hinduism), and then studies the various traditions that emanated from ancient revelations: Zoroastrianism, Buddhism, Judaism, Christianity, Islam, and certain new forms of Christianity. This initial survey of world religions prepares students for HIST 484. Writing intensive. Course meets History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 483W - History of World Religions  
Credits: 4  
Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. Begins with the religions of small and tribal societies (e.g., African, Native American), moves through religions of complex societies (e.g., Hinduism), and then studies the various traditions that emanated from ancient revelations: Zoroastrianism, Buddhism, Judaism, Christianity, Islam, and certain new forms of Christianity. This initial survey of world religions prepares students for HIST 484. Writing intensive. Course meets History major requirement for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 490 - Medieval History through Film  
Credits: 4  
This course is intended to give students an opportunity to come to grips with some of the central questions that historians ask, namely how do we know what we know (epistemology), and what image of the past are we trying to create (history). Students read (1) scholarly literature (2) contemporary narrative sources (3) and watch films that depict events that are described in these narrative sources. Course meets History major requirement for Group II.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 497 - Explorations in Historical Perspectives  
Credits: 4  
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer’s England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Course meets the History major requirements for Group I, II, or III, depending on the topic.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST #497H - Honors/Explorations in Historical Perspectives  
Credits: 4  
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer’s England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Writing intensive. Course meets the History major requirements for Group I, II, or III, depending on the topic.  
Attributes: Historical Perspectives GP 4

HIST #497W - Explorations in Historical Perspectives  
Credits: 4  
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer’s England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Writing intensive. Course meets the History major requirements for Group I, II, or III, depending on the topic.  
Attributes: Historical Perspectives GP 4

HIST 498 - Explorations of Historical Perspectives  
Credits: 4  
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer’s England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Writing intensive. Course meets the History major requirements for Group I, II, or III, depending on the topic.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4
HIST 500 - Introduction to Historical Thinking  
Credits: 4  
Basic skills essential to the study of history: critical reading of historical literature, improvement of written and oral analysis of historical material, and use of library resources. Intensive study of books and documents from varying historical fields and periods. Required of history majors; open to other interested students. Writing intensive.  
Attributes: Inquiry (Discovery); Writing Intensive Course

HIST 501 - Medieval Military History  
Credits: 4  
Western societies from the Roman Empire to the emerging nation states of early modern Europe spent an enormous proportion of their surplus wealth on war. This course introduces this crucial aspect of Western history and examines the period extending from the third century AD, to just before the extensive introduction into Europe of gunpowder weapons in the fifteenth century. Discussion of not only battlefield tactics and famous generals but also the effect that war had upon society as a whole and the economic ramifications of war, the Christianization of war, and the effect of war upon literature. Course meets the History major requirements for Group II.

HIST 505 - African American History  
Credits: 4  
Explores the forces integration of the Atlantic World through the African slave trade and the development of creole cultures in America, and takes the story of Black Americans' "creative survival" and the evolution of African-American culture through the end of the Civil War. Writing intensive. Course meets the History major requirements for Group I.  
Attributes: Historical Perspectives GP 4; Writing Intensive Course

HIST 506 - African American History  
Credits: 4  
Experiences, aspirations, and contributions of black Americans from their ethnic origins in Africa to the present American crisis in race relations; comparative study of cultures and institutions. Reconstruction to the present. Writing intensive. Course meets the History major requirements for Group I.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HIST 509 - Law in American Life  
Credits: 4  
Investigates the role of law in American social, political, and economic life from the European settlements to the present. Traces the development of legal institutions, but focuses on the various functions of law (e.g., in structuring social relationships, allocating resources, defining governmental authority, expressing social and moral values, and as a mechanism for control). Course meets the History major requirements for Group I.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 511 - History of New Hampshire  
Credits: 4  
This course reconstructs the surprising past of the place we call New Hampshire. Beginning with the 17th-century encounter between English and Native people, it runs to the present. Literature, documents, photos and films provide access to New Hampshire’s changing natural environment, its rural life, industrialization, politics and recent struggles. Writing intensive. Course meets the History major requirements for Group I.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 515 - Game of Thrones: Power and Politics in Medieval and Renaissance Europe  
Credits: 4  
George R.R. Martin's popular medieval fantasy series, A Song of Ice and Fire better known from HBO’s Game of Thrones brilliantly portrays the brutal dynastic wars that unfolded between noble houses for control of Westeros. But did you know that pre-modern European history was one of Martin'd greatest inspirations? Join us as we explore a real "Game of Thrones", the gripping series of national and international struggles between actual noble European houses for supremacy from the eleventh through the sixteenth centuries that ultimately forged the modern European state system. Writing intensive.  
Attributes: Writing Intensive Course

HIST 521 - Origins of Modern Science  
Credits: 4  
Development of scientific ideas in Europe from the Renaissance through the Scientific Revolution to the Enlightenment. Topics include themes in the physical and biological sciences and their relations to cultural and social contexts. No special science background is required. Course meets the History major requirements for Group II.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 522 - Science in the Modern World  
Credits: 4  
Development of science, particularly in Europe and North America, from the 18th century to the present. Themes including Darwinism, the growth of modern physical and biological sciences and science in the contemporary world. No special science background is required. Course meets the History major requirements for Group II.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 532 - Modern Latin America  
Credits: 4  
Provides a broad overview of Latin America from the 18th century to the present. It examines the breakdown of colonial rules, the establishment of independent countries, the formation of viable nation states, the importance of geography, the roles of the different elements of society. Social, political, and economic changes and continuities emphasized to give a sense of the ambiguities of the historical process. Cultural differences illustrated with slides and music. The effects of elite rule and of United States interventions studied. Writing intensive. Course meets the History major requirements for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HIST 537 - Espionage and History  
Credits: 4  
Introduces the history and politics of espionage and intelligence organizations from the 20th century to the present. Special attention to intelligence work among the major powers in World War I, World War II, and the Cold War. Readings include autobiographical accounts and other primary sources as well as novels. Course meets the History major requirements for Group II.
HIST 538 - Modern European War and Society: The Napoleonic Wars to World War II  
Credits: 4  
This course is organized around three conflicts: the Napoleonic Wars, World War I, and World War II. As we study them, we'll discuss the evolution and impact of total war in order to understand how societies work in wartime and how these conflicts have shaped Europe. In our exploration of each war, we examine a range of participants from international alliances to individual soldiers and to civilians involved in the conflict. Total war, by its nature, incorporates most elements of society, so we will spend time looking at the homefronts as well as the battlefronts. We will survey the conflicts as a whole, but also devote time to some special events or elements. For example, we will look at the battle of Somme during the portion of the course dedicated to World War I. We will also study some of the art that arose out of the conflict. The core of the class will be lectures, but we will engage in some discussion almost every day and there are some classes that will be dedicated to discussion. Course meets the History major requirements for Group II.

HIST #540 - Foundations of Medieval History: 300-1300 CE  
Credits: 4  
Introduces the history of Western Europe from the end of the Roman Empire to the late twelfth century. Particular focus on the history of Christianity, social and economic structures, the role of women in medieval culture, and literacy and learning. Writing intensive. Course meets the History major requirements for Group II.  
Attributes: Writing Intensive Course

HIST 560 - Modern Britain  
Credits: 4  
This course explores Great Britain from the American Revolution to the reign of Elizabeth II. We examine Britain's unparalleled Imperial power, the vibrancy of Victorian Culture, and the devastating impact of the two World Wars, which initiated Britain's post-war decline. During the Cold War, Britain rebuilt its position through cultural exports like rock-n'-roll music, royal pomp, and the mini-skirt, but has never fully recovered its status, despite its vibrant multi-cultural allure. Course meets the History major requirements for Group II.

HIST 563 - Introduction to Russian Culture and Civilization  
Credits: 4  
Interdisciplinary course on the development of Russian culture from its origins through the end of the 19th century. Historical documents, literary works, ethnographic materials, films, slides of Russian art, and music. Course meets the History major requirements for Group II.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HIST 564 - Russia and the Soviet Union in World War II  
Credits: 4  
This course examines World War II from the perspective of Russia and the Soviet Union. Readings, lectures, and discussions cover the major battles, Stalin's leadership, experiences of the soldiers (both men and women), life on the home front, the Holocaust on Soviet territory under German occupation, and propaganda. Students also read the most important Russian novel set in World War II. Midterm, final, short papers. Writing intensive. Course meets the History major requirements for Group II.  
Attributes: Writing Intensive Course

HIST 565 - Women in Modern Europe  
Credits: 4  
A social history of women in Europe from 1700 to the present. Examines the development of the "modern nuclear family," transformations in women's work during the industrial revolution, and women's political evolution from bread rioters to hearth tenders to petitioners. Sources include published diaries, historiographical studies, and novels. Course meets the History major requirements for Group II.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 566 - Comparative Revolutions: How to Make a Revolution in the World before Marx  
Credits: 4  
This course in HOW TO MAKE A REVOLUTION (if you lived more than 100 years ago) will ask why the Sea Beggars flooded Holland, the Levellers dug up the Commons, and Black Loyalists fled the independent Americans after their revolution. The class asks how slaves in Haiti defeated Napoleon's troops, utopian socialists built a railway around a cross at the center of Europe, and Marx rallied the workers of the world to unite. Course meets the History major requirements for Group II.

HIST 575 - Ancient Near East  
Credits: 4  
From the Neolithic revolution to the time of Alexander the Great. Rise of civilization; nature of human artistic and intellectual development in the earliest civilizations of Mesopotamia and Egypt; Judaism in its historical setting. Course meets the History major requirements for Group III.

HIST 579 - History of China in Modern Times  
Credits: 4  
This course introduces students to major historical developments in China from 1600 to the end of the twentieth century. Major themes include: ethnicity, alien rule, political reforms and revolution, industrialization, interactions with the rest of the world (such as cross-cultural relations and military conflict), social and cultural transformation. Readings for the course are a combination of secondary and primary sources in translation, including scholarly articles, memoirs, biography, fictions, and journalist reports, most of which are landmark works indispensable for the study of modern Chinese history. Course meets the History major requirements for Group III.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HIST 580 - History of Japan in Modern Times  
Credits: 4  
Surveys major historical changes in Japan from 1600 to the end of the 20th century. Topics include Tokugawa centralized feudalism, samurai class, Edo culture, foreign relations with Asian countries and the United States, wars, postwar reforms under American Occupation, and the rise of Japanese economic power. Sources include official documents, personal memoirs, literary works, films, as well as slides of ukiyo-e (woodblock paintings). Course meets the History major requirements for Group III.

HIST 583 - Mystic and Saint in Islam  
Credits: 4  
Examines how and why a cult of Sufi saints became such a significant part of religious practice in medieval Islamic Egypt and Anatolia. Course meets the History major requirements for Group III.
HIST 585 - Medieval Islam  
Credits: 4  
This course examines the origins and expansion of Islam and the development of the Muslim community from the time of Muhammad until the Islamic empires of the 16th century. We will address the associated geographies, artifacts, and legal formations associated with the medieval and early modern Islamic world. The course focuses on major developments in politics, religion, and the arts. Course meets the History major requirements for Group III.  
Attributes: Historical Perspectives(Disc)

HIST 586 - Islam in the Modern Age, 15th Century to present  
Credits: 4  
Emergence of modern Middle Eastern states and societies from the time of the Ottoman Empire to the present. A survey of major developments, including the emergence of nationalism, the Islamic resurgence, and social transformations. Course meets the History major requirements for Group III.  

HIST 587 - History of Africa from the Earliest Times to 1870  
Credits: 4  
This survey course introduces students to the major landmarks in the making of African history and societies from the earliest times to 1870 AD. Beginning with the dual premises that Africa is the birthplace of both the human species as well as some of the oldest and most varied civilizations in the world, the course examines the early civilizations of both Egypt and the Nile Valley, the development and of the Swahili culture, the Sudanese and forest empires, religious beliefs and the moral order, gender and class, warfare and diplomacy, the advent and impact of Islam and Christianity, migrations and cultural formations in central and southern Africa, commerce, and encounters with Europe, slavery and the Trans-Atlantic slave trade, and the end of formal African independence. Films and other visuals are streamed to supplement the readings. No pre-requisite required. Course meets the History major requirements for Group III.  

HIST 588 - History of Modern Africa: 1870 to the Present  
Credits: 4  
This survey course introduces students to the major forces and dynamics of change in the modern history of Africa, from the late 19th century to the present. The primary focus is on European imperialism and its aftermaths in Africa. Issues to be examined include: the scramble for and partition of Africa; resistance to colonization; the rise and fall of apartheid in Southern Africa; religion and society, music and culture, gender and sexuality, art and literature, pan-Africanism, military rule, HIV/AIDS, democratization, and nation building. Emphasis on African initiatives, and on an exploration of contemporary challenges and the major forces reshaping the history of this oldest, most diverse, and most fascinating continent. Feature films, drama skits, literary works, and guest lectures are utilized. No prerequisites required. Course meets the History major requirements for Group III.

HIST #589 - Islam in Africa  
Credits: 4  
Focuses on the advent, spread, and major consequences of Islam in Africa. Examines the major phases of Islamic expansion: early conquests in North Africa and the Iberian Peninsula, the spread of Islam across the Sahara into the Sudan, the jihadist and reformist movements of the 18th and 19th centuries and the development of Islam during the colonial and postcolonial era. Emphasizes the varieties of the practice of Islam, the role of Islam in states formation and the impact of Islam on the religious and social life of the African peoples. The intersections of Islam with the issues of trade, slavery, politics, gender, imperialism, and modernization, the rise of Islamic fundamentalism, the place of North Africa within the Mediterranean Islamic culture, as well as the relationships of Islam with indigenous religions and with Christianity in African history and societies explored. Course meets the History major requirement for Group III.

HIST 595 - Explorations  
Credits: 1-4  
See department listings for semester topic. Course meets History major requirement for Group I, II, or III depending on the topic.

HIST 596 - Explorations  
Credits: 1-4  

HIST 597 - Medicine and Society in Pre-Modern Europe  
Credits: 4  
Explores the history of medical theory and practice in Europe from the twelfth to the early seventeenth century. Themes include: 1) varieties of healing strategies, including naturalistic, magical, astrological, religious, and supernatural; 2) attitudes to the body, health and disease; 3) the broad range of healers who practiced healing arts, including learned physicians, surgeons, barbers, midwives, wise women, saints, and even charlatans; 4) the kinds of institutions devoted to promoting health, including the home, the hospital, and the monastery. Course meets the History major requirement for Group II.

HIST 600 - Explorations  
Credits: 4  
Advanced explorations in one of the fields listed below: A) American History, B) European History, C) World History, D) Ancient History. Barrng duplication of subject, may be repeated to a maximum of 12 credits. Course meets History major requirement for Group I, II, or III depending on the topic.

HIST 601 - Seminar in Religious Texts  
Credits: 4  
Close study of sacred text(s) from a particular religious tradition (Islam, Christianity, Buddhism, Judaism, etc.) or a thematic selection of texts across religions. (Also offered as RS 601.) Course meets History major requirement for Group I, II, or III depending on the topic.
HIST 602 - Holocaust: The War on Europe's Jews
Credits: 4
The attempted destruction of European Jewry during the Third Reich is one of the pivotal events in the history of modern Western Civilization. Course explores the circumstances and behavior of the Jews (as victims, resisters, survivors), the perpetrators (German and non-German), bystanders (German, European, and American), and rescuers (German and non-German). Attention is also given to such post-1945 matters as justice, compensation, and memory. Course meets History major requirement for Group II.

HIST 603 - European Conquest of North America
Credits: 4
European Conquest of America explores many of the major issues relating to the creation and development of colonial North America. We will focus particularly on the extraordinary heterogeneous mixture of peoples who lived in North America and the Caribbean, and on the complexity and consequences of their interactions. Throughout the semester we will continually evaluate arguments among historians about whether or not it makes sense to understand the colonial period in terms of a conquest, or whether Native Americans retained enough power and resistance throughout the colonial period to make such an interpretation inaccurate. Course meets History major requirement for Group I.

HIST #604 - History of Medicine in the United States
Credits: 4
Have you been a patient, a nurse, or a holder of insurance? Almost everyone in the United States has a role in health care. We study the growth and development of the field of American medicine from colonial times to the present, examining the changing relationships between patients, health care professionals, technology, government, and others. The focus will be shifts in responsibility and authority over time from patients, to doctors, and even to businesses. Course meets History major requirement for Group I.

HIST 605 - American Revolution, 1750-1800
Credits: 4
Examines the transformation of thirteen British colonies into the United States through the election of Thomas Jefferson as president in 1801. Topics include the revolution's origins, the social and political impact of war, the changing structure of the family, the role of religion, the drafting and ratification of the Constitution, and the revolution's consequences for Indians and African Americans. Course meets History major requirement for Group I.

HIST 606 - History of the Early Republic
Credits: 4
Explores the histories of the people and institutions that transformed the new United States from a coastal republic of largely independent freeholders to a transcontinental democracy increasingly driven by class. Topics include slavery, the family, reform movements, and the formation of national identity. Course meets History major requirement for Group I.

HIST 609 - Special Topics in American Legal History
Credits: 4
In-depth thematic exploration of law in American life. Topics include race and equality in America; community, pluralism, and American law; property, liberty, and law; gender and law. May be repeated for credit with instructor's permission. Consult department listings of topics. Writing intensive. Course meets History major requirement for Group I.

HIST 611 - Civil War Era
Credits: 4
Surveys the period from the presidency of Andrew Jackson to the end of the Reconstruction. Focuses on causes, course, and consequences of the Civil War. Topics include slavery in the Old South, antebellum reform movements, creation and breakdown of the Second Party System, social and economic (as well as military) events during the war and major developments during Reconstruction after the war. Course meets History major requirement for Group I.

HIST 612 - Emergence of Industrial America
Credits: 4
Investigates the economic transformation of 19th-century America from a rural, agricultural society to an urban, industrial one. Explores the sweeping economic changes and focuses on such topics as change in work and leisure, westward expansion and its effects on Native Americans, shifts in gender roles, growth of a consumer culture, rise of the labor unions, Populism, immigration, reform and regulation movements, growth of American imperialism, and intellectual developments. Course meets History major requirement for Group I.

HIST 613 - American Ways of War
Credits: 4
"Is there an American way of war?" This commonly asked question will be the focal point of the course. To answer that we will study the interactions of both war and society in the United States from the Civil War onwards, addressing such issues as the causes, courses, diplomacy, homefront, legacy, and the art of the great and small wars. Course meets the History major requirement for Group I.

HIST 615 - The Rise of Modern United States, 1900-1945
Credits: 4
By 1900, the United States had emerged as the world's leading industrial power and leading destination for millions of immigrants and had begun to become a major player in world affairs. Americans enjoyed unprecedented prosperity and became eager consumers of new inventions and popular culture: cars, radios, jazz records, and the "motion pictures." But they also experienced the worst depression the country had ever known and struggled to make sense of a world that went to war twice within a generation. Women, African Americans, immigrants - all struggled to carve out their place in the new political order. By World War II, the United States assumed many of its "modern" characteristics. Using novels, movies, photographs, sporting events, political speeches and political debates, we will explore both the domestic and the international aspects of the development of modern U.S. Course meets the History requirements for Group I.

HIST 616 - United States Since World War II
Credits: 4
United States since 1941; cultural, political, and social factors causing major changes in American life. Course meets the History major requirement for Group I.

HIST #617 - Vietnam War
Credits: 4
An advanced interdisciplinary study of the American experience in Vietnam which utilizes fiction, film, music, and historical analysis to examine such matters as how and why the United States became involved in Vietnam, went to war there, and failed to win, as well as the consequences and legacies of that fateful conflict. It is strongly suggested that students first complete courses in modern American history. Course meets the History major requirement for Group I.
HIST 618 - American Environmental History  
Credits: 4  
Examines how nature has been a factor in American history and how Americans have wrestled with the concepts of nature and culture. Topics include industrialization, evolution, conservationism, environmentalism, and environmental diplomacy. Course meets the History major requirement for Group I.

HIST 619 - Foreign Relations of the United States  
Credits: 4  
The history of American diplomacy from the colonial era to the present, with the dividing point at 1900. The focus will be on both the foreign and domestic influences that shaped American diplomacy. Course meets the History major requirement for Group I.

HIST 620 - Foreign Relations of the United States  
Credits: 4  
The history of American diplomacy from the colonial era to the present, with the dividing point at 1900. The focus will be on both the foreign and domestic influences that shaped American diplomacy. Course meets the History major requirement for Group I.

HIST 621 - History of American Thought  
Credits: 4  
This course introduces the subfields of American intellectual and cultural history by assessing the ideas of some of the brightest minds that thought about life on the land we know of as the United States of America before the middle of the nineteenth century. This course surveys more than two centuries of thinkers and their connection to America's plural and evolving popular culture. Ultimately, this course seeks to answer the question: What is the history of American thought?

HIST 622 - History of American Thought  
Credits: 4  
Influential thinkers and ideas have shaped American politics, society, economy, and culture since the Civil War. Among the topics explored are American Victorianism, Social Darwinism, Pragmatism, Modernism and its opponents, gender and identity politics and post modernism. Mark Twain, Elizabeth Cady Stanton, Thorstein Veblen, W.E.B. DuBois, John Dewey, F. Scott Fitzgerald, Hannah Arendt, Thomas Kuhn, Malcolm X, Susan Sontag and William F. Buckley Jr. will be among the thinkers explored. Course meets the History major requirement for Group I.

HIST 624 - Topics in Modern United States Social History  
Credits: 4  
Advanced study of topics in U.S. social history since the Age of Jackson. Topics will vary; may include slavery and the antebellum South, reform movements in U.S. history, family history, labor history, the impact of war on American society, race in recent U.S. history. May be repeated as topics change. Course meets the History major requirement for Group I.

HIST 625 - Southern History and Literature since the Civil War  
Credits: 4  
Equal focus on the history and literature of the South since the Civil War. Topics include reconstruction, the age of segregation, and the Civil Rights Movement. Literary focus is on the period since 1920, including the "Southern Renaissance." Authors include William Faulkner, Robert Penn Warren, Flannery O'Connor, and Zora Neale Hurston. Course meets the History major requirement for Group I.

HIST 632 - Latin American History: Topics  
Credits: 4  
Topics vary (see department listing for current semester). Seminar entails reading, discussion, and research on literature and documents related to the selected topic. Provides students with the opportunity to do research under close direction. Course meets the History major requirement for Group III.

HIST 633 - Medieval England 800-1300  
Credits: 4  
This course provides students with an opportunity to gain an in-depth understanding of the history of medieval England from the beginning of the period of consolidation under the Wessex dynasty in the ninth-century through the end of the thirteenth century. In addition to obtaining a large corpus of information through the reading of a significant monographs dealing with England during this period, students will be challenged to develop the critical analytical skills necessary for the thorough understanding and practice of historical methodologies, with a particular focus on the practice of historical method in writing medieval history. Finally, students will be given the opportunity to improve their communications skills through extensive class discussions dealing with the scholarly works read for this course, and in writing assignments. Course meets the History major requirement for Group II.

HIST 634 - Medieval Empires  
Credits: 4  
This course will explore the intellectual and political foundations of imperial rule in the Middle Ages with a particular focus on the Carolingian, German, and byzantine empires of the early and high Middle Ages. The course will begin with the development of the idea of empire under Alexander the Great and then during the Roman empire. The course will then turn to an examination of how the rulers of the three great empires of the western Middle Ages adapted the classical ideas and practices of empire for their purposes. The course focuses on sources. Background material will be provided in short lectures. Course meets the History major requirement for Group II.

HIST 640 - Holy War in the Holy Land: The Medieval Crusades  
Credits: 4  
Survey of the medieval military expeditions organized by Christians to secure the Holy Land during the 12th and 13th centuries. Topics considered include the formulation of a "just war" theory; political, intellectual, religious, and military interactions between Christians, Jews, and Muslims; the Crusader State of Jerusalem; and the histories of individual crusades. Course meets the History major requirement for Group II.

HIST 641 - Europe after the Black Death  
Credits: 4  
Explores the dramatic changes that characterized Western Europe as it rebounded in the fifteenth through the seventeenth centuries from the ravages of the Black Death of 1348. Examines the social, political, and artistic developments in late medieval and Renaissance Italy before "crossing the Alps" to trace the expansion of Renaissance culture in Northern Europe. Topics include the humanist movement; new patterns of social organization; the revival of classical antiquity in the arts, architecture, religion, and political theory; the effects on European society of the encounter with the "New World"; shifting roles for men and women in early modern European societies; religious war and conflict. Course meets the History major requirement for Group II.
HIST 642 - Saints, Sinners, and Heretics: Europe in the Age of Religious Reform
Credits: 4
Examines the history of Western Christendom from roughly 1400 to 1600, a period of tumultuous religious change throughout Europe. We begin in the Middle Ages where the seeds of religious division were sown. We then trace Martin Luther’s challenge to the Catholic church, trace the diffusion of his message throughout Europe, and address the Catholic response to the evangelizing movements that he inspired. Finally, we investigate some of the regional varieties of Protestantism that developed in the latter half of the sixteenth century with a particular focus on Switzerland, Germany, England, Scotland, France, and the Netherlands. Course meets the History major requirement for Group II.

HIST 644 - Victorian Britain
Credits: 4
The Victorian Era was a time of contrasts. Queen Victoria, a monarch known for her moral strictness, sexual probity and rigid sense of decorum ruled over a vast world empire. The streets of London, however, teemed with prostitutes, pickpockets and impoverished immigrants from Ireland, Europe and beyond, whose lives seemed untouched by either the prosperity or moral stringency that characterized the age. In this class we explore the varieties of Victorian experience both at home and in the global empire. We will examine the glittering lives of the rich as well as the abject poverty of the working poor and explore our own fascination with the dress, the homes, and the lives of the Victorians. Examining sources such as novels, decorative arts, corsets & bustles, Parliamentary debates, architecture, and scientific writings, we will attempt to uncover the many-faceted culture, society and political life of Victorian Britain. Course meets the History major requirement for Group II.

HIST 645 - 19th Century European Great Powers - Diplomacy and International Law
Credits: 4
In this course, we will study power in Europe during the apogee of that region's strength. The long nineteenth century is a period during which Europe avoided major continent-wide (and world-wide) wars, despite constant upheavals. That is a remarkable accomplishment when one compares the events of the nineteenth century with those of the twentieth, despite the fact that the former influenced the latter. Focus is on those who wielded power internationally, including dealmakers, deal-breakers, manipulators, and idealists. To express, test, restrain, or leverage power, actors engaged in wars and negotiations that led to a range of contracts from treaties, such as the Treaty of Fontainebleau ending Napoleon's reign; to alliances, like the Anglo-Japanese Naval Alliance ending Britain's "splendid isolation" from international partnerships; to conferences, including the Hague Conventions regulating wars. In addition, it is important to look at statutes influencing foreign policy, as did the Second German Naval Law of 1900 which increased European tensions before World War I. Examining the relations of powerful nineteenth century states, therefore, illuminates international law as well as more traditional elements of diplomacy. Students learn about 19th century great powers of Europe and important pieces of international legal relationships as well as develop critical thinking and communication skills. Course meets the History major requirement for Group II.

HIST 652 - Topics in European Intellectual History
Credits: 4
Explores such major developments as the Enlightenment, Russian intellectual history, and the relationship between gender and intellectual history. Includes topics since the Renaissance. Since topics vary, students should check the department newsletter or office for course theme in any given term. May be repeated as topics change to a maximum of 12 credits. Course meets the History major requirement for Group II.

HIST 654 - Topics in History of Science
Credits: 4
Advanced study of a selected topic in the history of European science since the Renaissance. Course meets the History major requirement for Group II.

HIST 656 - Twentieth Century Europe
Credits: 4
The Twentieth Century began with European nations at the apex of their global power. It ended with their world dominance in ruins. Two World Wars, the rise of Nazism, and communist revolutions had left Europe in the shadow of the United States. Examining European history from the birth of the automobile to the fall of the Berlin Wall, we explore the political, social and cultural forces that made the twentieth century the bloodiest epoch in world history. Course meets the History requirement for Group II.

HIST 662 - England in the Tudor and Stuart Periods
Credits: 4
England experienced great upheaval under the Tudor and Stuart dynasties. This course explores many of the key political, religious, social and economic changes that changed the face of England in the 16th and 17th centuries. We will study all of the Tudor and Stuart monarchs, and we will focus particularly on the following topics: Henry VIII, the English Reformation, Elizabeth I, Commons v. Nobility, the English Civil Wars and the execution of Charles I, the Restoration and the Glorious Revolution. Course meets the History requirement for Group II.

HIST 664 - Russia: Modernization through Soviet Empire
Credits: 4
The challenges of modernization, experience and legacy of Leninist and Stalinist revolutions. Soviet consolidation and decline through the Gorbachev era. Course meets the History requirement for Group II.

HIST 665 - Themes in Women's History
Credits: 4
In-depth examination of a selected topic in women's history. Topics may include Women and Health, Women in Modern European Political Theory, Comparative History of Women and Revolution. See Time and Room Schedule of history department newsletter for the specific topic. May be repeated for credit with permission of instructor. Course meets the History requirement for Group II.

HIST 669 - Germany from 1918 to Present
Credits: 4
Begins with the revolution of 1918 and then explores the political, social, and intellectual character of the Weimar Republic, the rise and nature of Nazism, the Holocaust, the foundation of both the German Democratic Republic and Federal Republic and their evolution in the shadow of the Cold War, and concludes with the unification of Germany after the fall of the Berlin Wall in 1989. Course meets the History requirement for Group II.
HIST 676 - Classical and Hellenistic Greek Worlds
Credits: 4
Greek history from the Persian Wars of the early fifth century through the life of Alexander the Great and the creation of the Hellenistic world. Emphasizes original sources including Herodotus, Thucydides, the Athenian playwrights, and Plato. Examines the transformation from city-state political organization to large Hellenistic kingdoms, as well as discussion of Greek historiography, intellectual life, and social theory. Thorough discussion of types of available evidence and their integration into historical understanding. Course meets the History major requirements for Group II.

HIST 677 - Roman Republic
Credits: 4
Covers pre-Roman Italy, the Etruscans, and the foundation of the Republic, Rome's expansion through the Punic Wars, relations with the Hellenistic kingdoms, and disintegration and final collapse of the Republic. Includes discussions of Roman art, engineering, and political theory. Emphasis on Latin sources in philosophy, history, and literature. Course meets the History major requirements for Group II.

HIST 678 - Roman Empire
Credits: 4
Collapse of the Roman Republic and creation of the Augustan principate. History of the principate through the division of the empire, with discussion of the fall of Rome in the west and the eastern empire through Justinian. Discusses Roman art, literature, philosophy, and religious developments such as the proliferation of mystery religions and the rise of Christianity. Course meets the History major requirements for Group II.

HIST 679 - Rights Revolution
Credits: 4
It is all but impossible to think or talk about contemporary legal and moral controversies without invoking the idea of "rights." Yet few of us can claim a clear understanding of this pivotal concept. Historically, how have particular claims, preferences, and socio-economic interests attained the status of publicly-recognized "rights"? Are there other ways to conceptualize and prioritize rights, other forms of "rights talk," than the ones we currently employ? History 679 takes as its point of departure the enormous expansion in rights claimed by both individuals and groups in recent decades -- the "rights revolution." This development has elicited both praise and alarm, and we will examine the philosophical, moral, and political dimensions of each. Course meets the History major requirements for Group I.

HIST 680 - Historical Geography
Credits: 4
Introduces major themes, important scholars, and commonly used research techniques in historical geography. Course is reading and research oriented. Focus is on North America. Writing intensive. (Also listed as GEOG 680.) Course meets the History major requirements for Group I.

HIST 681 - Society and Culture in 20th-Century China
Credits: 4
Explores major aspects of social and cultural transformation in China from the beginning of the century, when the Qing dynasty was replaced by a Republic, to the age of globalization. Themes included the rise of citizenship and civic activism, mass culture in print media, commercial culture in advertisement and consumerism, European and Russian influences on cultural and political changes, war of resistance, refugee and social dislocation, rural transformation shaped by socialism and global market. Course meets the History major requirements for Group III.

HIST #684 - History of Southern Africa since 1652
Credits: 4
Examines the major themes in the history of a troubled sub-region of Africa. In-depth exploration of the nature and impact of socio-cultural formations, the evolution of centralized societies, the initiation and expansion of white settlements, and the Mfecane revolution. Analysis of the dynamics and consequences of European imperialism, economic competition and industrialization, European settler-nationalism, racial conflict, slavery, class and gender politics, Indian and African nationalism, democratization, and development in post-colonial and post-apartheid Southern Africa. Course meets the History major requirements for Group III.

HIST 691 - Internship
Credits: 1-4
Supervised internship with a governmental agency, private corporation, philanthropic institution, library, archives, museum, historical society, or other institution seeking individuals interested in historical research. May be repeated up to a maximum of 8 credits. Course meets the History requirements for Group I, II, or III, depending on topic.

HIST 690 - Seminar: Historical Exp
Credits: 4

HIST 695 - Independent Study
Credits: 1-4

HIST 681 - Society and Culture in 20th-Century China
Credits: 4
Explores major aspects of social and cultural transformation in China from the beginning of the century, when the Qing dynasty was replaced by a Republic, to the age of globalization. Themes included the rise of citizenship and civic activism, mass culture in print media, commercial culture in advertisement and consumerism, European and Russian influences on cultural and political changes, war of resistance, refugee and social dislocation, rural transformation shaped by socialism and global market. Course meets the History major requirements for Group III.
HIST 695W - Independent Study
Credits: 1-4
Attributes: Writing Intensive Course

HIST 698 - Internship in Museum Studies
Credits: 4
Supervised position with a museum, historical society, archive, or other history related site. Cr/F.

HIST 771 - Museum Studies
Credits: 4
Introduction to theory, methods, and practice of museum studies. Examination of various museum functions, as well as contemporary historical controversies.

HIST 772 - Studies in Regional Material Culture
Credits: 4
Introduces the theory and methodology of material culture, that is, the study of history through the analysis of buildings, human-created landscapes, and artifacts made and used in the United States, particularly in New England. May be repeated for credit with permission of undergraduate adviser. Course meets the History major requirements for Group I.

HIST 774 - Historiography
Credits: 4
Analysis of ancient and modern historians. Open to undergraduates with permission. (Not offered every year.)

HIST 775 - Historical Methods
Credits: 4
Contemporary historical methods. Required of all entering Ph.D. candidates; open to undergraduate with permission. (Not offered every year.)

HIST 780 - Special Topics in Museum Studies/Material Culture
Credits: 4
Study of a selected topic related to museum studies or material culture. May be repeated for course credit with permission of the undergraduate adviser. Course meets the History major requirements for Group I.

HIST 789 - Seminar in the History of Science
Credits: 4
In-depth examination of a selected topic in the history of science. Subject varies. Open to undergraduates with permission of the instructor. No special background in science required.

HIST 795 - Research Internship
Credits: 2-4
Intensive collaborative experience in research for undergraduate majors. Students gain professional skills while assisting a faculty member on a continuing research project. Permission Required.

HIST 797 - Colloquium
Credits: 4
Selected topics in American, European, and non-Western history. Required of history majors. Students must elect section in the department office at the time of registration. Prereq: HIST 500. Writing intensive. Course meets the History major requirements for Group I, II, or III, depending on the topic.
Attributes: Writing Intensive Course

HIST 799 - Senior Thesis
Credits: 4
Supervised research leading to the presentation of a major research paper. Open only to history majors. Permission of department chairperson required. May not be used as a substitute for the required senior colloquium.

Homeland Security (HLS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HLS 410 - Introduction to Homeland Security
Credits: 4
The primary focus of this course is to describe the entirety of the homeland security enterprise in the US and to survey many of the major expressions of it. This includes a history of homeland security and emergency management, the legislative and regulatory authority for homeland security, the current structure and organization to the US Department of Homeland Security, etc. In addition, specific units on emergency management, terrorism and intelligence, homeland security law and policy, transportation security issues, critical infrastructure and risk analysis and environmental security are each presented.

HLS 415 - Fundamentals of Corporate Security
Credits: 4
HLS 415 will introduce the student to the fundamentals of corporate security including the nature, scope, history, and essential elements of organization (or enterprise) security in the workplace, with emphasis on the private sector. Specific areas include the operational aspects of security strategies for identifying and controlling security exposures, risk management strategies, applicable legal issues, personal protection, property protection, role of intelligence, and concepts of disaster planning and management.

HLS 455 - Introduction to Cybersecurity
Credits: 4
The primary focus of HLS 455 is to provide a survey of the broad field of cybersecurity and information security/assurance. Topics will include a definition of information security, the need for information security and cybersecurity in both the public and private sectors, ethical and legal issues revolving around cybersecurity, risk management and planning, and information/cyber security technology. The role of the U.S. Department of Homeland Security (DHS) in securing the cyberspace and the nation’s information-related infrastructures will also be explored.
HLS 480 - Professional Skills in Homeland Security
Credits: 4
HLS 480 prepares students to effectively enter the workforce via an internship or co-op experience. Students learn to prepare a resume and cover letter, practice interviewing, learn about how their personality matches job descriptions, search for internships, and develop an e-Portfolio that describes themselves, their professional aspirations, skills, etc. Professional ethics, decision making, organizational power, basic leadership and management principles and professionalism are discussed and illustrated.

HLS 510 - Fundamentals of Emergency Management
Credits: 4
This course includes thorough coverage of the historical background of emergency management (EM) in the United States as well as many of the most significant laws and policies that have defined and shaped the field, including HLS PD 5, HLS PD 8, the National Flood Insurance Act, and the Stafford Act. Topics include detailed coverage of FEMA’s all hazards approach, all phases of the EM cycle, including mitigation, preparation, response, and recovery; integrated emergency management systems, the incident command system, the National Incident Management System, emergency support functions, and risk communications. The course culminates with each student writing and formally presenting an integrated emergency management plan. Prereq: HLS 410 and HLS 415 or permission.

HLS 515 - Critical Infrastructure Security and Resilience
Credits: 4
HLS 515 includes an introduction to critical infrastructure security, resilience, and risk analysis as it is conceptualized, regulated and used in the homeland security enterprise. Topics include the history and evolution of critical infrastructure protection including the composition, characteristics and risks to critical infrastructures. Public-private partnerships and sector-specific plans are examined. Resilience in a global context and risk analysis as a means by which resources and assets are allocated to critical infrastructure(s) is presented. Prereq: HLS 410, HLS 415 and HLS 455 or consent of coordinator.

HLS 520 - Homeland Security Law and Policy
Credits: 4
This course is an overview of key legal, policy, and ethical issues in the context of Homeland Security policy and practice. Students examine legal concepts regarding constitutional rights of individuals, legal process, access to courts, the law of war, and national security principles as they relate to homeland security legislation and policy initiatives. Legal principles of due process, habeas corpus, search and seizure, compulsory process, and international agreements are explored in greater depth. The law of war will be examined in the context of preemptive war and the current National Security Strategy, the status of combatants and detention, Elements of national security law, intelligence collection and sharing, the Patriot Act, and military-civilian relations, etc. Prereq: HLS 410 or consent of the instructor.

HLS 580 - Environmental and Human Security
Credits: 4
Students will learn how environmental issues may give rise to socio-political instability around the world which can become threats to US national/homeland security. This course will explore how U.S. domestic and foreign policy, and ultimately, U.S. national security, can be impacted by emergent threats to nations from environmental health issues, climate change, deforestation, infrastructure vulnerabilities, and natural resource shortages caused by rapid industrialization, population growth, and urbanization in less developed countries. In a seminar format, students and faculty will cover a variety of readings and discuss their conclusions and students will have the opportunity to lead class discussions on assigned readings.
Attributes: Environment, TechSociety (Disc); Technology GP 3T

HLS 610 - Exercise Design and Evaluation in Homeland Security
Credits: 4
HLS 610 studies the role and structure of exercise design as it is applied in homeland security and emergency management. Students are introduced to the nature and characteristics of discussion and operations-based exercises and the Homeland Security Exercise Evaluation Program. The legislative and policy background of national preparedness is presented. Students complete a project and presentation that demonstrates how exercises are designed, scripted, implemented (conducted) and evaluated. Prereq: HLS 510 and HLS 515 or consent of coordinator.

HLS 650 - Intelligence Systems and Structures in Homeland Security
Credits: 4
Intelligence is a systematic process of collection, analysis, and dissemination of information in support of national, state, and/or local policy or strategy. HLS 650 will explore the varied expressions of the intelligence community as it exists in the US. In addition, students will explore the history and development of the IC in the US, major legislative acts that led to the development of intelligence as a major function of US national security strategy. Prereq: HLS 410 or permission of instructor.

HLS 750 - Emergent Topics in Homeland Security/Homeland Defense
Credits: 4
HLS 750 will investigate the nature of strategic planning as it relates to homeland security and national security in the United States. In addition, students will explore how strategic planning relates to decision making in more stable environments as well as decision making under uncertainty. Relevant legislation and past decisions (such as the Bay of Pigs and the Cuban Missile Crisis) will be explored. In addition, the basic concepts of the techniques for strategic communication will be explored, developed, and related to decision making along with the characteristics of making high quality strategic decisions. Prereq: HLS 510 and HLS 515 or consent of instructor.

HLS 760 - Strategic Planning and Decision Making
Credits: 4
HLS 760 investigates the nature of strategic planning as it relates to homeland security and national security in the U.S. Students explore how strategic planning relates to decision making in more stable as well as uncertain environments. Relevant legislation and past decisions (such as the Bay of Pigs and the Cuban Missile Crisis) are explored including concepts and techniques for making high quality decisions. Strategic communication principles and techniques are presented. Prereq: HLS 510 and HLS 515 or consent of coordinator. Writing intensive.
Attributes: Writing Intensive Course
HLS 770 - Internship in Homeland Security  
Credits: 4  
HLS 770 represents the professional work experience required in the homeland security major. Students work in a professional setting for a minimum of 180 hours under the supervision of a site supervisor. All internships require students to identify and complete work on a specific project(s) approved by the HLS coordinator. Internships may be taken at any time after students have taken 30 credits of university coursework, and after completing HLS 410, HLS 455, and HLS 480. Note that students who are academically or otherwise unable to enter into internship must take HLS 799. Prereq: HLS 410, HLS 455 and HLS 480.

HLS 790 - Capstone in Homeland Security  
Credits: 4  
HLS 790 allows students to work collaboratively with an organization to identify and solve a homeland security or emergency management challenge. Each group researches the origins of their client's challenge and identifies best practices as countermeasures. Students culminate their projects with presentations to their classmates and to their clients. The expectation of this class is to develop a professional example of the student's thinking and writing to solve real security problems. Prereq: senior standing, HLS 610 and HLS 760 or consent of coordinator. Writing intensive.  
Attributes: Writing Intensive Course

HLS 799 - Thesis in Homeland Security  
Credits: 4  
HLS 799 is an alternative professional work experience required by the homeland security major and can substitute for HLS 770. Students function fairly independently but still in regular contact with the instructor as they devise a thesis and investigate current issues or challenges to US national security. The thesis is a research paper that uses either primary or secondary data collection methods with the expectation that the project be equivalent to the 300 hours interns are obligated to work. HLS 799 is graded as Cr/F just as HLS 770.

Horticultural Technology (HT)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HT 404 - Plant Propagation  
Credits: 4  
Reproduction of plants for horticultural purposes by sexual and asexual methods. Seeds, cuttings, separation, division, layering, grafting, budding, and in vitro propagation. Special fee. Prereq: HORT 207 or permission. 2 lec/1 lab.

HT 405 - Plants, People, Place  
Credits: 2

HT 407 - Plant Structure and Function  
Credits: 4  
Morphology, anatomy, and physiology, with emphasis on the higher plants. Horticultural implications. Lab stresses observations and manipulations of the particulars of plant life. Special fee. 2 rec/1 lab.

HT 415 - Soils and Land Use  
Credits: 2  
Introduction to soils with emphasis on physical, morphological, chemical, and biological characteristics and their applications in horticultural land use decisions. Includes soil genesis and classification and soil survey use. Special fee. 3 rec/1 lab/7 wks.

HT 416 - Soils and Plant Nutrition  
Credits: 2  
Role of nutrition in plant health care. Macro- and micro-nutrient needs, nutrition deficiency symptoms, soil testing, and fertilizer application techniques in both soil and soil-less media. Special fee. 3 rec/1 lab/7 wks.

HT 427 - Horticultural Facilities Mgmt  
Credits: 2  
Layout, construction, management principles, and horticultural technique used on controlled growth structures, including greenhouses, cold frames, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities. Special fee. 1 lec/1 lab.

HT 428 - Horticultural Facilities Mgmt  
Credits: 2  
Layout, construction, management principles, and horticultural technique used on controlled growth structures, including greenhouses, cold frames, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities. Special fee. 1 lec/1 lab.

HT 450 - Flower Show Design and Construction  
Credits: 1  
Design, construction, and maintenance of the Thompson School horticultural exhibit at a public flower show. May be repeated. Special fee. 1 rec.

HT 454 - Irrigation Design  
Credits: 3  
Design, installation, and operation of irrigation systems in the greenhouse, nursery, field crops, and landscape. Special fee. 1 lec/1 lab.

HT 458 - Herbaceous Ornamental Plants  
Credits: 2  
A comprehensive study of herbaceous ornamental plants including morphology, classification, identification, and usage of common perennials, annuals, ferns, ornamental grasses, herbs, and bulbs used in the Northeast. Production, installation, and maintenance of herbaceous ornamentals is also included. Prereq: HT 405 or permission. Special fee. 1 lec/1 lab.

HT 459 - Winter Identification of Landscape Trees in the Northeast  
Credits: 2  
Winter landscape tree morphology and identification. This on-line course begins with introductory lectures on winter landscape tree morphology and Family characteristics. Students then learn how to identify more than 60 common deciduous landscape trees by watching videos which show each plant’s winter identification characteristics. Students evaluated through on-line quizzes and a photographed twig collection. Digital camera required. No campus visit, but students need to be geographically located in the Northeast for access to trees. Prereq: FORT 461 or HT 557 or NR 425 or PBIO 566.

HT 460 - Sustainable Plant Management  
Credits: 4  
Sustainable practices and principles in selecting, establishing and maintaining woody and herbaceous plants for optimum health. Topics include planting, pruning, fertilization, pest identification, plant culture and communities.
HT 493 - Field Operations  
Credits: 1-3  
Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student’s adviser.

HT 494 - Field Operations  
Credits: 1-3  
Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student’s adviser.

HT 529 - Horticultural Facilities Mgmt  
Credits: 2  
Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.

HT 530 - Horticultural Facilities Mgmt  
Credits: 2  
Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.

HT 551 - Introduction to Design Communication  
Credits: 2  
Introduction to methods of communicating garden and landscape design. Lab work covers selected 2-D and 3-D tools and techniques, including instrumental drawing, modeling, and computer-aided drafting and design (CADD). Special fee. Prereq: TSAS 205, Computers in the Workplace. 1 lec/1 lab.

HT 553 - “Pond-less” Water Feature Design and Installation  
Credits: 2  
A major trend in landscape design is the use of water features that range from simple recirculating pond to major waterfalls and fountains. Class starts with the design principles of “pond-less” features and expands to proper installation techniques. Determining water flow, recirculation rates, appropriate pump requirements and filter techniques are critical to a fully functioning feature. Explore differences between “pond-less” and eco-system ponds. Class culminates in the design and installation of a complete system.

HT 554 - Sustainable Irrigation and Rain Harvesting  
Credits: 3  
As identifying water resources becomes ever more critical, students learn how to efficiently irrigate the landscape using low volume irrigation with harvested rainwater as the water source. Course focuses on proper design concepts of low volume irrigation as well as the design of rainwater storage systems. Includes developing site plans, identifying soil types and determining plant material to be irrigated. Learn about flow rates, water pressure and the technical components required for a complete system.

HT 555 - Landscape Lighting Design and Installation  
Credits: 2  
Creating outdoor “rooms” is a hot trend in landscaping. Class starts with design elements that are functional, aesthetically pleasing while minimizing light pollution and electrical usage. Learn various lighting options from LED to other low-voltage systems and their unique technical installation requirements plus how to prepare a good cost estimate. Landscape lighting provides exterior security, comfort and adds visually to the landscape canvas for both private and commercial properties.

HT 557 - Woody Landscape Plants  
Credits: 3  
Identification, morphology and classification of Woody Plant Materials of importance in ornamental horticulture in the Northeast including deciduous and evergreen trees, shrubs, vines and groundcovers. Woody plant selection for landscape situations. Special fee. Prereq: HT 405. 2 lec/1 lab.

HT 563 - Landscape Construction  
Credits: 4  

HT 565 - Turf Management  
Credits: 4  
An introductory look at turf grass management; turf grass culture and physiology; identifying cool-season grasses; identifying and controlling turf grass pests (insect, diseases and weeds); controlling pests using traditional, biological and integrated (IPM) practices; establishing cool-season grasses; seed and sod installation; fertilization practices will be covered.

HT 566 - Garden Design and Culture  
Credits: 2  
What makes a garden inviting and sustainable? Explore elements of design then learn how to design and install a variety of gardens that are attractive, integrate with the surrounding environment/ecosystem, and require minimal inputs of time, water, and nutrition. Course emphasizes the selection of native and low maintenance plants. Projects include residential landscape plantings and specialty gardens such as water, rock, rain and themed gardens. Cost estimation and business management considerations also introduced.

HT 572 - Landscape Design Studio  
Credits: 4  
Principles of residential and commercial landscape design: site analysis, spatial organization, graphics and drafting, use of landscape fixtures and plant materials, final plans and specifications, cost estimates. Special fee. Prereq: HT 257 and HT 563. 2 lec/4-hr lab.

HT 575 - Hydroponics  
Credits: 2  
Production of hydroponic crops in the greenhouse, focusing on systems management, plant nutritional management, crop types and production schedules. Includes lab in Thompson School production greenhouse range. Special fee. Prereq: HT 407 Plant Structure and Functioning or equivalent.

HT 576 - Greenhouse Crop Production  
Credits: 2  
All aspects of production of floriculture and food crops in the greenhouse for the spring season. Includes lab in our production greenhouse range. Special fee.
HT 585 - Fruit and Vegetable Production
Credits: 3
Tree fruits (apple, pears, and peaches) small fruits (strawberries, raspberries, grapes and blueberries) and vegetables grown in New England will be covered. Information will include growing, maintenance and the marketing of fruits and vegetables from the garden center perspective. Special fee. 2 lec/1 lab.

HT 591 - Studies
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a new topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include floriculture, floral design, nursery, landscape, and horticultural therapy. Permission required. Course may be repeated up to a maximum of 6 credits.

HT 592 - Studies
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a new topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include floriculture, floral design, nursery, landscape, and horticultural therapy. Permission required. Course may be repeated up to a maximum of 6 credits.

HT 597 - Horticultural Work Experience
Credits: 0
A guided work experience in a student-selected area of horticulture, providing both a broad overview and a detailed understanding of work in the field. Contracting with an employer for 480 hours of career-oriented work, the student is assigned a wide variety of duties and responsibilities typical of that business or organization. Students maintain a detailed reflective journal of the experience, a portfolio-based summary report, and thorough self-evaluations. Cr/F.

Hospitality Management (HMGТ)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HMGТ 401 - Introduction to the Hospitality Industry
Credits: 4
Review the broad spectrum of the hospitality industry from an historical perspective, in concert with current history, trends, and challenges presented by notable industry executives. Distinguished guests represent all segments of the hospitality industry plus selected allied support businesses. Industry segments include, but are not limited to, hotels and lodging, restaurant and food service, travel and tourism, conferences and conventions, casinos and gaming, clubs and resorts, health care and senior living, franchising and entrepreneurship, and technology support. Writing intensive.
Attributes: Writing Intensive Course
HMGT 570 - International Food and Culture
Credits: 4
This course explores multiple world cultures using food, language, religion, geography, communication, politics, among other attributes, and compares/contrasts with our own diverse cultures here in the United States. Learn why we eat what we eat, when, and how. Food is a critical component across the world’s many different cultures and this course will investigate how they are viewed by persons of different backgrounds. The course will leave you with an expanded understanding and appreciation of why and how persons from diverse cultures with varying backgrounds approach their food and beverage needs differently. Laboratory experience in cooking international cuisine. Inquiry Attribute, World Culture, Writing intensive.
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course

HMGT 598 - Happy and Healthy at Work/Promoting Wellness, Diversity and Inclusion
Credits: 4
Offers improved understanding and ability to effectively manage a diverse and healthy workplace. Addresses key diversity, inclusion, and wellness issues in the workplace of a general, technical, and social nature with an emphasis on disability and health promotion. (Also listed as OT 598).
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

HMGT 600 - Hospitality Marketing Management
Credits: 4
Students apply basic marketing principles to the competitive environment of service businesses, such as hotels, restaurants, and other hospitality firms. Strong emphasis on consumer behavior, services management theory, and the hospitality marketing mix as they relate to service firms of all types. Course material is presented through a variety of techniques: case studies, lectures, guest speakers, team projects, and written assignments. Prereq: HMGT 401. Pre- or Coreq:HMGT 554. Writing intensive.
Attributes: Writing Intensive Course

HMGT 604 - Professional Development III
Credits: 2
Students design and produce individual career action plan. Emphasis on identifying each individual’s marketable skills, locating job possibilities, writing resumes and correspondence, and interviewing for jobs. Career development workshops are used to enhance the learning experience. Pre- or Coreq: HMGT 504.

HMGT 618 - Uniform Systems for the Hospitality Industry
Credits: 4
Following a review of financial statements and an introduction to the Uniform System of Accounts for Hotels and Restaurants, students learn specific applications of managerial accounting and decision support systems for the hospitality industry. Topics include cash flow analysis, cost management, cost-volume-profit analysis, pricing models, budgeting, and forecasting. Students develop an understanding of computer software and back-and-front office computer systems as they relate specifically to the hospitality industry. Lectures, computer exercises, and papers. Prereq: ADMN 502.

HMGT 625 - Hospitality and Employment Law
Credits: 4
Tort and contract liability in the hospitality industry. Emphasizes a managerial approach to solving or avoiding potential problems including employment law issues that arise in any business environment: wrongful termination, compensation rules, affirmative action, employment discrimination, sexual harassment, and issues involving privacy in the workplace. Looks at numerous State and Federal Agencies with which Hospitality business must work. Examines key forms of ownership in terms of taxes, risks and rewards. Prereq: junior standing.

HMGT 635 - Hospitality Human Resource Management
Credits: 4
Addresses key hospitality resource management issues of a general, technical, and social nature including communication, motivation and leadership, job stress and safety, security, government regulations, discrimination, and substance abuse. Covers technical areas such as recruiting and selecting, placement, employment, training, performance appraisal, disciplining, and termination. Prereq: junior standing. Writing intensive.
Attributes: Writing Intensive Course

HMGT 655 - Hospitality Finance and Development
Credits: 4
Provides the advanced student with a familiarity of the principles and practices of development and acquisition of hotel, restaurant, and other hospitality businesses, and the real estate development process. Emphasizes market and financial evaluation and decision making relative to economic, ethical, legal, and social aspects of the organization's environment. Group projects involving the preparation of a complete economic feasibility study for hotel or restaurant development or acquisition or repositioning are required. Prereq: HMGT 618.

HMGT 661 - Event Design, Planning, and Management
Credits: 4
Strategic and logistical considerations in managing the planning, development, marketing, and implementation of meetings, conventions, and events. Prereq: junior standing.

HMGT 662 - Convention Sales and Service Management
Credits: 4
Provides students with an understanding of the sales and service management aspects of the international and domestic convention, exhibition and meeting industries. Analyze the market potential of convention centers, resort hotels, convention hotels and independent venues. Consider the strategic and logistic aspects of the planning, development, coordination and execution of conventions, exhibitions and meetings. Introduction to and certification in numerous aspects of the DELPHI software system.

HMGT 667 - Adv Food/Bev Operations Mgt
Credits: 4
A project management course integrating management principles and techniques in the presentation of large scale gourmet dinners. Examines services operations management: planning and forecasting, marketing and sales, production delivery systems, service encounters, technology, purchasing and inventory management, human resources, scheduling, productivity and quality issues. Prereq: senior standing.
HMGT 681 - Contemporary Resort Development and Management  
Credits: 4  
Looks at the elements of developing and maintaining Resort properties including Spas, Ski Areas, Waterparks, Time Shares, Beach Resorts and Full service resorts with private home development. Examines the key roles real estate and financing play in all resort development and sustainability. Writing intensive.  
Attributes: Writing Intensive Course

HMGT 682 - Private Club Management  
Credits: 4  
Examines the effective operation and management of private clubs including city clubs, country clubs and yacht clubs. Major topics include: the unique niche that clubs represent in the hospitality industry, organizational structure of clubs, role of the board of directors, membership requirements, differences between tax-exempt clubs and non-exempt clubs, government regulation, preparing for a career in the club field, trends in club management and the future of clubs.

HMGT 685 - Study Abroad  
Credits: 1-16  
Open to students studying abroad in the discipline as approved by the hospitality management program director. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HMGT 686 - Study Abroad  
Credits: 1-16  
Open to students studying abroad in the discipline as approved by the hospitality management program director. Special fee. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HMGT 695 - Independent Analysis  
Credits: 2-12  
Study and research project for honor students to advance knowledge in lodging and food services fields. Prereq: junior standing and permission.  

HMGT 698T - Topics/Study Away  
Credits: 1-4  
Topics; Study Away. Special fee.

HMGT 685T - Topics/Study Away  
Credits: 1-4  
Topics; Study Away. Special fee.

HMGT 681 - Contemporary Resort Development and Management  
Credits: 4  
Looks at the elements of developing and maintaining Resort properties including Spas, Ski Areas, Waterparks, Time Shares, Beach Resorts and Full service resorts with private home development. Examines the key roles real estate and financing play in all resort development and sustainability. Writing intensive.  
Attributes: Writing Intensive Course

HMGT 682 - Private Club Management  
Credits: 4  
Examines the effective operation and management of private clubs including city clubs, country clubs and yacht clubs. Major topics include: the unique niche that clubs represent in the hospitality industry, organizational structure of clubs, role of the board of directors, membership requirements, differences between tax-exempt clubs and non-exempt clubs, government regulation, preparing for a career in the club field, trends in club management and the future of clubs.

HMGT 685 - Study Abroad  
Credits: 1-16  
Open to students studying abroad in the discipline as approved by the hospitality management program director. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HMGT 686 - Study Abroad  
Credits: 1-16  
Open to students studying abroad in the discipline as approved by the hospitality management program director. Special fee. Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

HMGT 695 - Independent Analysis  
Credits: 2-12  
Study and research project for honor students to advance knowledge in lodging and food services fields. Prereq: junior standing and permission.  

HMGT 698T - Topics/Study Away  
Credits: 1-4  
Topics; Study Away. Special fee.
HMGT 777 - Casino Management
Credits: 4
Examines the history of the gaming industry and the development, organization and management of casinos. Investigates economics, moral and social issues of gaming including problem gambling. Covers gaming regulations, accounting and taxation of casinos, casino marketing, national and international gaming destinations, game probabilities and the interaction of the casino department with other other divisions of mega casino resorts including lodging, food and beverage and meetings and conventions. A central focus will be on current trends and events. A field trip to a casino resort is required for those enrolled students at least 21 years old on the day the trip is scheduled. No credit will be given to students who have taken HMGT 777J.

HMGT 777J - Casino Management
Credits: 4
Examines the history of the gaming industry and the development, organization and management of casinos. Investigates economics, moral and social issues of gaming including problem gambling. Covers gaming regulations, accounting and taxation of casinos, casino marketing, national and international gaming destinations, game probabilities and the interaction of the casino department with other other divisions of mega casino resorts including lodging, food and beverage and meetings and conventions. A central focus will be on current trends and events. There is no age, other prerequisite, or field trips required. No credit will be given to students who have taken HMGT 777.

HMGT 795 - Internship II
Credits: 1-4
Off-campus work in the hospitality industry for on-the-job skill development. Normally supervision is provided by a qualified individual in the organization with frequent consultation by the faculty sponsor. Initial sponsorship of an Hospitality Management faculty member must be obtained followed by approval of Paul advisor and Dean’s Office. Special permission required to earn more than 4 credits in one semester. For Paul College juniors and seniors with 3.0 or better cumulative GPA.

HMGT 799 - Honors Thesis/Project
Credits: 4-8
Supervised research leading to the completion of an honors thesis or project; required for graduation from the honors program in hospitality management. Prereq: permission of director of undergraduate programs and department chair. Writing intensive.
Attributes: Writing Intensive Course

Human Development & Family Studies (HDFS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HDFS 444 - We Don't All Play the Violin: Stories and Stereotypes of Asians in America
Credits: 4
An interdisciplinary course that examines perceptions of difference and foreign culture through and exploration of the process of emigration of Chinese, Japanese, Cambodian, and Vietnamese families from Asia to America and their experiences here. Class considers history, economics, state and national legislation and regulations, politics, art, gender and generational differences, and family relationships, as well as North American American reactions to the presence of Asians, how stereotypes by both Asians and Americans were developed, and their impact on family members. Writing intensive.
Attributes: Historical Perspectives (Discovery); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

HDFS 444A - Children at Risk
Credits: 4
This course considers child sexual molestation in the Boy Scouts, YMCA’s, and churches. Child pornography, prostitution, trafficking, and slavery are also explored. Together we will try to answer the following six questions: Who is at risk of molestation?, How are children molested?, Where are they molested?, Who molest children and why do they molest them?, What are the impacts on children and society?, What responsibilities do adults and institutions have to protect children? Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

HDFS 525 - Human Development
Credits: 4
Developmental information from conception through death; theoretical perspectives and research methods in human development; emphasis on student’s communication and analytical skills.
Attributes: Social Science (Discovery); Social Science GP 7

HDFS 525H - Honors/Human Development
Credits: 4
Developmental information from conception through death; theoretical perspectives and research methods in human development; emphasis on student’s communication and analytical skills.
Attributes: Social Science (Discovery); Social Science GP 7

HDFS 545 - Intimate Relationships and Families
Credits: 4
Theories and research relating to the family and its role in individual development.
Attributes: Social Science (Discovery); Social Science GP 7

HDFS 553 - Personal and Family Finance for Family Life Professionals
Credits: 4
Applied financial management emphasizing teaching financial issues to a variety of audiences. Topics include savings, credit, insurance and retirement, and programs and resources available to facilitate financial education.
HDFS 565 - Introduction to Child Life
Credits: 4
When facing acute, chronic, or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field. (Also listed as RMP 565).

HDFS 586 - Families at Risk
Credits: 4
This course is designed to look at the biological, cultural and situational factors that affect parenting in the twenty-first century. Concerns such as terrorism, disease, and media influences are discussed. Paradigms for positive parenting in a negative world are developed. The current problems of global warming, war, gangs, alcohol and drug abuse, and a depressed economy have an effect on daily life and how families cope. Possible remedies, solutions, and support networks that help families are discussed. Prereq: HDFS 545 or permission.

HDFS 605 - Child Study and Development Center Field Experience
Credits: 2 or 6
Supervised experience in the UNH Child Study and Development Center with children infancy-kindergarten, intended for students interested in early education and development. Weekly 3 hours per credit on site engaged in classroom activities as contracted with supervisor. Regular journaling and a final integrative paper on a classroom topic of interest are required. Prereq: a minimum of 12 credits in child development and education (3 credits may be taken concurrently with HDFS 605), and permission. Materials fee. May be repeated up to a total of 8 credits. Cr/F.

HDFS 623 - Developmental Perspectives on Infancy and Early Childhood
Credits: 4
Integrative view of the developing child from conception through childhood within the family context. Prereq: HDFS 525.

HDFS 624 - Developmental Perspectives on Adolescence and Early Adulthood
Credits: 4
Developmental information from pubescence through early adulthood; the concept of identity and influences on identity formation.

HDFS 625 - Adult Development and Aging
Credits: 4
Covers the general biological, psychological, and sociological theories and issues related to adult development and aging. Focuses on diversity in the process of aging and the influence of various contexts on that process. Course is helpful for students who plan to work in adult and gerontological research or in social services settings with adults, and/or those who wish to become more knowledgeable on issues related to successful adult development and aging.

HDFS 635 - Teaching and Learning in Early Childhood Settings
Credits: 4
Current theoretical approaches to communicating with children and influencing their behavior. Weekly four-hour laboratory experience working with preschool children is required at UNH Child and Family Center. Weekly three-hour seminar. Prereq: HDFS 525, HDFS 623; permission. Special fee.

HDFS 641 - Parenting Across the Life Span
Credits: 4
Examination of parent-child relations across a range of developmental time periods and situations. Explores issues affecting parent-child relationships. Prereq: HDFS 525, HDFS 545.

HDFS 653 - Family Economics
Credits: 4
Exploration of family economics and well being; public policy and family structure influences on the economic well being of families. Prereq: HDFS 545. Writing intensive.

HDFS 655 - Introduction to Child Life
Credits: 4
When facing acute, chronic, or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field. (Also listed as RMP 565).

HDFS 695 - Independent Study
Credits: 1-6
Scholarly project in the area of child, family, and consumer studies. Regular conferences with supervising faculty required. Prereq: approval of departmental faculty.

HDFS 697 - Special Topics
Credits: 1-6
Focused examination of a particular theoretical, methodological, or policy issue. May be repeated to a maximum of 8 credits. Prereq: permission. Writing intensive.

HDFS 697W - Special Topics
Credits: 1-6
Focused examination of a particular theoretical, methodological, or policy issue. May be repeated to a maximum of 8 credits. Prereq: permission. Writing intensive.

HDFS 707 - Practicum
Credits: 1-6
Supervised in-depth experience in teaching, research, or advocacy in a professional setting to increase the student's understanding of children, families. 01) Child, 02) Family. Prereq: HDFS major; permission. Special fee. Cr/F.

HDFS 709 - Child Development Internship
Credits: 4
Supervised teaching internship at the UNH Child Study and Development Center with children 6 wks-6 years old age for 9 hours each week. Internship experiences include teaching, documentation, and assessment. In addition students attend a weekly one-hour seminar for an in-depth reflection and analysis of the internship experience. Prereq: HDFS 525; HDFS 623; HDFS 635; and permission. Materials fees. May be repeated up to a total of 8 credits. Special fee.

HDFS 710 - Community Internship
Credits: 1-12
Supervised position in community early childhood settings. 1) Infant-toddler assistant; 2) Preschool-child care assistant; 3) Kindergarten assistant; 4) Child Life. May be repeated up to a total of 12 credits. Section 4 requires a minimum of 8 cr. Prereq: permission. Cr/F.

HDFS 712 - Child Advocacy and Family Policy Internship
Credits: 4-8
Supervised experience working in state, federal, international, or state-wide advocacy organization or agency that advocates for children and/ or families. Students spend a required number of hours per week in their selected program, based on the number of credit hours. (Spring semester, possibly Summer). Prereq: HDFS major; senior status; HDFS 525; HDFS 545; 28 credit hours of human development and family studies coursework; permission. May be taken for 4 to 8 credits. Cr/F.

HDFS 714 - Seminar for Child Advocacy and Family Policy Interns
Credits: 2
This biweekly seminar focuses on issues of concern to child advocacy and family policy internship students, and develops students' professional skills. Prereq: HDFS major, senior status; permission. (Spring semester, possibly Summer).
HDFS 733 - Supervising Programs for Young Children
Credits: 4
Philosophical bases and theoretical rationales of various programs for young children; program alternatives and resources; issues in administration including supervision, finances, and regulations. Prereq: permission. (Fall semester only.) Writing intensive.
Attributes: Writing Intensive Course

HDFS 734 - Curriculum for Young Children
Credits: 4
Designing and implementing developmentally appropriate activities for young children; assessing the effectiveness of activities; evaluating materials and equipment. Prereq: HDFS 525; HDFS 623; HDFS 635. (Spring semester only.) Only open to Human Development and Family Studies and HDFS: Child and Family Studies majors. Writing intensive.
Attributes: Writing Intensive Course

HDFS 743 - Families, Schools, and Community
Credits: 4
Emphasizes the critical value of effective family-school-community partnerships in enhancing the education of young children. The literature assessing the interactive nature of parent and school resources with cultural influences is examined. Current models of family-school-community partnerships are explored. Students participate in parent/school/community activities within early childhood education centers and schools. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

HDFS 746 - Human Sexuality
Credits: 4
Investigation of physiological, psychological, and sociological aspects of human sexuality. Particular attention to various social practices, policies, and programs that affect sexual attitudes and behaviors.

HDFS 757 - Race, Class, Gender, and Families
Credits: 4
Explores the intersection of race, class, and gender in family life in the U.S. Theory, research, and other relevant literature is used to examine the variety of family configurations in our society today and the diverse experiences that families have as a result of existing social, political, and economic institutions. The strengths of various family types are considered, as well as the particular challenges these families may encounter in contemporary society. Prereq: seniors or graduate students only. Writing intensive.
Attributes: Writing Intensive Course

HDFS 760 - Family Programs and Policies
Credits: 4
Analyzes the connection between family support programs and family policy. Stresses program planning, implementation, and evaluation. Examines the research, theory, history, and current status of model family programs. Prereq: HDFS 545. Writing intensive.
Attributes: Writing Intensive Course

HDFS 771 - Observation and Assessment of Young Children
Credits: 4
Comprehensive view of various observation techniques for determining children's strengths and emerging skills. Exploration of issues regarding the use of formal assessments and testing with young children, retention and transitional placements, and the parent's role in testing. Prereq: HDFS 525; HDFS 623; HDFS 635. (Fall semester only.)

HDFS 772 - International Approaches to Child Advocacy
Credits: 4
An investigation into the rationales for advocacy, types of advocacy, advocacy techniques and strategies, and current domestic and international advocacy issues and approaches. Prereq: seniors only. Writing intensive.

HDFS 773 - International Perspectives on Children and Families
Credits: 4
An investigation of historical and modern conceptions of children and families in selected African, Asian, European, and Latin countries. Emphasis is placed on the contribution of these populations to the changing ethnic portrait of America. Prereq: seniors only.

HDFS 773W - International Perspectives on Children and Families
Credits: 4
An investigation of historical and modern conceptions of children and families in selected African, Asian, European, and Latin countries. Emphasis is placed on the contribution of these populations to the changing ethnic portrait of America. Prereq: seniors only. Writing intensive.
Attributes: Writing Intensive Course

HDFS 776 - Children, Adolescents and the Law
Credits: 4
This course is designed to familiarize students with the specialized laws and adjudicative systems that govern children, adolescents and families and reflect society's effort to balance competing interests and goals. It provides the chance to explore laws and processes that affect children and adolescents as they interact with their caregivers, families and society at large. Prereq: HDFS 525, HDFS 545 and HDFS 623 or HDFS 624. Open to HDFS and Justice Studies majors only. Writing intensive.
Attributes: Writing Intensive Course

HDFS 782 - Family Internship
Credits: 6
Supervised experience working in social, legal, and marketplace settings that offer services to families. Students spend a minimum of 15 hours per week in a selected community program. Admission by application only. Applications due prior to registration spring semester of the junior year. A senior-level course with 6 credits being taken each semester. Prereq: HDFS major; senior status; HDFS 525; HDFS 545 and HDFS 623 or HDFS 624. 20 credit hours of family studies course work; permission. Pre- or Coreq: HDFS 760. IA (continuous grading). Cr/F.

HDFS 785 - Seminar for Student Teachers
Credits: 2
Supplements the student teaching experience and effects a transition to the profession of teaching for those students admitted to the early childhood certification option.

HDFS 786 - Seminar for Student Teachers
Credits: 2
Supplements the student teaching experience and effects a transition to the profession of teaching for those students admitted to the early childhood certification option.
HDFS 788 - Student Teaching Young Children  
Credits: 8  
Supervised teaching experience. Students spend a minimum of 20 hours per week in a selected program for young children working with a cooperating teacher. Students must apply during the fall semester of their junior year. Prereq: HDFS major; HDFS 525, HDFS 545; HDFS 623; HDFS 635; HDFS 733; HDFS 734; HDFS 743; EDUC 706; KIN 675; MATH 601; THDA 520; permission. Coreq: HDFS 785 and HDFS 786. (Spring semester only.) Special fee. Ct/F.

HDFS 792 - Family Internship Seminar  
Credits: 2  
This biweekly seminar focuses on issues of concern to family internship students, provides advanced training in educational strategies for working with families, and develops students' professional skills. This is a two-semester course with 2 credits being taken each semester. Prereq: HDFS major; admission to family internship program; permission. (Fall and spring semester.) IA (continuous grading).

HDFS 792W - Family Internship Seminar  
Credits: 2  
This biweekly seminar focuses on issues of concern to family internship students, provides advanced training in educational strategies for working with families, and develops students' professional skills. This is a two-semester course with 2 credits being taken each semester. Prereq: HDFS major; admission to family internship program; permission. (Fall and spring semester.) IA (continuous grading). Writing intensive. 
Attributes: Writing Intensive Course

HDFS 794 - Families and the Law  
Credits: 4  
Exploration of laws effecting families and the interaction of family members with each other and with society. Prereq: HDFS 545. Writing intensive. 
Attributes: Writing Intensive Course

HDFS 795 - Advanced Independent Study  
Credits: 4  
Students in the major may undertake advanced study in child development, lifespan development or family support in consultation with a HDFS faculty member. The result of the study is to be a significant written product of a quality comparable to a 700 level course. A learner/sponsor contract will be required. Prereq: permission.

HDFS 797 - Advanced Special Topics  
Credits: 1-6  
Highly focused examination of a particular theoretical, methodological, or policy issue. Prereq: permission.

HDFS 799 - Honors Senior Thesis  
Credits: 2-4  
Under direction of a faculty sponsor, students plan and carry out an independent investigative effort in an area of family, child, and/or consumer studies, resulting in a written thesis and an oral presentation before students and faculty. Prereq: majors only; senior standing; permission. Two-semester sequence as continuing course.

HUMANITIES (HUMA)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HUMA 401 - Introduction to the Humanities  
Credits: 4  
Introduction to the interdisciplinary study of the humanities. Taking as its entry point a significant work, the course is organized by topics related to that work, selected and arranged to invoke lively intellectual debate among faculty and students alike. Group lectures by the four core humanities faculty members. The instructors teaching the course will provide material for smaller weekly discussion sections led by each of those faculty members. Requirements include lively discussions, papers, and examinations. Not repeatable. 
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

HUMA 401W - Introduction to Humanities  
Credits: 4  
Introduction to the interdisciplinary study of the humanities. Taking as its entry point a significant work, the course is organized by topics related to that work, selected and arranged to invoke lively intellectual debate among faculty and students alike. Group lectures by the three core humanities faculty members. The instructors teaching the course will provide material for smaller weekly discussion sections led by each of those faculty members. Requirements include lively discussions, papers, and examinations. Writing intensive. 
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 411 - Humanities I  
Credits: 4  
Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from classical Greece through the Renaissance through readings, films, slides, and field trips. Special fee. Writing intensive. 
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 412 - Humanities II  
Credits: 4  
Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from the Enlightenment to the present through the use of readings, films, slides, and field trips. Writing intensive. 
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 440A - Honors/Hooked: Narratives of Addiction, Recovery, and Redemption  
Credits: 4  
This course explores literature about addiction through both literary and psychological lenses. It focuses on the redemption narrative that structures the understanding of addiction for writers and readers alike. Readings include stories of religious redemption, short fiction, memoirs, self-help texts, and narrative and psychological theory. This course is part of the Honors Symposium "Engaging Addiction". The courses in the Symposium join several times during the semester for common meetings where perspectives can be compared and explored. 
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8
HUMA 444 - Idea of University
Credits: 4
An inquiry course that introduces first-year students to the history of the university and to the philosophical, artistic, and political crises it has undergone and continues to undergo today. HUMA 444 is an interdisciplinary course, team-taught by three professors from different fields. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA #444C - Mozart and the Enlightenment: Social Norms and Sexual Behavior in the Age of Reason
Credits: 4
An interdisciplinary introduction to the European Enlightenment (approximately 1690-1790) as a cultural phenomenon, arising from developments in the natural sciences, that infused all areas of human endeavor with new ways of thinking and behaving, including social norms and sexual behavior, and how it was communicated and disseminated, not only through the written word but also through theater and music, especially in works of Mozart exploring the use and abuse of Human Reason in daily life. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 444D - Plague/Literary Histories of Epidemics
Credits: 4
Explores the meanings of epidemics as represented in literature. Topics include mysterious ancient disasters, the Black Death, AIDS, and hypothetical diseases used as thought experiments, as well as current controversies about the spread and prevention of disease. How do disease and its control shape state and social structures? How have the meanings of disease, health, medicine, and the body changed over time? What kind of art does disease give rise to?.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 444E - What is a Criminal?
Credits: 4
Criminals are people who break the law – in theory. How do people become criminals (with regard to biological, cultural, and economic influences)? What happens to them in the criminal justice system, and how does the system shape the definition of "criminal"? We will also discuss "criminals of conscience" from Thoreau and Gandhi to Edward Snowden. The course will emphasize reading but will also engage with other media, including films, podcasts, and visual art.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 444F - Travelers in the Premodern World
Credits: 4
Travel is a fundamental aspect of the human experience. This course explores the human experience of travel using materials originating from across premodern world. Students investigate materials ranging from maps and pilgrimage accounts, to poetry and stories to understand what has compelled people to undertake the often perilous road. In the process, they consider the role of travel in cultural contact, communication, exchange, and the generation a spread of knowledge. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Inquiry (Discovery); Writing Intensive Course

HUMA 450 - The Pre-Modern Economy and the Origins of Capitalism
Credits: 4
This course provides a historical introduction to the development of the pre-modern economy from the earliest traces of capitalism in Ancient Greece to the Industrial Revolution. Special attention will be paid to commerce and finance in the Greco-Roman economy, the Commercial Revolution and invention of the firm in Renaissance Italy, early-modern Europe to the Industrial Revolution, and such fundamental thinkers as Karl Marx and Karl Polanyi.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

HUMA 500 - Critical Methods in the Humanities
Credits: 4
Critical analysis of works in the humanities. Focuses on major texts, evaluation of secondary literature, research writing, criticism. Required of all HUMA majors. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

HUMA 510A - Ancient World: An Interdisciplinary Introduction
Credits: 4
What is a human being? How should we explain or understand what happens to us? How ought we to live? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science of ancient Greece and Rome. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 510B - Ancient World: An Interdisciplinary Introduction
Credits: 4
What is a human being? How should we explain or understand what happens to us? How ought we to live? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science of ancient Greece and Rome. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 510C - Ancient World: An Interdisciplinary Introduction
Credits: 4
What is a human being? How should we explain or understand what happens to us? How ought we to live? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science of ancient Greece and Rome. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 510D - Ancient World: An Interdisciplinary Introduction
Credits: 4
What is a human being? How should we explain or understand what happens to us? How ought we to live? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science of ancient Greece and Rome. Writing intensive.
Attributes: Humanities(Disc); Social Science GP 7; Writing Intensive Course
HUMA 511A - Medieval World: An Interdisciplinary Introduction
Credits: 4
What is the soul and how is its health related to temptation and also to specifically Christian virtues? How closely does the medieval definition of an eternal God determine good and evil in daily life? To what extent does the hope of immortality affect the practice of writing literature, making art, studying philosophy, and investigating science? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science from the collapse of the classical world to the rise of capitalism. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 511B - Medieval World: An Interdisciplinary Introduction
Credits: 4
What is the soul and how is its health related to temptation and also to specifically Christian virtues? How closely does the medieval definition of an eternal God determine good and evil in daily life? To what extent does the hope of immortality affect the practice of writing literature, making art, studying philosophy, and investigating science? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science from the collapse of the classical world to the rise of capitalism. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 511C - Medieval World: An Interdisciplinary Introduction
Credits: 4
What is the soul and how is its health related to temptation and also to specifically Christian virtues? How closely does the medieval definition of an eternal God determine good and evil in daily life? To what extent does the hope of immortality affect the practice of writing literature, making art, studying philosophy, and investigating science? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science from the collapse of the classical world to the rise of capitalism. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 511D - Medieval World: An Interdisciplinary Introduction
Credits: 4
What is the soul and how is its health related to temptation and also to specifically Christian virtues? How closely does the medieval definition of an eternal God determine good and evil in daily life? To what extent does the hope of immortality affect the practice of writing literature, making art, studying philosophy, and investigating science? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science from the collapse of the classical world to the rise of capitalism. Writing intensive.
Attributes: Humanities(Disc); Social Science GP 7; Writing Intensive Course

HUMA 512A - Renaissance and Early Modern: An Interdisciplinary Introduction
Credits: 4
Explores the interrelationship of art, literature, philosophy, and science from the High Renaissance into the 18th century. Study of the works and ideas of such influential figures as Shakespeare and Milton, Raphael and Rembrandt, Galileo, Descartes, Newton, and Hume. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 512B - Renaissance and Early Modern: An Interdisciplinary Introduction
Credits: 4
Explores the interrelationship of art, literature, philosophy, and science from the High Renaissance into the 18th century. Study of the works and ideas of such influential figures as Shakespeare and Milton, Raphael and Rembrandt, Galileo, Descartes, Newton, and Hume. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 512C - Renaissance and Early Modern: An Interdisciplinary Introduction
Credits: 4
Explores the interrelationship of art, literature, philosophy, and science from the High Renaissance into the 18th century. Study of the works and ideas of such influential figures as Shakespeare and Milton, Raphael and Rembrandt, Galileo, Descartes, Newton, and Hume. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 512D - Renaissance and Early Modern: An Interdisciplinary Introduction
Credits: 4
Explores the interrelationship of art, literature, philosophy, and science from the High Renaissance into the 18th century. Study of the works and ideas of such influential figures as Shakespeare and Milton, Raphael and Rembrandt, Galileo, Descartes, Newton, and Hume. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 513A - Modern World: An Interdisciplinary Introduction
Credits: 4
Explores the central paradoxes of our culture in the modern age. Is there such a thing as "progress" and if so what is its nature? What is the relation of conscious and unconscious? Is the contemporary world devoid of meaning? Questions such as these are examined in relation to works since the 18th century in the fields of literature, history of science, philosophy, and art. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 513B - Modern World: An Interdisciplinary Introduction
Credits: 4
Explores the central paradoxes of our culture in the modern age. Is there such a thing as "progress" and if so what is its nature? What is the relation of conscious and unconscious? Is the contemporary world devoid of meaning? Questions such as these are examined in relation to works since the 18th century in the fields of literature, history of science, philosophy, and art. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 513C - Modern World: An Interdisciplinary Introduction
Credits: 4
Explores the central paradoxes of our culture in the modern age. Is there such a thing as "progress" and if so what is its nature? What is the relation of conscious and unconscious? Is the contemporary world devoid of meaning? Questions such as these are examined in relation to works since the 18th century in the fields of literature, history of science, philosophy, and art. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course
HUMA 513D - Modern World: An Interdisciplinary Introduction
Credits: 4
Explores the central paradoxes of our culture in the modern age. Is there such a thing as "progress" and if so what is its nature? What is the relation of conscious and unconscious? Is the contemporary world devoid of meaning? Questions such as these are examined in relation to works since the 18th century in the fields of literature, history of science, philosophy, and art. Writing intensive.
Attributes: Humanities(Disc); Social Science GP 7; Writing Intensive Course

HUMA 514A - 20th Century, 1900-1945: An Interdisciplinary Introduction
Credits: 4
This course examines the relationships of literature, art, philosophy, and science in the first half of the twentieth century. Topics include the rise of modernism in literature and the arts, the distinctive themes of 20th century philosophy, and crucial innovations in the sciences. Students study the works of such figures as Picasso, Woolf, Einstein, Freud, and Wittgenstern. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 514B - 20th Century, 1900-1945: An Interdisciplinary Introduction
Credits: 4
This course examines the relationships of literature, art, philosophy, and science in the first half of the twentieth century. Topics include the rise of modernism in literature and the arts, the distinctive themes of 20th century philosophy, and crucial innovations in the sciences. Students study the works of such figures as Picasso, Woolf, Einstein, Freud, and Wittgenstern. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 514C - 20th Century, 1900-1945: An Interdisciplinary Introduction
Credits: 4
This course examines the relationships of literature, art, philosophy, and science in the first half of the twentieth century. Topics include the rise of modernism in literature and the arts, the distinctive themes of 20th century philosophy, and crucial innovations in the sciences. Students study the works of such figures as Picasso, Woolf, Einstein, Freud, and Wittgenstern. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 514D - 20th Century, 1900-1945: An Interdisciplinary Introduction
Credits: 4
This course examines the relationships of literature, art, philosophy, and science in the first half of the twentieth century. Topics include the rise of modernism in literature and the arts, the distinctive themes of 20th century philosophy, and crucial innovations in the sciences. Students study the works of such figures as Picasso, Woolf, Einstein, Freud, and Wittgenstern. Writing intensive.
Attributes: Humanities(Disc); Social Science GP 7; Writing Intensive Course

Credits: 4
Examines the relationships of literature, art, philosophy, and science since the middle of the twentieth century. Topics include the philosophical and literary implications of the Holocaust and nuclear weapons, movements in the arts and literature since World War II, the rise of the sciences of life and information, and postmodernism. Students study the works of such figures as Arendt, Turing, Beckett, and Pollock. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

HUMA 515B - 20th Century, 1945-1999: An Interdisciplinary Introduction
Credits: 4
Examines the relationships of literature, art, philosophy, and science since the middle of the twentieth century. Topics include the philosophical and literary implications of the Holocaust and nuclear weapons, movements in the arts and literature since World War II, the rise of the sciences of life and information, and postmodernism. Students study the works of such figures as Arendt, Turing, Beckett, and Pollock. Writing intensive.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 515C - 20th Century, 1945-1999: An Interdisciplinary Introduction
Credits: 4
Examines the relationships of literature, art, philosophy, and science since the middle of the twentieth century. Topics include the philosophical and literary implications of the Holocaust and nuclear weapons, movements in the arts and literature since World War II, the rise of the sciences of life and information, and postmodernism. Students study the works of such figures as Arendt, Turing, Beckett, and Pollock. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

HUMA 515D - 20th Century, 1945-1999: An Interdisciplinary Introduction
Credits: 4
Examines the relationships of literature, art, philosophy, and science since the middle of the twentieth century. Topics include the philosophical and literary implications of the Holocaust and nuclear weapons, movements in the arts and literature since World War II, the rise of the sciences of life and information, and postmodernism. Students study the works of such figures as Arendt, Turing, Beckett, and Pollock. Writing intensive.
Attributes: Humanities(Disc); Social Science GP 7; Writing Intensive Course

HUMA 519 - Classical Greece
Credits: 4
Examination of the culture of classical Greece through the history, drama, philosophy, and art of the period. Open to all students. Recommended for students in the humanities major. Special fee.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

HUMA 550 - Budapest Spring Semester: Special Studies in Comparative Ideas
Credits: 4
This course involves periodic offerings in literature, art, history, philosophy and political science designed to stimulate reflection on ideas and issues in Hungarian and Central European history and culture in a larger global context. Topics vary depending upon the expertise of the resident faculty. Special fee.
HUMA 551 - Budapest Spring Semester: Field Studies in Art and Culture
Credits: 6
This course is designed to provide students with first-hand experience of art, history, culture, folklore, and traditions of Hungary and Central Europe. The course combines preparatory readings with guided field trips to museums, historical sites, and culturally significant events and locations. Students maintain a weekly blog reflecting on field trip experiences.
Attributes: FinePerformingArts(Discovery)

HUMA 592 - Special Topics in the Humanities
Credits: 2-8
Special topics; offered occasionally. May be repeated up to a maximum of 12 credits.

HUMA 592W - Special Topics
Credits: 2-8
Special topics; offered occasionally. May be repeated up to a maximum of 12 credits. Topic: Where Did They Come From? The Emergence of Judaism, Christianity, and Islam is Writing intensive.
Attributes: Writing Intensive Course

HUMA 622 - Studies of Freedom and Liberty
Credits: 4
Principles of freedom and liberty that helped to form Western culture from the Renaissance to the present. Topics include concepts of human nature, theories of government and society. Readings include Machiavelli, Locke, Paine, Mill, Marx, Freud, Sartre, and Marcuse.

HUMA #640 - Birth of Rock and Roll
Credits: 4
An interdisciplinary study of the cultural forces that brought the birth of rock and roll in the 1950's. This study of pre-rock music and culture will be further enriched by art, literature, and photography which focuses on the roots of rock and roll. Writing intensive.
Attributes: Writing Intensive Course

HUMA 650 - Humanities and the Law: The Problem of Justice in Western Civilization
Credits: 4
Interdisciplinary modular course examines interpretations of the nature of justice, its origins, the role of the professional judiciary, and the relationship of law and ethics. Students take three successive five-week modules during the semester. (Not offered every year.) Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 651 - Humanities and Science: The Nature of Scientific Creativity
Credits: 4
Interdisciplinary modular course examines the historical and intellectual foundations of the physical, biological, and human sciences. Students take three successive five-week modules during the semester. (Not offered every year.) Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

HUMA 658 - Study of Contemporary Issues
Credits: 4
Selected topics not covered by existing courses, with subjects to vary. May be repeated for credit. Prereq: one 400- or 500-level HUMA course or junior standing. Writing intensive.
Attributes: Writing Intensive Course

HUMA 700 - Seminar
Credits: 4
Provides an opportunity for in-depth reading, viewing, and/or listening to texts and artifacts. Emphasis on the multiple perspectives and methodologies that can be brought to bear upon these works from several humanistic disciplines. May be repeated for credit. Writing intensive.
Attributes: Writing Intensive Course

HUMA 730 - Special Studies
Credits: 4
Selected topics not covered by existing courses, with subjects to vary. May be repeated for credit. Prereq: one 400- or 500-level HUMA course or junior standing. Writing intensive.
Attributes: Writing Intensive Course

HUMA 795 - Study of Creativity
Credits: 4
A study of human creativity through representative lives and works of such figures as daVinci, Einstein, Kathe Kollwitz, Bach, Dickens, and Freud. Lectures, class discussions, films, and slides supplemented by gallery tours plays, and concerts. Open to students with a background in humanities or by permission of the instructor. Special fee. (Normally offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

HUMA 796 - Study of Contemporary Issues
Credits: 4
Current social and political issues with focus on recent developments in public policy, science, and business, and their impact of social values. Prereq: junior status or permission. (Normally offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

HUMA 797 - Research Seminar
Credits: 1-2
Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Prereq: HUMA 500; senior standing; permission. HUMA majors only. Writing intensive.
Attributes: Writing Intensive Course

HUMA 799 - Research Seminar
Credits: 3-4
Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Restricted to majors. Prereq: HUMA 500; HUMA 798; senior standing; permission. Writing intensive.
Attributes: Writing Intensive Course

Information Technology (IT)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
IT 403 - Introduction to Internet Technologies  
Credits: 4  
Introductory course exploring the fundamentals of Internet communications with an emphasis on the World Wide Web. Students develop an understanding of the Internet’s underlying technologies and learn how to utilize them as contributing members of the Web community. Students become proficient with creating and publishing Web pages using HTML and CSS. No prior knowledge or experience is assumed. No credit if credit earned for CIS 405. (Note CIS 405 is offered at UNH Manchester, and is not related to CS 405 at UNH Durham.)

IT 502 - Intermediate Web Design  
Credits: 4  
An intermediate level exploration of the theory and practice of Web design. Students learn the fundamentals of design theory applicable to the World Wide Web and examine tools and techniques for applying that knowledge to their projects. Additional topics include information architecture, usability, accessibility, optimization, typography, and market visibility. Working knowledge of XHTML and CSS required. Prereq: CS 403.

IT 505 - Database Programming  
Credits: 4  
Introduces database programming in the microcomputer environment. Students use a procedural programming language such as Visual Basic to manipulate data managed by a database management system. Emphasis is on the relational database model. Topics include connections, queries (including use of SQL), relations, constraints, transaction processing, concurrency issues, exception handling, and report generation. Prereq: a programming course. Computer Science majors not allowed.

IT 506 - Intermediate Applications Programming with Visual Basic  
Credits: 4  
Introduction to advanced Visual Basic data structures, focusing on the language’s object oriented features. Topics include the creation of programmer-defined classes and objects, collections, user controls, exception handling, regular expressions, and Web forms. Prereq: a programming course.

IT 520 - Computer Architecture  
Credits: 4  
Fundamentals of computer organization, including binary systems, data representation (and compression), machine language, program execution, memory and process issues. Operating systems and networking basics. Not open to CS majors. Prereq: a programming course.

IT 600 - Internship  
Credits: 1  
Provides opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from internship, why the student is properly prepared for the internship, and what supervision will be available during the internship. A mid-semester report and a final report are required. Prereq: permission; majors only. May be repeated up to a maximum of 4 credits. Cr/F.

IT 604 - Server-side Web Development  
Credits: 4  
An intermediate-level examination of the theory and practice of developing server-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing dynamic Web sites through the use of server-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.

IT 605 - Client-side Web Development  
Credits: 4  
An intermediate-level examination of the theory and practice of developing client-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing dynamic Web sites through the use of client-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.

IT 609 - Network/Systems Administration  
Credits: 4  
Introduces the central issues in administration of a networked computer system. Topics include the client-server model (including support of mail, FTP, Telnet, the Web), disk and file systems, backup and recovery, and security. Privacy and other legal/social issues will be discussed. Prereq: IT 520 and a programming course, or permission of the instructor.

IT 612 - Scripting Languages  
Credits: 4  
This course is a study of the class of programming languages and tools known as scripting languages. Topics include: a general discussion of language design and its relationship to the intended computing environment, introduction to the command-line environment, the role of scripts in controlling and connecting other programs and components, basic functionality of at least two scripting languages, and the syntax use of regular expressions. Programming projects in multiple languages will be required. Prereq: IT 505 or CS 515.

IT 666 - Computer Security  
Credits: 4  
Provides students with the skills required to recognize and diagnose potential security issues in computer and network systems. Through readings, case studies, exercises, research papers, exams and personal experience, students will discuss and debate security policies and legislation, system procedures, security tools and techniques and the patterns that attackers use to foil security systems. Other topics include types of attacks, viruses, intrusion detection and tracking, firewalls, trust relationships and authentication, secure connections, and cryptography. At the conclusion of the course, student will have a heightened sense of security in the actions they take when using and maintaining computer systems. Prereq: IT 520 or permission of the instructor. No credit if credit earned for CIS 615.

IT 696 - Independent Study  
Credits: 1-6  
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated. Only open to Information Technology majors.

IT 699 - Internship  
Credits: 1  
Provides the opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from internship, why the student is properly prepared for the internship and what supervision is available during the internship. A mid-semester report and final report are required. Students may receive compensation for their internship work. Prereq: permission. May be repeated for a maximum of 4 credits. Information Technology majors only. Cr/F.
IT 704 - Advanced Web Development
Credits: 4
An advanced exploration of various topics in Web development. Topics covered each semester will be chosen to reflect the current state of stable and accepted Web technologies, with a decided emphasis on open-source solutions. Both client-side and server-side technologies are likely to be included, with particular attention given to concepts and techniques used to facilitate efficient Web development. Prereq: IT 604.

IT 705 - Project Management for Information Technology
Credits: 4
This course focuses on a core set of project management essentials that can affect the bottom line of project technical and business performance. Theses are termed "best practices," and those addressed are: formal risk management, agreement on interfaces, metrics based scheduling/tracking, frequent binary completion milestones, incremental development, people awareness management of style, and change management.

The emphasis is on information technology projects; however, the basic principles are pertinent to a wider class of project domains. Prereq: Senior standing in IT or permission. Writing intensive.

Attributes: Writing Intensive Course

IT 710 - Senior Project
Credits: 4
Students are organized into teams and work on a specific IT project. Utilizing the skills and concepts learned in IT 705 (as well as other previous academic and field experience), each team works with one or more stakeholders to provide all necessary project elements - from initial specification through design and development to delivery. Teams are expected to provide both interim and final written and/or oral reports for the project. Prereq: IT 705; Information Technology majors only.

IT 725 - Network Technology
Credits: 4
Introduction to fundamental concepts of computer networks and exploration of widely-used networking technologies. Topics include principles of congestion and error control; network routing; local, wireless and access networks; application protocol design; and network programming. In-depth discussion of the Internet suite of protocols. Prereq: IT 520.

IT 775 - Database Technology
Credits: 4
Topics include database architecture, schema design and definition, entity-relationship diagrams, data retrieval and update, and indexing performance. Architectures for single-user, multi-user, client-server, and web access are introduced. The relational data model is emphasized but alternative database models, such as semi-structured and object models, are introduced. Database administration topics include examination of metadata information, data integrity, and management of users and privileges, performance tuning, transactions, isolation levels, and security.

Ethics of data protection are introduced. Students develop skill in SQL.

Not open to CS majors. No credit if credit earned for CS 775. Prereq: IT 505.

IT 780 - Topics in Information Technology
Credits: 4
Material not normally covered in course offerings. May be repeated for credit.

Integrated Agriculture Management (IAG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IAG 408 - Foundations for Living Sustainably in New England
Credits: 4
An introduction to the principles and practices of sustainable living in New England. Within the framework of human culture as an integral part of our ecosystem and focusing on the integration of site-scale applications, topics touched upon include ecology, site inventory and mapping, horticulture, forestry, animal science, architecture, food, regulatory issues, business concepts, and community integration. Special fee.

IAG 490 - Integrated Agriculture Management Capstone
Credits: 2
The capstone experience includes formal lectures and coursework. In addition there is a required pre-approved and mentored project, or other special project-based student activity accepted by the IAG program advisors. The students will be expected to present the project to freshman students in the Integrated Agriculture program and also in a public venue. The course occurs in the student’s final year at the Thompson School of Applied Sciences. Permission required.

IAG 597 - Integrated Agriculture Management Work Experience
Credits: 0
Career related employment for 400 hours, generally in the summer following the freshmen year. This is in an agricultural, forestry, or food related firm, farm or related business, department approval required. Student submits a monthly report, and a final report from employer required. Students are eligible to register for IAG 297 after completing at least one semester as an IAMT student.

Integrated Applied Mathematics (IAM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IAM 550 - Introduction to Engineering Computing
Credits: 4
An application driven introduction to computer aided problem solving leveraging foundational knowledge in engineering and the physical sciences. Engineering applications are used to motivate the computational methods needed in scientific and engineering disciplines. Numerical methods, including the basic LU algorithm, one-dimensional root finding methods, and numerical differentiation and integration, are introduced as useful computational tools for tackling a broad range of engineering and scientific and engineering disciplines. Numerical methods, including the basic LU algorithm, one-dimensional root finding methods, the numerical differentiation and integration are introduced as useful computational tools for tackling a broad range of engineering and scientific applications and to provide concrete and contextual programming experiences. MATLAB is used, with topics including scripts, functions, logical expressions, conditional statements, looping, data visualization, plotting, and recursion presented within the framework provided by both the numerical methods and the scientific or engineering problems. Laboratory included. Pre- or Coreq: MATH 426. No credit earned if credit received for MATH 445.
IAM 751 - Introduction to High-Performance Computing
Credits: 4
Course gives an introduction to select areas of high-performance computing, providing a basis for writing and working with high-performance simulation codes. The three main topics are: 1) basic software engineering, 2) high-performance and parallel programming, and 3) performance analysis and modeling. Additional topics may include heterogeneous architectures like GPUs and data analysis/visualization. Prereq: MATH 753 and working knowledge of a programming language (C or Fortran), or by permission of instructor.

Intercollegiate (INCO)

INCO 400 - Graduate Preparation Seminar
Credits: 1
A survey seminar that explores issues related to graduate school preparation. Topics include graduate school culture, academic research, the role of multicultural scholars, faculty relations, the graduate record exam, resume/vita development, and financing graduate education. Prereq: Enrollment in McNair Scholars Program. May be repeated for credit. Cr/F.

INCO 403 - Healthcare Professions Seminar
Credits: 2
This seminar is designed for students (primarily for sophomores; juniors and seniors may also take the course) who are in the initial phase of preparation to a career in allopathic or osteopathic medicine, dentistry, podiatry, optometry, physicians assistant, chiropractics, physical therapy, pharmacy, or naturopathic medicine. Through readings and discussion students will become informed about current topics in healthcare, and specifically about these professions, requirements for admission to degree programs, and about how to become a competitive applicant. Cr/F.

INCO 410 - Introduction to College Teaching
Credits: 2
Evolving role and function of colleges and universities in American higher education. Issues involving the professorate including teaching, scholarship and service as the framework for an academic career.

INCO 430 - Interdisciplinary Science
Credits: 4
Advanced topics in selected areas of science through interdisciplinary lectures, demonstrations, hands-on laboratory experience, and field trips; the use of mathematical and computer skills in science; social, economic, environmental, and ethical applications and implications of recent advances in the selected area of science; the process of research. Restricted to high school juniors and seniors by permission only.

INCO 450 - Introduction to Race, Culture and Power
Credits: 4
Explores the ways in which the concept of "race" serves to justify global relationships of domination and inequality and is embedded in U.S. society. Examines how dominant powers use "culture" to maintain subordination and how subordinated peoples use "culture" to resist exploitation. (Also listed as ANTH 450.) Attributes: Literature, Phil, Ideas GP 8

INCO 460 - Deflategate
Credits: 4
This course is not about deflated footballs. Instead, it is about the interplay between those footballs -- along with numerous other sports things -- and the legal, regulatory and journalistic systems governing sports. Students in Deflategate learn about crucial areas of law that relate to sports and the methodologies used to practice in relevant fields. Students also gain valuable instruction on core journalism methods and their applications to a sports story attracting national headlines. The course concludes with an application of methodologies in law and journalism to Deflategate.

INCO 490 - Introduction to the Research Process in the Biological Sciences
Credits: 2
This course introduces students to the process of research in the biological sciences - identifying a topic, narrowing that topic to a question, conducting literature searches - ultimately leading to writing a research proposal in the style of a Summer Undergraduate Research Fellowship. It is an ideal course for students hoping to conduct a summer research project, preparing for an independent or capstone research experience, or planning to complete a Senior or Honors Thesis. No seniors allowed.

INCO 505A - Semester in the City
Credits: 12
Spend a semester in Boston in a high-impact internship with a leading social change organization - in community development, social justice, health, education, environment, and other areas dedicated to the public good. Students will work under a dedicated mentor, participate in an intensive evening course, engage in Friday workshops, develop an impressive digital portfolio, and build professional networks. Discover your passion and build your skills as a change maker! Taken with INCO 505B. www.unh.edu/sitc. Special fee.

INCO 505B - Social Innovator's Toolbox
Credits: 4
This course will expose students to the concepts and practices associated with social innovation and social entrepreneurship - i.e., the development and growth of new, sustainable, and scalable approaches to the major social, economic, and environmental challenges facing society. Students will learn a variety of tools and methods used for the development, implementation, management, and assessment of social solutions that they will be able to use over the course of their careers. Taken with INCO 505A. www.unh.edu/sitc. Permission required.

INCO 510 - McNair Introduction Seminar
Credits: 1-2
Course assists newly inducted student scholars in understanding the requirements of participation. Substantive reading and writing on the life of Dr. Ron McNair as the starting point from which to understand program expectations and begin sketching research and graduate school goals. Prereq: Enrollment in McNair Scholars Program and permission. Cr/F.
INCO 529 - Writing Consultation
Credits: 2
Includes instruction in philosophy and techniques of tutoring, theoretical and practical issues in collaborative learning and complex-skill formation, and cross disciplinary conventions of writing. In addition to the classroom portion of course, each student undertakes a supervised practicum experience in the University Writing Center. Permission required. Cr/F.

INCO 530 - Writing Consultation Across the Curriculum
Credits: 2
This course provides the fundamental background for peer writing consultation serving as Writing Fellows in courses across the curriculum. Emphasis is on the application of theoretical assumptions about writing, tutoring, and discipline-specific discourse. Restricted to members of the Writing Fellows Program. Faculty recommendation required. May be repeated for credit. Prereq: ENGL 401, one other Writing intensive course.

INCO 555 - Peer Education
Credits: 1-3
Students serve as co-instructors for a section of INCO 444, First Year Seminar. Under the supervision of the course coordinator and their co-instructor (a University faculty member or Student Affairs professional), they prepare and present materials and exercises for their section. With their co-instructor, they also grade written and other exercises. Students attend weekly meetings with their section co-instructor and biweekly meetings of all section instructors. They also attend a two day workshop on teaching and course facilitation prior to the semester and a one day workshop at the end of the semester. Prereq: permission. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 585 - Foreign Exchange
Credits: 16
Undergraduates who meet UNH Study Away Eligibility Requirements and the requirements set by the host institution, may participate in an international exchange program at one of UNH's partner institutions for a semester or academic year. Students must achieve the equivalent of a 'C' or above to receive international transfer credit. For more information contact the Coordinator of Student Programs at the Center for International Education. Special fee. Attributes: World Cultures(Discovery); Foreign Culture GP 5

INCO 586 - Foreign Exchange
Credits: 16
Undergraduates who meet UNH Study Away Eligibility Requirements and the requirements set by the host institution, may participate in an international exchange program at one of UNH's partner institutions for a semester or academic year. Students must achieve the equivalent of a 'C' or above to receive international transfer credit. For more information contact the Coordinator of Student Programs at the Center for International Education. Special fee. Cr/F.

INCO 588 - Study Abroad Experience - Semester
Credits: 0
A Study Abroad Program co-requisite to enroll students in travel insurance and capture the mandatory study abroad fee.

INCO 589 - Study Abroad Experience Short
Credits: 0
For students enrolling in short term study abroad experiences in Fall and Spring semesters. Also for students enrolling in January term and Summer Session study abroad experiences.

INCO 590 - Student Research Experience
Credits: 1-4
Provides hands-on research experience to develop critical thinking, problem solving, and analytical skills. An entry-level research experience that introduces students to research theories, tools, and ethical issues. Each student completes a contract with a faculty mentor identifying the research activities the student will undertake. May be repeated up to a maximum of 8 credits.

INCO 595 - Winterim Topics
Credits: 1-4
Concentrated interdisciplinary exposure to a particular culture or locale off campus during the winter term. Includes anthropological, artistic, biological, cultural, environmental, or geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to a maximum of 8 credits.

INCO 595W - Winterim Topics
Credits: 1-4
Concentrated interdisciplinary exposure to a particular culture or locale off campus during the winter term. Includes anthropological, artistic, biological, cultural, environmental, or geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to a maximum of 8 credits. Writing intensive.

INCO 596 - Summer Topics
Credits: 1-4
Provides a concentrated interdisciplinary exposure to a particular culture or locale off campus during the summer session. Includes anthropological, artistic, biological, cultural, environmental, geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to 8 credits.

INCO 604H - Honors Senior Thesis
Credits: 4 or 8
Final requirement for graduation with University Honors. Intended for honors students in majors that do not offer honors work. Open by special permission to other honors students. May be repeated for a maximum of 8 credits. IA (continuous grading). Writing intensive. Attributes: Writing Intensive Course

INCO 610 - Research Inquiry Seminar
Credits: 2-6
With the notion of understanding self as the basis for investigating the world, this seminar focuses on exploring elementary concepts of academic research. Students are engaged in identifying strengths, discovering their passions, discerning the joys and frustrations of research, and developing a sketch of a research project. Prereq: Enrollment in McNair Scholars Program and permission. Cr/F.

INCO 620 - Discovery Fellows
Credits: 2-4
A theory-to-practice seminar that explores democratic theory from a deliberative perspective, dialogue and small group facilitation, civic engagement, and social justice. Topics include moral disagreement, skills in public engagement and facilitation, creating social change, and moving from talk to action in the public sphere. Prereq: Acceptance in Discovery Fellowship Program. May be repeated for credit. Cr/F.
INCO 650 - Study Abroad Seminar: Encountering Oneself/Encountering the World  
Credits: 1  
This seminar, which meets during the second half of each semester, seeks to prepare outgoing students for the Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on cultural adaptation, cross-cultural communication, practical skills for international living, and especially the implications of global perspectives on a student’s major field(s) of study. Students are strongly encouraged to take INCO 651: Studying Abroad/Returning Home in the first half of the semester in which they return to UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 650H - Honors/Encountering Oneself/Encountering the World  
Credits: 1  
This seminar, which meets during the second half of each semester, seeks to prepare outgoing students for the Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on cultural adaptation, cross-cultural communication, practical skills for international living, and especially the implications of global perspectives on a student’s major field(s) of study. Students are strongly encouraged to take INCO 651: Studying Abroad/Returning Home in the first half of the semester in which they return to UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 651 - Study Abroad Seminar: Returning Home  
Credits: 1  
This seminar, which meets during the first half of each semester, offers returning students an opportunity to reflect on their Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on the experience of re-entry: cultural (re)adaptation, cross-cultural communication, and especially the implications of global perspectives on a student’s major field(s) of study. Students should expect to have taken INCO 650: Encountering Oneself/Encountering the World in the second half of the semester before they left UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 651H - Honors/Study Abroad Seminar/Returning Home  
Credits: 1  
This seminar, which meets during the first half of each semester, offers returning students an opportunity to reflect on their Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on the experience of re-entry: cultural (re)adaptation, cross-cultural communication, and especially the implications of global perspectives on a student’s major field(s) of study. Students should expect to have taken INCO 650: Encountering Oneself/Encountering the World in the second half of the semester before they left UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 682 - Washington Internship  
Credits: 12  
Internship placements in Washington, D.C., through the Washington Center. Individual internships arranged with legislative and judicial offices, law firms, public interest organizations; in the arts, the media, labor, international affairs, business, consumer affairs. Supervision by agency personnel and faculty sponsor. Students should have above-average academic records before applying. Open to all majors. Applications available in the National Student Exchange Office, Hood House. Prereq: junior or senior. Student must also register for a graded, 4-credit independent study in the student’s major. credit variable to 12 credits. Special fee. Cr/F.

INCO 685 - Study Abroad  
Credits: 16  
Enables students to pursue a semester, summer, or an academic year of foreign study in programs other than those offered by UNH. Students must provide the University Committee on Study Abroad with detailed information about the curriculum and must receive approval from that committee before registration. Credit awarded only upon successful completion of the course of study and after receipt by the committee of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

INCO 686 - Study Abroad  
Credits: 16  
Enables students to pursue a semester, summer, or an academic year of foreign study in programs other than those offered by UNH. Students must provide the University Committee on Study Abroad with detailed information about the curriculum and must receive approval from that committee before registration. Credit awarded only upon successful completion of the course of study and after receipt by the committee of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

INCO 687 - Study Abroad Experience  
Credits: 16  
Enables students to pursue a summer term of foreign study in programs other than those offered by UNH. Students must meet all university requirements and complete required forms. Credit awarded only upon successful completion of the course of study abroad and after receipt and processing of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.

INCO 688 - Study Abroad Insurance Program  
Credits: 0

INCO 689 - Study Abroad Insurance - Short  
Credits: 0

INCO 698 - Summer Research Project  
Credits: 8  
Guided independent research or student/faculty collaborative research. Open to recipients of summer undergraduate research fellowships or by permission of the Undergraduate Research Opportunities Program. (Summer only.) Cr/F.

INCO 699 - McNair Summer Internship  
Credits: 0  
 McNair Fellows; not graded; Summer only.
INCO 710 - Introduction to McNair Research
Credits: 2-4
An introduction to methods and techniques of research design within the social sciences, mathematics and natural sciences, and the humanities. Concepts are tailored to students' research thesis. Students design and construct a research project (execution of project may be allowed for additional credit). A comprehensive written proposal is required. Prerequisite: Enrollment in McNair Scholars Program. May be repeated up to a maximum of 8 credits. Special fee on Study Abroad sections.

INCO 720 - McNair Research Experience
Credits: 4
This independent study course allows students to work one-on-one with a faculty scholar to execute the research project. The course also provides a forum for faculty mentors and research supervisors to troubleshoot challenges and assist in the completion of the project. Prerequisite: Enrollment in McNair Scholars Program. Permission required.

INCO 730 - Writing Consultation Across the Curriculum
Credits: 2
This course provides the fundamental background for peer serving as Writing Fellows in courses across the curriculum. Emphasis is on the application of theoretical assumptions about writing, tutoring, and discipline-specific discourse. Restricted to members of the Writing Fellows Program. Faculty recommendation required. May be repeated for credit. Students will be asked to evaluate their discipline-specific writing experience and apply it to their Writing Fellows' work. Prerequisite: ENGL 401, one other Writing intensive course.

INCO 740 - McNair Research Abroad
Credits: 1-6
This course focuses on the execution of a comprehensive undergraduate research project in a country other than the U.S. Students learn about the cultural elements entailed in conducting research in a foreign country. They grapple with ethical dilemmas, as well as with the joys and frustration of performing research. In addition, students are asked to identify and examine a particular aspect of the host nation's customs and traditions. Special fee.

INCO 790 - Advanced Research Experience
Credits: 1-4
Advanced research, scholarly or creative projects developed and conducted under the supervision of a faculty member. Provides students with the opportunity to apply advanced knowledge and techniques of their major to a specific problem or question. Prerequisite: INCO 590, significant preparatory course work for research, or other research experience approved by the INCO 790 faculty mentor. INCO 790 may be repeated alone or in combination with INCO 590 for a maximum of 8 credits. Graded.

INCO 795 - Washington Center Course
Credits: 4
Four-credit independent study in conjunction with The Washington Center program in Washington DC. For more information, Hood House room 106, http://www.unh.edu/washington or email washington.internship@unh.edu. Special fee.

INCO 796 - Touching the Limits of Knowledge: Cosmology and Our View of the World
Credits: 1
A seminar analyzing the paradoxes and limits of scientific knowledge and religious understanding, their compatibility or lack of it with respect to contemporary cosmology.

**International Affairs (IA)**

**# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.**

**IA 401 - International Perspectives**
Credits: 4
Provides students with a broad, interdisciplinary overview of international affairs in a dynamic and interconnected world. The course is team-taught in two modules, each of which highlights perspectives from anthropology, geography, political science, or a related discipline. These modules address global issues such as poverty, conflict, human rights, development, environment, migration, and health. Required for the IA dual major and minor. Must complete IA 401 before the international experience, preferably during the 1st or 2nd year.

**IA 501 - Global Issues in International Affairs**
Credits: 4
Students analyze the theory and practice of international affairs and acquire practice in designing an independent research project. Topics vary with faculty expertise, and have included war and political violence; global environmental issues, social mobilization and protest, and development, race, and gender. IA 501 further prepares students for their international experience and helps them design individualized research topics for their capstone project in IA 701. This course must be taken before IA 701 and in most cases, before the student undertakes an international experience. Prerequisite: IA 401. Writing intensive.

Attributes: Writing Intensive Course

**IA 695 - Internship**
Credits: 2-4
Designed to provide research and work opportunities with an international aspect to UNH undergraduates. Students must take initiative to conduct research with a faculty member or work with an employer in an international context. Prerequisite: permission from the IA Program Chair. May be repeated up to 8 credit hours. Cr/F.

**IA 699 - Topics**
Credits: 4
Special topics course with varying subject matter and format. Study of areas and subjects not covered by existing courses. Recommended as a dual major elective.

**IA 701 - Seminar**
Credits: 4
Capstone of the dual major in international affairs. Emphasizes research and analysis, use of second language skills as appropriate, writing, and critical thinking. Students write their senior capstone papers and present their findings at the spring Undergraduate Research Conference. Prerequisite: IA 401, IA 501, International experience, IA Dual major. Writing intensive.

Attributes: Writing Intensive Course

**Italian (ITAL)**

**# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.**
ITAL 401 - Elementary Italian I
Credits: 4
For students without previous training in Italian. Aural comprehension, speaking, writing, reading. Labs. (No credit for students who have had two or more years of Italian in secondary school; however, any such students whose studies of Italian have been interrupted for seven years should consult the section coordinator about possibly receiving credit.) Special fee.

ITAL 402 - Elementary Italian II
Credits: 4
For students who have completed ITAL 401 or equivalent. Aural comprehension, speaking, writing, reading. Labs. (No credit for students who have had two or more years of Italian in secondary school; however, any such students whose studies of Italian have been interrupted for seven years should consult the section coordinator about possibly receiving credit.) Special fee.

ITAL 425 - Introduction to Italian Studies
Credits: 4
The double aim of this course is to provide a working knowledge of Italian cultural and political history and to examine, from a more general and theoretical standpoint, the role of Italian art, literature and history via readings, slides, films, opera and lectures; along the way, they will be encouraged to analyze the interaction between culture and political thought in other countries, including their own.

Attributes: World Cultures(Discovery); Foreign Culture GP 5

ITAL 425H - Honors/Introduction to Italian Studies
Credits: 4
Designed for honors students interested in exploring Italian language and culture. Culture learning by means of guest speakers and visuals. Prepares for ITAL 401 and ITAL 402. Taught in English. Does not satisfy foreign language proficiency requirement. Special fee. (Offered summers only, Not offered every summer.) Writing intensive.

Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ITAL 444A - Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic
Credits: 4
Course is designed around the phenomenon of emigration from Italy to the United States over the last century or so, with particular attention to the time period between the end of the nineteenth century and the mid-twentieth century. While core media under examination are literature and film, we also draw on historical, anthropological, political and sociological readings to help us consider the many issues involved.

Attributes: Humanities(Disc); Historical Perspectives GP 4; Inquiry (Discovery)

ITAL 444B - Mamma Mia! Italian Motherhood from the Virgin Mary to Carmela Soprano
Credits: 4
This course examines motherhood and the special role of the Italian mother - la mamma italiana - in past and present Italian society. Through readings from a wide variety of disciplines - theology, history, medicine, and literature - as well as an examination of art and film, we will analyze the origins and conflicted nature of Italian attitudes toward motherhood. Topics include: maternal love and self-sacrifice, beliefs about generation and their influence on maternal and paternal roles, Italian family structure. Mussolini's promotion of motherhood, the phenomenon of mammismo or "Mama's boys", and Italian-American mothers, including Carmela Soprano. Writing intensive.

Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

ITAL 500 - Selected Topics in World Literature
Credits: 4
Topics will be chosen which introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Special fee. Writing intensive. Cr/F.

Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ITAL 503 - Intermediate Italian I
Credits: 4
A complete review of the fundamentals of grammar and syntax. Selected readings as a general introduction to Italian civilization and culture. Labs and films. Special fee. Writing intensive.

Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ITAL 504 - Intermediate Italian II
Credits: 4
For students who have completed ITAL 503 or an equivalent. A complete review of the fundamentals of grammar and syntax. Selected readings as a general introduction to Italian civilization and culture. Labs and films. Special fee. Writing intensive.

Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ITAL 521 - Italian Literature in Translation, 13th-16th Centuries
Credits: 4
Major works of fiction and nonfiction, reflecting ideas and taste during the first three centuries of Italian history. Readings, discussions, papers in English. No more than one course in English may be counted toward the minor. Special fee. (Not offered every year.) Writing intensive.

Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

ITAL 522 - Italian Literature in Translation, 18th-20th Centuries
Credits: 4
Major trends in post-Renaissance thought and culture in Italy. Readings, discussions, papers in English. No more one course in English may be counted toward the minor. Special fee. (Not offered every year.) Writing intensive.

Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course
ITAL 525 - Italian Cinema
Credits: 4
Acquaints students with major Italian film texts. Through cinema the course explores the culture, society, history, and politics of Italy. Students examine filmmakers, genres, periods, and movements. The course is conducted in English. Special fee.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

ITAL 595 - Practicum
Credits: 2
Practical use of Italian language and culture through special projects outside the classroom. May be repeated for a maximum of 4 credits. Prereq: permission. Special fee. Cr/F.

ITAL 595A - Practicum
Credits: 2 or 4
Practical use of Italian language and culture through special projects outside the classroom. The Practicum consists of unpaid placement in an approved business, social service, or educational organization in an Italian-speaking context with on-site supervision. The course also includes a classroom component that incorporates readings and assignments pertinent to the Practicum experience. May be repeated for a maximum of 4 credits. permission. Letter Grade.

ITAL 631 - Advanced Conversation and Composition I
Credits: 4
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from the various media. Phonetics and oral/aural skills development in lab and class. Prereq: C or better in ITAL 504 or permission. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ITAL 632 - Advanced Conversation and Composition II
Credits: 4
Advanced spoken and written Italian to attain aural-oral fluency. Advanced reading and composition. Prereq: C or better in ITAL 631 or permission. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

ITAL 635 - Food Aesthetics in Italy
Credits: 4
Food Aesthetics in Italy acquaints students with the principal of aesthetics as they pertain to our understanding of and relationship to food. It is offered through the UNH-in-Italy Program in Ascoli Piceno. The philosophical aspects of the course are complemented by the experiential components that emphasize the particularity of the Italian environment.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ITAL 645 - Food Technology in Italy
Credits: 4
Food Technology in Italy introduces students to modern and traditional technologies employed in the Marches region in the industrial processing of foods. The course examines the environmental impact as well as sustainability in terms of the production of healthful quality food products. It is offered through UNH-in-Italy Program in Ascoli Piceno.

ITAL 651 - Introduction to Italian Culture and Civilization I: Middle Ages, Renaissance, Baroque
Credits: 4
Survey of major representative writers and artists, studied against the backdrop of social and cultural history. Dante, Petrarch, Boccaccio, Machiavelli, Marino. Pre- or Coreq: ITAL 631 or permission. Special fee. (Not offered every year.) Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ITAL 652 - Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism
Credits: 4
Survey of major representative writers and artists, studied against a backdrop of social and cultural history. Parini, Goldoni, Leopardi, Manzoni, Pavese, Calvino. Pre- or co-req: ITAL 631 or permission. Special fee. (Not offered every year.) Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

ITAL 675 - Special Topics in Italian Studies
Credits: 4
Topics drawn from all aspects and periods of Italian Studies. Prereq: ITAL 631 or permission of the instructor. May be repeated for credit barring duplication of materials.

ITAL 681A - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

ITAL 681B - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

ITAL 682A - Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

ITAL 682B - Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8
ITAL 684 - UNH-in-Italy Summer Program
Credits: 0
UNH-in-Italy summer programs in Ascoli Piceno. A) Intensive Italian, B) Italian Cinema and Culture, C) Explorations in Nutrition and Culture, D) EcoGastronomy, E) Music and Language in Italy. These course numbers are placeholders, and differ with regard to the special fee. Students are registered for both this administrative course number and the actual course number(s) of the course(s) being offered on site. Permission required. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ITAL 685 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the fall semester. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ITAL 686 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the spring semester. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

ITAL 733 - History and Development of the Italian Language
Credits: 4
Development of the Italian language from Roman times to the present. Examines the comparative method and internal reconstruction as well as processes of changes in phonology, syntax and lexicon. The course introduces issues in dialect geography, the basic features of paleography and surveys the evolution of scripts. Prereq: ITAL 631 or above or permission of instructor. Special fee.

ITAL 795 - Independent Study in Italian Language and Literature
Credits: 1-4
Individual guided study. Prereq: permission. Special fee.

ITAL 796 - Independent Study in Italian Language and Literature
Credits: 1-4
Individual guided study. Prereq: permission. Special fee.

Japanese (JPN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

JPN 401 - Elementary Japanese I
Credits: 4
Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit.) Special fee.

JPN 402 - Elementary Japanese II
Credits: 4
Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit.) Special fee. Prereq: JPN 401.
Attributes: Foreign Language Requirement

JPN 425 - Introduction to Japanese Culture and Civilization
Credits: 4
Taught in English and designed for students interested in exploring Japanese culture and society. Learning by means of lectures, discussions, guest speakers, selected readings, and multimedia. Does not fulfill B.A. foreign language requirement, but does fulfill the Group 5 foreign culture general education requirement. Also counts toward the Asian Studies Minor. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

JPN 425H - Honors/Introduction to Japanese Culture and Civilization
Credits: 4
Taught in English and designed for students interested in exploring Japanese culture and society. Learning by means of lectures, discussions, guest speakers, selected readings, and multimedia. Does not fulfill B.A. foreign language requirement, but does fulfill the Group 5 foreign culture general education requirement. Also counts toward the Asian Studies Minor. Special fee. Writing intensive.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

JPN 503 - Intermediate Japanese I
Credits: 4
Review of Japanese grammar. Reading of prose and practice in oral and written expression. Labs. Prereq: JPN 402 with a grade of C (2.00) or better or permission of instructor. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

JPN 504 - Intermediate Japanese II
Credits: 4
Review of Japanese grammar. Reading of prose and practice in oral and written expression. Labs. Prereq: JPN 402 with a grade of C (2.00) or better or permission of instructor. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

JPN 631 - Advanced Japanese I
Credits: 4
Advanced spoken and written Japanese to attain aural-oral fluency. Advanced reading and composition. Prereq: JPN 504 with a grade of C or better or permission of instructor. Writing intensive. Special fee.
Attributes: Writing Intensive Course

JPN 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.
JUST 530 - Inside the Courtroom: Torn from the Headlines
Credits: 4
JUST 530 provides students an overview of criminal law procedure. The course is expressly aimed to serve students in the humanities and social sciences who may work in law-related fields, pursue advanced course work in academic disciplines that focus on law-related phenomena or go to law school. The course uses a distance education model, which requires students to invest significant amounts of time and effort outside of "class" activities to master the salient concepts presented in the course. The course provides students with a thorough introduction to the major legal categories of crime. The course also provides students with an understanding of the importance and role of the law of criminal procedure through an exploration of current issues and controversies. From time to time the course touches upon comparative views of other legal traditions. Class discussions, readings, and assignments frequently use current New Hampshire law and criminal cases as points of reference.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

JUST 550 - Mock Trial
Credits: 2
Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. May be repeated up to a maximum of 8 credits. Special fee. Permission required.

JUST 551 - Mock Trial
Credits: 2
Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. May be repeated up to a maximum of 8 credits. Special fee. Permission required.

JUST 591 - Forensic Psychology
Credits: 4
Forensic psychology is one of the fastest growing sub-fields in psychology and in fact one of the fastest growing disciplines in the world of social science. Still, most people in the general population as well as many individuals within the study of psychology know very little about what forensic psychology actually is. This course is designed to cover the various roles ans issues that constitute the science of forensic psychology and to help student deepen their understanding of the various roles forensic psychologists play in the real world. Needless to say, this course will not train you to be a forensic psychologist, but hopefully it will spark your interest about a very exciting topic and encourage you to study some of the issues we touch on, as you move on academically.

JUST 595 - Special Topics
Credits: 1-4
Special topics of advanced study in Justice Studies. Selected offerings reflect faculty expertise in teaching and research. May be repeated in different topic areas.

JUST 601 - Internship
Credits: 4
Placement by the justice studies coordinator in a position related to the justice system (e.g., criminal courts, corrections, civil courts, law firms, policy-making agencies, law enforcement agencies); weekly class meetings. Prereq: permission; seniors only.
JUST 602 - Research Internship  
Credits: 4  
Independent research working with Justice Studies faculty on their projects. Includes working with faculty at such research centers as Crimes against Children, Family Research Lab, and Justiceworks. Student supervisor contract required. Minimum time commitment: 12 hours per week. Prereq: JUST 401, 501; or permission.

JUST 650 - Special Studies in Comparative Justice Systems  
Credits: 4  
This course will involve periodic offerings in comparative analysis of justice systems in an international context. May be repeated for a total of 8 credits provided both course offerings are substantially different. Must be taken with JUST 651 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515.

JUST 651 - Field Studies in the Hungarian Justice System  
Credits: 6  
This course is designed to provide Justice Studies Budapest Program students with first-hand experience with the workings of the Hungarian justice system. Weekly field trips to agencies in law enforcement, the courts, and correctional facilities in the Budapest area will be arranged, and periodic lectures by Hungarian criminal justice professionals and scholars will compliment these visits. Must be taken with JUST 650 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515. Cr/F.

JUST 701 - Senior Seminar  
Credits: 4  
Advanced material in which the instructor has specialized knowledge through research and study. Topics may include the death penalty, terrorism, psychology of the jury, ethics and morality, immigration, therapeutic jurisprudence, and juveniles tried as adults. Prereq: JUST 401, 501.  
Attributes: Writing Intensive Course

JUST 765 - Special Topics  
Credits: 4  
New or specialized courses are presented under this listing. Staff present material not normally covered by the course offerings. Cross-listed courses. May be repeated but not duplicate content.

JUST 765W - Special Topics  
Credits: 4  
New or specialized courses are presented under this listing. Staff present material not normally covered by the course offerings. Cross-listed courses. May be repeated but not duplicate content. Writing intensive.  
Attributes: Writing Intensive Course

JUST 795 - Reading and Research  
Credits: 1-4  
An independent study that is arranged by the student and supervised by a Justice Studies faculty member. Course requirements include: assembling and reading a substantial bibliography in the field; completing several written assignments and in some cases participating in hands-on experiences such as data collection and analysis. This course is by permission only and requires a signed agreement/proposal prior to registration. May be taken for 1-4 credits and includes a minimum of 3 hours of coursework per week per credit hour. Writing intensive in some select cases.

Kinesiology (KIN)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

KIN 406 - Intro to Athletic Training  
Credits: 1  
Introduction to the profession of athletic training. Past, present, and future of athletic training in the U.S. and Internationally. Components of the academic and experiential preparation of athletic trainers. Overview of the professional and personal attributes to be successful in a health care profession. Kin: Athletic Training and Undeclared HHS majors only.

KIN 444A - Risk and the Human Experience  
Credits: 4  
Explores the construct of risk in two phases: 1) knowledge building, focusing on the historical development of risk and its current manifestations in contemporary society; and 2) knowledge application, which focuses on applying conceptions of risk to various case study examples. The second phase of the course employs a problem-based learning approach with four distinct modules that ask students to apply, experience, and evaluate risk in a variety of contexts. Each module includes: a) a case study description, b) an experiential exercise, and c) a collaborative debriefing of the experience and reflective application to broader societal issues.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

KIN 444B - Coolest Game?:Hockey and History  
Credits: 4  
This course uses hockey as a vehicle for exploration and practice in three critical processes of scholarship: 1) analyzing and framing questions, 2) employing different methods/sources for pursuing answers to the questions, 3) presenting the results of research. Research exercises, discussions, and papers consider hockey's development in larger social and cultural contexts/practices such as ethnicity, nationalism, technology, mass media and marketing, gender relations, labor relations, and regionalism. The course also looks at hockey as a medium of craft, hero formation, community, and collective violence. Students read and analyze interdisciplinary articles and books, and also work with a range of historical sources, including those in the UNH Archives and the Charles Holt Archives of American Hockey. Writing intensive.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

KIN 444C - Amped Up: Social and Psychological Perspectives on Adventure  
Credits: 4  
Interest in the topic of adventure has exploded in recent years; with enough money, almost any adventure is available to anyone. The widespread rise in popularity of adventure brings questions, however. What is the role of adventure in modern society? What is its value to individuals? Through lectures, written assignments, group projects, multimedia, and experiential learning, this course surveys psychological, sociological, and anthropological perspectives on these and students' own questions. Special fee.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course
KIN 500 - Introduction to Health and Physical Education  
Credits: 4  
This is a foundational course for anyone interested in the field of health and physical education (PE). Topics will include the role of health and PE in society, health and PE as a means for improving academic outcomes and the role health and PE teachers contribute to creating a culture of wellness in schools. Other topics for discussion include career considerations and future trends in the profession.

KIN 501 - First Aid: Responding to Emergencies  
Credits: 1  
Covers the American Heart Association HeartSaver First Aid/CPR/AED: Adult, Child, Infant curriculum, the National Association of EMTs Bleeding Control for the Injured (BCon) curriculum which meets the Department of Homeland Security’s Stop the Bleed initiative, and training for civilian responses to critical incidents. May repeat once for credit. Special fee. Cr/F.

KIN 505 - Activity, Injuries and Disease  
Credits: 4  
Sports and exercise are a part of American society and are used as entertainment, leisure activity as well as a means to better health. Unfortunately while we partake in these activities few individuals are aware of the risks they are exposing themselves to. In addition as more women engage in sports and exercise medical science is realizing that many conditions and injuries are gender specific. It is well known that women athletes deal with reproductive, orthopedic and nutritional issues that differ greatly from men. Also we know that individuals with varying diseases benefit greatly from exercise. This course will join, musculoskeletal anatomy, injuries, gender and special problems together to explain how an individual can enjoy activities safely. In addition this course addresses the interpretation of current medical literature and how to utilize new information.

Attributes: Biological Science(Discovery); Biological Science GP 3B

KIN 506 - Concepts of Athletic Training for the Professional  
Credits: 4  
Introduces techniques for prevention, recognition, treatment, and rehabilitation of common athletic injuries. Course is a prerequisite for beginning clinical experience in athletic training rooms for the athletic training professional. Prereq: BMS 507. Open to Athletic Training and HHS undeclared majors only.

KIN 507 - Concepts of Athletic Training Lab  
Credits: 1  
Theory and techniques of protective taping and wrapping to prevent common athletic injuries. Techniques of transfer and transportation of injured athletes. Identification of anatomical landmarks. Observation and practice in the University athletic training rooms. Special fee.

KIN 515 - History of Outdoor Pursuits in North America  
Credits: 4  
Voluntary pursuits in the outdoors have defined American culture since the early 17th century. Over the past 400 years, activities in outdoor recreation an education have reflected Americans’ spiritual aspirations, imperial ambitions, social concerns, and demographic changes. This course will give students the opportunity to learn how Americans’ experiences in the outdoors have influenced and been influenced by major historical developments of the 17th, 18th, 19th and 20th, and early 21st centuries. This course is cross-listed with RMP 515.

Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

KIN 521 - Theory of Coaching Basketball  
Credits: 2  
Individual and team offense and defense; rules of the game. Problems in team handling and conditioning. Prereq: permission. Pre- or Coreq: KIN 565.

KIN 522 - Theory of Coaching Football  
Credits: 2  
Systems of play; team and individual offensive and defensive fundamentals; theory and strategy of team play; coaching methods, physical conditioning; rules.

KIN 523 - Theory of Coaching Hockey  
Credits: 2  
Basic hockey skills. Fundamentals of individual and team offense and defense; coaching methods; rules. Prereq: student must have basic skating skills prior to taking course. Pre- or Coreq: KIN 565. Special fee.

KIN 525 - Theory of Coaching Soccer  
Credits: 2  
Fundamental and advanced skills and techniques; offensive and defensive principles of team play; tactical formations and strategy; methods of training and practicing; rules. Prereq: permission. Pre- or Coreq: KIN 565. Only open to KIN: Sport Studies majors.

KIN 527 - Scientific Foundations of Health and Fitness  
Credits: 4  
Course provides students with practical, scientific, entry-level information relative to physical conditioning, health, and wellness. Students are given theoretical information that will be followed by practical, hands-on experiences offered through laboratories and assessments of the student’s personal health status and future wellness goals. No credit given if credit earned for NUTR 506. Special fee. Writing intensive.

Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B; Writing Intensive Course

KIN 528 - Theory of Coaching Track and Field  
Credits: 2  
Starting, sprinting, middle-distance and distance running, relay, hurdles, high and broad jumping, pole vault, shot putting, discus, hammer, and javelin. Methods of training and practicing. Prereq: permission. Pre- or Coreq: KIN 565.

KIN 533 - Basic Scuba  
Credits: 3  
Full semester in the fundamentals of scuba diving. Through a progressive series of classroom lectures and pool sessions, students gain the knowledge and skill necessary to conduct themselves with competence underwater. Emphasizes safety and problem prevention. Once the students are ready, further training takes place in an open ocean environment. NAUI Certification for successful completion of all course requirements and at least five open-water dives. Strong swimming ability required. Special fee. Lab. Credit/Fail.

KIN 539 - Artificial Climbing Wall Management  
Credits: 2  
The primary purpose of this course is an introduction to the procedures, methods, and techniques of artificial climbing wall management. Within the scope of this course, students will be introduced to operations, supervision, equipment and facility use/maintainence, risk management strategies, routesetting, individual an group programming/facilitation/ teaching, technical skills and rescues/emergency procedures. A variety of teaching styles will be used to familiarize students with each topic area. Special fee. Optional certification fee. Lab.
KIN 540 - Top Rope Rock Climbing
Credits: 4
Provides students with an understanding of the equipment, techniques, and procedures necessary for the setup and management top rope rock climbing and rappelling sites, including advanced rescue skills. Students also develop basic climbing movement techniques and skills, an understanding of the pedagogical techniques used in climbing, and the requisite knowledge/skill development to conduct safe top rope experiences in multiple settings. The format of this course is a combination of demonstration/lecture and "hands-on" learning with the emphasis upon student interaction and practical skill development. Special fee. Lab.

KIN 541 - Management of Challenge Courses
Credits: 4
Provides students with an introduction to the basic facilitation/technical skills to manage a challenge course program. Exposure to intermediate technical skills usually required for lead facilitators. Specific topics include group process, framing, and sequencing, belay methods, participant and instructor equipment, operating procedures for low and high challenge course elements, and industry standards. Permission required for freshmen. Special fee. Lab.

KIN 542 - Sea Kayaking
Credits: 2
An introduction to the technical, teaching, and leadership skills required to lead inland kayaking programs and to assist with coastal canoeing programs. Emphasis on individual kayaking skills, self- and group-assisted rescues, safety and group management in a marine environment, and tactics for ocean travel and navigation. Special fee. Lab.

KIN 543 - Winter Adventure Programming
Credits: 2
An introduction to winter programming and backcountry travel, including snowshoeing and Nordic skiing, winter interpretation activities, backpacking, and winter camping. Emphasis on teaching of introductory winter programs and trips. Prereq: KIN:OE major, KIN 551 or instructor permission. Special fee. Lab.

KIN 544 - High Angle Rescue
Credits: 2
Provides students with the skills necessary to perform self and group rescues in a variety of steep terrain and high angle environments. Students also gain the basic skills necessary for the implementation of self- and partner-rescues while in a technical climbing environment. The skills learned from this class will adapt readily to climber rescue, crevasse rescue, big wall rescue, cave rescue, and vertical urban rescue. Prereq: KIN 547 or instructor permission; KIN: Outdoor Education majors only. Special fee. Lab.

KIN 545 - White Water Canoeing
Credits: 3
Introduces white water canoeing skills. Students gain a basic understanding of the equipment, techniques, and procedures to conduct canoeing activities in flat water, moving water, and white water environments. Emphasizes development of individual paddling skills, safe and conscientious paddling, and group management on moving water and white water. Prereq: Previous canoeing experience or KIN 552. Special fee. Lab.

KIN 546 - Lead Rock Climbing
Credits: 3
Advanced climbing course designed to provide students with a structured environment to transition from top rope rock climbing or sport climbing to multi-pitch traditional lead climbing. Focuses on the development of the technical skills and judgment associated with leading in a multi-pitch environment. Specific topics include use of artificial protection, belay anchor construction, multi-pitch rappelling, knots, rope/belay station management, climbing technique, and multi-pitch leading considerations. Prereq: KIN 540 or instructor permission. Special fee. Lab.

KIN 547 - Winter Expedition Programming
Credits: 4
Introduces methods and techniques of winter expedition travel including camping, snowshoeing, alpine climbing skills, technical skiing and ice climbing skills. A variety of teaching styles are used to familiarize students with each topic area, and occur in classroom, basecamp, and wilderness settings. Prereq: KIN OE majors, KIN 551. Special fee. Lab.

KIN 548 - Wilderness Navigation
Credits: 4
Introduces the methods and techniques of wilderness navigation. Topics include map interpretation, compass use, global positioning systems, and other navigation methods. A variety of teaching styles are used to familiarize the students with each topic area, and occur in both classroom and wilderness settings. Special fee. Lab.

KIN 549 - Outdoor Education Philosophy and Methods
Credits: 4
Explores the philosophical basis for experiential and outdoor education. Experiential exercises and readings focus on the role of risk, traditional versus progressive education, role of nature, ethics, models of learning and facilitation, and developing a personal philosophy of outdoor education. Includes full-day outdoor education laboratory experiences. Special fee. Writing intensive.

Attributes: Inquiry (Discovery); Writing Intensive Course

KIN 550 - Adventure Programming: Backcountry Based Experiences
Credits: 4
Introduces the leadership of land-based backpacking programs. Students develop an understanding of backpacking equipment, trip planning and organization, instruction of basic camping skills, implementation of safety procedures and group management on backpacking trips. Special fee. Lab.

KIN 551 - Adventure Programming: Water Based Experiences
Credits: 3
Introduces the leadership of canoe expeditions. Students develop an understanding of necessary canoeing equipment, trip planning and organization, instruction of basic canoeing strokes, implementation of safety procedures, and group management on canoe expeditions. Special fee. Lab.

KIN 560 - Sport Psychology
Credits: 4
Introduction to the discipline of sport psychology. Explores behavioral, cognitive, and social psychology in relation to elite, collegiate, and high school athletes, as well as recreational sport participants.

Attributes: Social Science GP 7
KIN 561 - History of American Sport and Physical Culture
Credits: 4
Major individuals, organizations, and trends that influenced the development of an American industry in sports, active recreation, and physical fitness. Readings, discussions, and research projects provide experience in the craft and utility of history.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

KIN 561W - History of American Sport and Physical Culture
Credits: 4
Major individuals, organizations, and trends that influenced the development of an American industry in sports, active recreation, and physical fitness. Readings, discussions, and research projects provide experience in the craft and utility of history. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

KIN 562 - Sports Media Relations
Credits: 4
A survey of basic concepts of sports media relations for students considering careers in school or college sports coaching or administration, media or related fields. The focus is on developing necessary skills, techniques and recommended media relations practices as well as social implications of the media in sports public relations including print, radio, television, the World Wide Web, and social media.

KIN 565 - Principles of Coaching
Credits: 4
Overviews current theory and practice in coaching education, including sport pedagogy, physiology, psychology, administration, and risk management. Issues of performance and competition specific to child, youth, and collegiate coaching are addressed.

KIN 570 - Elementary Physical Education Practicum
Credits: 4
Provides opportunities for developing and refining elementary and special physical education movement content with pedagogical processes. Emphasizes demonstrating competence in teaching and establishing a least-restrictive learning environment. Special fee. Prereq: KIN 610; KIN: HLTH & PHYS ED. Writing intensive.
Attributes: Writing Intensive Course

KIN 580 - Sport Industry
Credits: 4
Overviews the various segments that make up the sport industry, including governing bodies, the mass media, sporting goods firms, players' and coaches' associations, public regulatory agencies, and secondary and higher education. Readings and discussions consider the development and structure of each segment. interaction between segments, legal issues, and policy implications. While the course will focus on the United States, there is some comparison to other countries.

KIN 585 - Emergency Medical Responder
Credits: 4
Standards of practice that conform to the content of the U.S. Department of Transportation curriculum for Emergency Medical Responder. Initial evaluation and stabilization of patients at the scene of medical emergencies, CPR, and other basic medical care for illness and injury. Prepares the student for the National Registry of EMT and EMR certifications exams. Prereq: KIN: Athletic Training; KIN: Exercise Science; HHS: undeclared. Lab. Special fee.

KIN 600 - Movement and Gymnastics Exploration
Credits: 4
Combines the elements of movement education and gymnastics progressions to develop a basis for students to learn the fundamentals of movement and how to teach efficient and safe movement and gymnastics skills in a variety of settings. Includes fundamental movement skills, movement elements, fundamental gymnastics skills, and fundamental gymnastics spotting skills. Only open to Human Development & Family Studies, and KIN: HLth & Phys Ed majors.

KIN 601 - Lifetime Sports
Credits: 3
Provides teachers with the technical knowledge as well as the psychomotor and pedagogical skills necessary for instructing lifetime activities, including tennis, golf and cross country skiing, among others.

KIN 603 - Team Sports
Credits: 3
Provides teachers with the technical, physical, and pedagogical skills necessary for instructing team sports, including soccer, basketball and volleyball, among others.

KIN 607 - Biology of Aging
Credits: 4
Biological mechanisms of the aging process, with special emphasis on human aging; changes due to chronic disease.
Attributes: Biological Science(Discovey); Biological Science GP 3B

KIN 610 - Elementary Physical Education Pedagogy
Credits: 4
Planning, implementing, and evaluating a movement-based curricular model of instruction relative to teaching preschool and elementary-aged children physical education. Systematic observation, teaching, strategies and styles, lesson design, and methods of integrating academic subject matter into elementary physical education. Prereq: Open only to KIN: HLth & Phys Ed majors.

KIN 620 - Physiology of Exercise
Credits: 4
Acute and chronic effects of exercise. Muscle physiology, respiration, cardiac function, circulation, energy metabolism, and application to training. Prereq: BMS 507 and BMS 508.

KIN 621 - Exercise Laboratory Techniques
Credits: 4
Laboratory assessment of functional capacity, body composition, anaerobic power, anaerobic threshold, pulmonary function, blood pressure control, muscle strength, and temperature regulation. Field tests are used where appropriate. Extensive out-of-class time is required as each week a detailed lab report is submitted for grading. Prereq: KIN 620. KIN Exercise Science majors. Special fee. Writing intensive.
Attributes: Writing Intensive Course

KIN 630 - Sport Facility and Event Management
Credits: 4
Students learn the principles and processes involved in effective sport facility and event management. In terms of facilities, students explore the concepts of facility design, planning, systems, risk management, marketing, and ownership. In terms of events, students explore the concepts of creation, impact(s) on host communities, marketing/ sponsorship, and the potential positive and negative outcomes of sport events. Special fee.
KIN 643 - Social Media Marketing in Sport
Credits: 4
Students examine the use of social media as a tool in the marketing of sport and sport-related products. They are expected to effectively analyze and prescribe different ways in which social media can enhance the marketing profile of such products upon course completion. Student work should facilitate a deep understanding of social media in its constituent forms as they apply to sport and students should be able to examine such use critically.

KIN 648 - Current Issues in Teaching Health
Credits: 4
Designed to assist students in their understanding of issues related to health and health education.

KIN 650A - Internship in Exercise Science
Credits: 4 or 8
Individualized experiential training in an external (off-campus) exercise science setting (hospital, health & fitness club, business, physical therapy, or medical (physician assistant) offices, research laboratory) offering programs of prevention, intervention, and/or rehabilitation. The internship requires 400 contact hours and is a full-time commitment (10 weeks at 40 hours per week) usually taken the summer following the senior academic year. Activities may include graded exercise testing, exercise prescription, and exercise leadership. Must have completed all requirements for the option or have permission from the instructor prior to starting the internship. The course may be repeated once with 4 credits taken each time for a total of 8 credits. Cr/F. (IA continuous grading). Only open to KIN: Exercise Science majors.

KIN 650B - Internship in Outdoor Education
Credits: 2-8
Experiential learning in a setting appropriate to the student's objectives. An 2 credit internship requires a minimum of 400 hours experience. Provides an appropriate transition from undergraduate education to future employment in the field of outdoor education. Generally done after students have completed all other requirements for the option. Prereq: permission. Cr/F. May be repeated up to a maximum of 8 credits. (IA continuous grading).

KIN 650C - Internship in Sport Studies
Credits: 1-8
Experiential learning in a setting appropriate to the major option and to student's objectives. An 8 credit internship requires a minimum of 600 hours experience; fewer credits will require proportionally fewer hours. Sport Studies: May be on- or off-campus with an approved organization. Student must participate in securing the internship. A journal, bi-weekly reports and a final paper required. Prereq: junior/senior major; permission. May be repeated up to a maximum of 12 credits, with no more than 8 credits taken in any given semester. (IA continuous grading).

KIN 650D - Internship in Coaching
Credits: 2-4
Experiential learning in a setting appropriate to student's learning objectives in coaching. May be on- or off-campus with an approved organization. Student must participate in securing the assistantship. A journal, bi-weekly reports, and final report required. May be repeated up to a maximum of 4 credits. Prereq: KIN 505, KIN 565. (IA continuous grading).

KIN 652 - Clinical Kinesiology
Credits: 4
The science of human movement from biomechanical, neuromuscular, and anatomical perspectives; human muscular, joint, and connective tissue anatomy; and actions of skeletal muscles are detailed. Prereq: BMS 507 and BMS 508.

KIN 653A - Musculoskeletal Assessment
Credits: 2
Principles and methodology of joint range of motion, body mechanics, and muscle strength evaluation. Uses muscle palpation, goniometry, manual muscle testing, hand-held dynamometry to facilitate understanding of musculoskeletal anatomy and assessment. Special fee. Prereq: BMS 507 and BMS 508.

KIN 653B - Biomechanical Analysis of Movement
Credits: 2
Principles and methodology of analyzing posture and movement. Uses muscle palpation and testing, electromyography, and cinematography to facilitate students' understanding of movement analysis. Special fee. Prereq: BMS 507 and BMS 508.

KIN 655 - Middle School and Secondary Physical Education Pedagogy
Credits: 4
Planning, implementing, and evaluating curricular models of instruction, as well as effective teaching strategies and styles relevant to secondary (grades 6-12) physical education is studied. Content and process knowledge is applied through micro-teaching episodes with peers. Systematic observation is introduced for the purpose of reflecting on teaching behaviors. Prereq: Only open to KIN: Hlth & Phys Ed majors.

KIN 658 - Evaluation and Care of Athletic Training Injury I
Credits: 4
Attributes: Writing Intensive Course

KIN 658L - Evaluation and Care of Athletic Training Injury I Lab
Credits: 1
Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: KIN 507.

KIN 659 - Evaluation and Care of Athletic Training Injury II
Credits: 4
Attributes: Writing Intensive Course

KIN 659L - Evaluation and Care of Athletic Training Injury II Lab
Credits: 1
Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: KIN 507.

KIN 660 - Therapeutic Exercise in Athletic Training
Credits: 4
KIN 661 - Therapeutic Exercise in Athletic Training Laboratory
Credits: 1
Students learn and practice psychomotor techniques associated with rehabilitative and conditioning exercise.

KIN 662 - Therapeutic Modalities in Athletic Training
Credits: 4
Rationale, use, and application of therapeutic modalities in athletic injury rehabilitation. Principles of electrophysics and biophysics. Physiological effects on body tissues, indications and contraindications, and clinical applications. Prereq: KIN 506; KIN 507.

KIN 663 - Therapeutic Modalities in Athletic Training Laboratory
Credits: 1
Students use and practice with the devices, machines, and techniques associated with the treatment and rehabilitation of athletic injuries.

KIN 665 - Laboratory Practicum in Athletic Training
Credits: 2
Clinical experience in athletic training under the supervision of UNH approved clinical instructor. Special fees (sections A-E) 2 credits (per section. 5 credits total). KIN 665A Prereq: KIN 506 and KIN 507. KIN 665B Prereq: KIN 658, and KIN 662. KIN 665C Prereq: KIN 659 and KIN 660. KIN 665D Co-Prereq: KIN 710. KIN 665E Prereq: KIN 665D.

KIN 666 - Middle School and Secondary Physical Education Practicum
Credits: 4
Students observe, assist and teach grades 6 through 12 within a public school. The course emphasizes lesson and unit plan design and implementation. Prereq: Open only to KIN: Hlth & Phys Ed majors. Writing intensive.

Attributes: Writing Intensive Course

KIN 667 - Pharmacology for Athletic Training
Credits: 2
Introduces the use of drugs as they pertain to the health care of athletes and their effect on athletic competition. Topics to be covered will include basic drug action, commonly prescribed medications, dealing with the diabetic and asthmatic athlete and performance enhancing substances. Prereq: junior or senior Standing.

KIN 668 - Ergogenic Aids in Sports
Credits: 2
In sports, faster, higher, stronger, longer, and better is what everyone wants. Athletes and coaches seek out sports ergogenics that will give them a training and performance advantage over their competition. This course introduces the use of sports ergogenics and their use in athletic competition. Prereq: sophomore, junior or senior Standing.

KIN 670 - General Medical Conditions in Athletics
Credits: 4
Athletes often sustain non-orthopedic pathologic conditions. An athletic trainer must be able to recognize, assess, and determine appropriate action or referral in an athlete suffering general or systemic illness or disease. Covers conditions affecting the major systems of the body. Prereq: KIN 620.

KIN 675 - Motor Development and Learning
Credits: 4
Characteristics of motor behavior across time, and the role of movement in children's and adolescents' total development. Growth processes, stage theory, as well as the relationship of maturation, experience, and the environment to motor development.

KIN 676 - Adventure Activities
Credits: 3
Provides teachers with the technical, physical, and teaching skills necessary to instruct adventure activities, initiatives, ropes course management, and orienteering. Prereq: KIN: Hlth & Phys Ed majors or permission of instructors. Special fee.

KIN 681 - Theory of Adventure Education
Credits: 4
An in-depth investigation of the theories that underpin the professional practice of outdoor education. Students examine program applications in corporate, therapeutic, and educational settings, study advanced facilitation techniques, and analyze pertinent outdoor education research. Prereq: KIN 550. Special fee. Writing intensive.

Attributes: Writing Intensive Course

KIN 682 - Outdoor Leadership
Credits: 4
Leadership theories applied through field experiences in adventure programming. Students will understand a variety of leadership, teaching, and communication styles, decision-making models, program planning and logistics, and risk management considerations for planning and delivering adventure programming. Prereq: KIN 541, KIN 550, KIN 686, and two technical skills classes. KIN:OE majors or instructor permission. Special fee.

KIN 684 - Emergency Medical Care: Emergency Medical Technician (EMT)
Credits: 3
Based on the curriculum established by the U.S. Department of Transportation for Emergency Medical Technician, and authorized by the State of New Hampshire-Bureau of Emergency Medical Services (EMS). Topics covered include trauma; medical, environmental and psychiatric emergencies; childbirth; hazardous materials; and infection control procedures. Students participate in clinical observations in one of the region's hospital emergency departments. Students have the option to take the state of NH-EMS Practical Examination and the National Registry Written Examination for EMT. Passage of both these examinations leads to national certification as an EMT. Pre- or Coreq: ANSC 511 and ANSC 512, ZOOL 401, BMS 507 and BMS 508.

KIN 685 - Emergency Medical Care: EMT Lab
Credits: 2
Basic emergency health care, including trauma patients, medical and environmental emergencies, and childbirth. Includes clinical experience with a local hospital and ambulance service. Prepares the student for the National Registry of EMT's Examination. Prereq: department approval. Pre- or Coreq: ANSC 511 and ANSC 512, ZOOL 401, BMS 507 and BMS 508. Special fee.

KIN 686 - Wilderness Emergency Medical Care
Credits: 4
Standards of practice for professionals providing emergency medical care in remote areas. Consideration of prolonged transport times, severe environments, and the use of portable and improvised equipment. Topics include wilderness trauma and illness, search and rescue operations, and environmental emergencies. KIN: Outdoor Education majors. Special fee.

KIN 687 - Leadership Practicum
Credits: 4
Supervised semester-long experience working with an organization external to the university setting to plan, prepare, and implement outdoor education programs and activities. Class sessions involve advanced leadership topics (e.g., current issues in risk management, conflict resolution, social justice issues, adaptive programming). Prereq: KIN OE major. Lab. Special fee.
KIN 690 - Study Abroad in Kinesiology  
**Credits:** 16  
A) Foreign study in, or related to, athletic training. Interested students should contact Program Director, Kinesiology Athletic Training Option. Prereq: KIN: Athletic Training majors only. Special fee. Cr/F. Permission.  
B) Foreign study in, or related to, exercise science. Interested students should contact Program Director, Kinesiology Exercise Science Option. Prereq: KIN: Exercise Science majors only. Special fee. Cr/F. Permission.  
C) Foreign study in, or related to, education. Interested students should contact Program Director, Kinesiology Outdoor Education Option. Prereq: KIN: Outdoor Education majors only. Special fee. Cr/F. Permission.  
D) Foreign study in, or related to, physical education. Interested students should contact Program Director, Kinesiology Physical Education Option. Prereq: KIN: Physical Education majors only. Special fee. Cr/F. Permission.  
E) Foreign study in, or related to, sports studies. Interested students should contact Program Director, Kinesiology Sports Studies Option. Prereq: KIN: Sports Studies majors only. Special fee. Cr/F. Permission.  
**Attributes:** World Cultures (Discovery); Foreign Culture GP 5  

KIN 693 - Teaching Assistantship  
**Credits:** 2  
A) Physical Education Pedagogy; B) Exercise Leader; C) Outdoor Education; D) Science Labs; E) Cardiac Rehabilitation; F) Coaching. Students serve as teaching teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants’ and administrative duties. May take two different sections. May be repeated up to a maximum of 4 credits. Prereq: Junior standing; departmental approval. Cr/F.  

KIN 694 - Supervised Teaching in Health and Physical Education  
**Credits:** 4-6  
This student teaching course is the capstone/culminating experience for students desiring teaching certifications in Health Education and Physical Education. All other required KIN courses need to be completed before student teaching. This course is for variable credit - 4 credits for teaching PE only, 6 credits for Health and PE. Students must also register for EDUC 694D for 4 credits. This course is Cr/F. Prereq: KIN 666, KIN 648, and KIN 712.  

KIN 696 - Independent Study  
**Credits:** 2-4  
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: Junior or senior; departmental approval. May be repeated to a maximum of 8 credits. Special fee.  

KIN 696W - Independent Study  
**Credits:** 2-4  
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student’s qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report) This proposal must be approved by option faculty and the department chair prior to the student’s registration for KIN 696 W1. All KIN 696 W1 projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty advisor (i.e. at least weekly or biweekly), to include written feedback from the advisor. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program, available at: http://www.unh.edu/writing/ Prereq: Junior or senior; departmental approval. May be repeated to a maximum of 8 credits. Writing intensive.  
**Attributes:** Writing Intensive Course  

KIN 699H - Honors Project  
**Credits:** 4  
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.  

KIN 702 - Health Content and Youth Risk Behavior  
**Credits:** 4  
This course explores the fundamental issues related to health and wellness. Learning outcomes include understanding the seven dimensions of wellness, the overarching foundations of health behaviors, the mind-body connection, how to access social sciences literature, and the eight national health education standards as outlined in the New Hampshire curriculum guidelines. Topics to be considered include adolescence, perception and attitude, self-concept, self-identity, gender, culture, family systems, love and relationships, mental illness and addiction.  

KIN 704 - Electrocardiography  
**Credits:** 4  
Designed to provide exposure to basic interpretation and identification of electrocardiograms (ECGs). Includes detailed heart anatomy, coronary circulation, cardiac conduction system, electrocardiogram development, and all aspects pertaining to normal and abnormal ECGs. Prereq: KIN 621, KIN Exercise Science majors.  

KIN 705 - Topics in Applied Physiology  
**Credits:** 4  
Advanced exercise physiology course dealing with topics both current and relevant to exercise science majors. Includes genetics, environmental influences, immune system, detraining and over-training, epidemiology, ergogenic acids, and the influence of age and gender. Prereq: KIN 620, 621. KIN Exercise Science majors. Special fee.  

KIN 706 - Neurology  
**Credits:** 4  
Development, morphology, internal configuration, physiology, histology, function, and pathology of the human nervous system. Prereq: BMS 507-508 or equivalent.
KIN 707 - Neurology Lab
Credits: 2
Basic histology, neuroanatomy and neurophysiology of the human nervous system. Use of brain specimens, videos and pathology case studies to elucidate cell structure, sensory and motor systems, and spinal cord, brainstem and cortical organization and anatomy. Prereq: BMS 507-508 or COMM 521 or equivalent. Special fee. Cr/F.

KIN 710 - Organization and Administration of Athletic Training Programs
Credits: 4
Principles of organization and administration of athletic training programs; management of personnel; legal aspects; relation of athletic trainer to athletic programs and sports medicine team. Writing intensive.
Attributes: Writing Intensive Course

KIN 712 - Health Education Practicum
Credits: 4
The purpose of this practicum is to provide students with the opportunity to observe, develop, and teach in a health education classroom. Students are required to accumulate 60 hours of teaching experience in the schools over the course of the semester. Weekly seminars will integrate field experience with content knowledge in health, nutrition and physical activity. Prereq: KIN 648.

KIN 715 - Seminar in Athletic Training
Credits: 4
Career issues and special topics in athletic training. Students are required to submit and present a term project on assigned topic. Prereq: KIN 665C.

KIN 718 - Career Preparation in Athletic Training
Credits: 4
The last Athletic Training required course, and designated "Capstone Experience", this course is designed to provide the students with means to integrate and augment concepts, skills, and knowledge gained in all previous major course requirements. Students write an evidenced-based-practice paper understanding and appreciating the role of evidence-based medicine in athletic training. Comprehensive practical exam. Prereq: KIN 665, sections A-D. Athletic Training majors only.

KIN 720 - Science and Practice of Strength Training
Credits: 4
Designed to provide students exposure to the knowledge and practical experience necessary for establishing strength development programs in a variety of populations, including healthy, athletic, and higher risk individuals. Program design, correct lifting techniques, physiological adaptations, and organization and administration of programs are highlighted. Includes fundamentals regarding the selection of programs and equipment, spotting techniques, as well as ways to assess strength and power in humans without expensive equipment. Prereq: KIN 620.

KIN 722 - Applied Biomechanics
Credits: 4
This course provides students with a background in the fundamental biomechanical principles that describe and govern human movement. Topics of the course will include friction, linear and angular motion, tissue mechanical properties, conservation of energy, work and power, fluid mechanics, stability and center of gravity, walking and running gait analysis. These topics are taught by quantitatively analyzing human movements through the use of modern biomechanical analyses including dynamometry, electromyography, accelerometry, and optical motion analysis. Prereq: BMS 507, BMS 508, KIN 652 or permission. KIN: Athletic Training major or permission.

KIN 724 - Exercise Metabolism: Acute and Chronic Adaptations
Credits: 4
Overview of the metabolic processes that occur during exercise and metabolic changes that occur as a result of exercise training. Topics include glycogenolysis and glycolysis in muscle, cellular oxidation of pyruvate, lipid metabolism, metabolism of proteins and amino acids, neural and endocrine control of metabolism, and fatigue during muscular exercise. Prereq: KIN 621; CHEM 404; KIN: Exercise Science majors. Special fee.

KIN 730 - Research Diving Techniques
Credits: 4
Takes previously certified divers with the need to assist, or conduct research underwater, and trains them in the methods and specific techniques of scientific diving programs. Progressively builds upon the basic diving skills until the student is knowledgeable and competent. Culminates with a small research project formulated and implemented by the students. Prereq: SCUBA certification, department approval. Special fee. (Also offered as ZOOL 730.)

KIN 731 - Inclusive Teaching Through Sport
Credits: 4
This hybrid course examines the practical application of inclusion through Paralympic and adapted sports including wheelchair basketball, sitting volleyball, goalball, boccia, table-top games and "traditional" sports. In-class sessions will be held the first three weeks while an online/independent portion will be conducted the last two weeks of the course. A variety of sporting activities will be introduced that provide educators with the needed tools to develop and implement physical and recreational programs for all.

KIN 735 - Advanced Scuba
Credits: 4
Designed to provide students exposure to the knowledge and practical experience necessary for establishing exercise programs in apparently healthy populations. Topics include fitness testing, test interpretation, and exercise prescription. Prereq: KIN 704, KIN Exercise Science majors. Special fee.

KIN 736 - Fitness and Graded Exercise Testing
Credits: 4
Designed to provide students exposure to the knowledge and practical experience necessary for establishing exercise programs in apparently healthy populations. Topics include fitness testing, test interpretation, and exercise prescription. Prereq: KIN 704, KIN Exercise Science majors. Special fee.

KIN 737 - Exercise Prescription and Leadership in Healthy and Special Populations
Credits: 4
Provides exposure to the knowledge and practical experience necessary for establishing exercise and health promotion programs in a variety of populations. Includes fundamentals regarding personal training and program selection, implementation and equipment, legal issues, and budget establishment. Strength training programs and special populations are highlighted. Prereq: CHEM 404. KIN 621; KIN: Exercise Science majors.
KIN 740 - Athletic Administration
Credits: 4
Introduces basic management components and processes used in the successful administration of school and college athletic programs. Topics include planning, organizing, and managing sports programs, personnel, and policies; game scheduling; finances and facilities; equipment and event management; student support services; and key legal issues.

KIN 741 - Social Issues in Contemporary Sports
Credits: 4
Investigation of interrelationships among sport, culture, and society in an attempt to understand the role and function of sport in contemporary society. Overview of selected socio-cultural factors that influence and result from participation in sports. Prereq: SOC 400 or permission.

KIN 742 - PE Practicum for Students with Disabilities
Credits: 4
This experience is part of the required coursework for the Adapted Physical Education (PE/APE) certificate through the Graduate School. As a bi-weekly seminar integrates the field experience with general physical education (GPE) and adapted physical education (PE/APE) concepts through class discussion, exercises, readings, and written assignments. The seminar format provides an opportunity for refinement and continued development of teacher skills and attributes for working with students with disabilities. Students learn to instruct effectively, to participate in the Individual Education Plan (IEP) process, and to manage their time.

KIN 743 - Sport Marketing
Credits: 4
Survey of concepts and processes used in the successful marketing of sport programs and events. Special emphasis on the unique or unusual aspects of sport products, markets, and consumers. Prereq: MKTG 550 or permission.

KIN 761 - Senior Seminar Sport Studies
Credits: 4
Discussions of sport studies topics, such as gambling, aggression, media, gender, race, class. Students consider different disciplinary approaches to these topics and develop projects to advance knowledge related to their interests. Prereq: KIN: Sport Studies majors; students must accumulate an aggregate total of 150 hours of work (paid or unpaid) in four approved sport organizations before they are allowed to register for KIN 761. Writing intensive.

Attributes: Writing Intensive Course

KIN 765 - Advanced Topics in Coaching
Credits: 4
This course goes beyond the basic principles of coaching and addresses advanced topics in coaching (talent identification, talent development) from both the science and the art of coaching technique and strategies. This course is structured as an upper division course in Sports Studies. Content includes topics related to the development of the field of coaching. The class makes extensive use of case studies and analysis of practical coaching situations for the betterment of coach development. This course combines lecture, small group discussion and practical application of material. Prereq: KIN 565.

KIN 780 - Psychological Factors in Sport
Credits: 4
Factors of outstanding athletic achievement; psychological variables in competition; the actions and interactions of sport, spectator, and athlete. Special attention directed to strategies for coaches, teachers, and athletic trainers to utilize sport psychology in their professional practice. Prereq: PSYC 401 or KIN 671.

KIN 781 - Inclusion in Physical Education
Credits: 4
Overview of special physical education. Addresses modifying instruction, expectations, and learning environment to accommodate physical and motor behaviors of students with disabilities. Lab. Writing intensive.

Attributes: Writing Intensive Course

KIN 782 - Therapeutic Applications of Adventure Programming
Credits: 4

KIN 786 - Organization and Administration of Outdoor Education Programs
Credits: 4
Study of administration of outdoor education programs using a variety of organizational models. Students use simulated exercises and work with outdoor agencies on special projects to learn the key factors necessary to manage a program. Prereq: KIN Outdoor Education majors. Special fee. Writing intensive.

Attributes: Writing Intensive Course

KIN 794 - Cardiopulmonary Pathologies
Credits: 4

KIN 795 - Practicum in Cardiac Rehabilitation
Credits: 2
Provides students with practical and theoretical experience in all aspects involving cardiac rehabilitation programs. Prereq: KIN 704, 794; Kin: Exercise Science majors only.

KIN 798 - Special Topics
Credits: 1-4
New or specialized courses not normally covered in regular course offerings. May be repeated up to 8 credits. Prereq: departmental approval. Special fee on some sections.

Languages, Literatures & Cultures (LLC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

LLC #444C - World of Salvador Dali
Credits: 4
Students investigate essential components of modern culture and Western tradition through the mind, art and writing of Salvador Dali. This interdisciplinary course poses fundamental, universal questions about human existence including death, rebirth and God, sexuality and love as well as the irrational dark side of our psyche. Certain cultural movements such as the Surrealist movement, Freudian psychoanalysis, the Gothic tradition and modern scientific discoveries and concepts are also explored. Special fee. Writing intensive.

Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course
LLC 535 - Professional Culture in the European Union - Case Study: Germany
Credits: 4
Conducted in English. No previous German required. Conducting business with countries of the European Union, with a particular emphasis on Germany. The course focuses on the central role played by professional culture and business practices in the global marketplace.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

LLC 535A - Professional Culture in Europe - Case Study: Germany
Credits: 4
No previous German required. Conducting business with countries of the European Union, with a particular emphasis on Germany. The course focuses on the central role played by professional culture and business practices in the global marketplace. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

LLC 535B - Professional Culture in Latin America - Case Study: Mexico and Brazil
Credits: 4
Conducted in English. No previous Spanish or Portuguese required. Conducting business with countries in Latin America with a particular emphasis on Mexico and Brazil. The course focuses on the central role played by professional culture and business practices in the global marketplace. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

LLC 535C - Porf Cult Asia Case Stdy China
Credits: 4
Conducted in English. No previous Chinese or Japanese required. Conducting business with countries in Asia, with a particular emphasis on China and Japan. The course focuses on the central role played by professional culture and business practices in the global marketplace. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

LLC 540 - Film History
Credits: 4
Examines the historical development of film from a global perspective and the emergence of national cinemas as well as the cross-cultural influences that have produced the modern transnational film industry. Special fee.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

LLC 551 - Comparative Literature: Masterpieces of World Literature I
Credits: 4
Comparative studies of major authors representative of important periods of literary achievement. Common themes and development of epic and lyric traditions in early Western and non-Western literatures. Introduction to various concepts of literature and genre. Topics and approaches may vary from semester to semester. Special fee. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

LLC 552 - Comparative Literature: Masterpieces of World Literature II
Credits: 4
Comparative studies of major authors representative of important periods of literary achievement. Renaissance to modern. Studies the age of empires through the colonial and post colonial periods. Introduction to various concepts of literature and genre. Topics and approaches may vary from semester to semester. Special fee. Writing intensive.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

LLC 555 - Discover Cuba: An Arts Experience
Credits: 4
This discovery course is designed to provide students with first-hand experience of the art, history, culture, music and visual arts of Cuba. The course combines an online academic class with on-site experiential learning though a fourteen day trip to Cuba. The course takes a highly contextual approach, locating the artwork in its historical, social, economic and cultural context for students to analyze and understand the complexities of modern Cuba. Special fee.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

LLC 595 - Language Practicum
Credits: 2-4
Practical use of language skills outside the classroom through special projects. Prereq: LLC 504 or its equivalent. May be repeated up to a maximum of 4 credits. Cr/F.

LLC 642 - Theory and Practice of Translation
Credits: 4
This course is designed both as an introduction to various theories and philosophies of translation and as an intensive workshop on different types of translation (literary, technical, professional, business, and health related, etc.). Translation is both a simple matter of transferring content and an intensely complex process of adapting linguistic, tonal, and cultural components of communication. The course works extensively on the craft of translation while developing detailed analyses of the theoretical and philosophical implications of choices made. Students complete various translation exercises and develop a significant final project. It is open to students at different levels of language ability but requires at least an intermediate competency. Students work at their own level. Taught in English. Prereq: LLC 504 or its equivalent. May be repeated up to a maximum of 4 credits. Cr/F.

LLC 695 - International Internship
Credits: 12
Field experience in governmental or nongovernmental organization abroad. Students are responsible for identifying and making arrangements with the sponsoring internship organization. All such arrangements are subject to the approval of the Department of Languages, Literatures, and Cultures. Open to juniors and seniors with at least a 3.2 G.P.A. Permission from the Program Coordinator and the Department chair is required. Approval of the Center for International Education is also required. Only open to European Cultural Studies majors. The internship is for 12 credits (non-variable). Cr/F.

LLC 791 - Methods of Foreign Language Teaching
Credits: 4
Objectives, methods and techniques in teaching foreign languages from elementary grades through college. Discussion, demonstration, preparation of instructional materials, microteaching of the language skills, including developments in computer-aided instruction. Special fee.
Latin (LATN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

LATN 401 - Elementary Latin I
Credits: 4
Elements of grammar, reading of simple prose. (No credit for students who have had two or more years of Latin in secondary school; however, any such students whose studies of Latin have been interrupted for a significant period of time should consult the section supervisor about possibly receiving credit.) Special fee.

LATN 402 - Elementary Latin II
Credits: 4
Elements of grammar, reading of simple prose. (No credit for students who have had two or more years of Latin in secondary school; however, any such students whose studies of Latin have been interrupted for a significant period of time should consult the section supervisor about possibly receiving credit.) Special fee.

LATN 403 - Review of Latin
Credits: 4
Intensive review of Latin grammar and vocabulary. Preparation for LATN 503. Designed primarily for those whose study of Latin has been interrupted for a year or more and for those who have had only two years of high school Latin. Special fee.

LATN 503 - Intermediate Latin I
Credits: 4
Review. Readings from Cicero, Caesar, Sallust, Livy, Catullus, Horace, Ovid, Plautus, Terence, and Seneca. Prereq: LATN 402 or equivalent. Special fee.

LATN 504 - Intermediate Latin II
Credits: 4
Review. Readings from Cicero, Caesar, Sallust, Livy, Catullus, Horace, Ovid, Plautus, Terence, and Seneca. Prereq: LATN 402 or equivalent. Special fee.

LATN 595 - Directed Reading
Credits: 2 or 4
Independent study of a classical or medieval Latin author. May be repeated to a maximum of 8 credits. Prereq: LATN 503, LATN 504, or equivalent. Special fee. Cr/F.

LATN 596 - Directed Reading
Credits: 2 or 4
Independent study of a classical or medieval Latin author. May be repeated to a maximum of 8 credits. Prereq: LATN 503, LATN 504, or equivalent. Special fee. Cr/F.

LATN 605 - Readings in Latin Literature
Credits: 4
Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement. Special fee.

LATN 606 - Readings in Latin Literature
Credits: 4
Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement. Special fee.

LATN 631 - Latin Prose Composition
Credits: 4
Grammar review; study of Latin prose style; English to Latin translation. Prereq: permission. Special fee.

LATN 753 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 754 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 755 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 756 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 795 - Special Studies
Credits: 4
A) Minor Authors of the Republic; B) Plautus; C) Terence; D) Minor Authors of the Empire; E) Suetonius; F) Latin Church Fathers; G) Medieval Latin; H) Advanced Latin Composition; I) Introduction to Classical Scholarship; J) Latin Epigraphy; K) Italic Dialects; L) Comparative Grammar of Greek and Latin; M) Roman Law. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 795 - Special Studies
Credits: 4
A) Minor Authors of the Republic; B) Plautus; C) Terence; D) Minor Authors of the Empire; E) Suetonius; F) Latin Church Fathers; G) Medieval Latin; H) Advanced Latin Composition; I) Introduction to Classical Scholarship; J) Latin Epigraphy; K) Italic Dialects; L) Comparative Grammar of Greek and Latin; M) Roman Law. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

Attributes: World Cultures(Discovery); Foreign Culture GP 5

Writing Intensive Course

LATN 606 - Readings in Latin Literature
Credits: 4
Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement. Special fee.

LATN 631 - Latin Prose Composition
Credits: 4
Grammar review; study of Latin prose style; English to Latin translation. Prereq: permission. Special fee.

LATN 753 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 754 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 755 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 756 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.

LATN 795 - Special Studies
Credits: 4
A) Minor Authors of the Republic; B) Plautus; C) Terence; D) Minor Authors of the Empire; E) Suetonius; F) Latin Church Fathers; G) Medieval Latin; H) Advanced Latin Composition; I) Introduction to Classical Scholarship; J) Latin Epigraphy; K) Italic Dialects; L) Comparative Grammar of Greek and Latin; M) Roman Law. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive. Each special topic may be repeated two times for up to eight credits.
**Life Sciences & Agriculture (LSA)**

*Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.*

**LSA 400 - Freshmen Seminar**
Credits: 1
Assistance to the undeclared student in identifying a major within the College of Life Sciences and Agriculture, including the biological, natural, and social sciences. The goal of this seminar is to support students in developing a sound academic program and assist them in making a successful transition from high school to college. The seminar also covers strategies for being a successful college student. Guest speakers from departments and programs lead discussions on career opportunities. Required for all first-semester LSA undeclared students. Cr/F.

**LSA 401 - Scientific Research Exploration**
Credits: 2
This course introduces incoming freshmen to the scientific research process via a hands-on approach, which includes case studies, group work, and a two-week research immersion experience under the guidance of the College of Life Sciences and Agriculture (COLSA) faculty. Course readings, discussions, and active participation in local research will facilitate the student's exploration of experimental design, hypothesis testing, data collection and analysis, interpretation of results, and effective communication of research findings. In the context of a group research project, students begin thinking like scientists, as well as strengthening their math, writing, an oral communication skills. Prereq: permission. Open to incoming freshmen only.

**LSA 699 - Special Topics**
Credits: 1-2
Seminar on new or specialized topics that involve two or more disciplines in the College of Life Sciences and Agriculture and are not covered in regular course offerings. May be repeated to a maximum of 4 credits.

**LSA 700 - COLSA Capstone Experience**
Credits: 0
Course for COLSA majors completing their capstone requirement with a non-course experience. Must receive advisor's permission and sign up in department office. Cr/F.

**LSA 798 - Who's on First? Interprofessional Colloquium**
Credits: 2
Students engage with other professions on teams working through health care situations across the continuum. Students collaborate with faculty mentors to learn effective strategies in team-based care and develop competencies in ethics, responsibility, communication and teamwork. (Also listed as HHS 798.) Cr/F.

**Linguistics (LING)**

*Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.*

**LING 405 - Introduction to Linguistics**
Credits: 4
Overview of the study of language: universal properties of human language, Chomsky’s innateness hypothesis, language acquisition in children, dialects and language variation, language change. Includes an introduction to modern grammar (phonology, syntax, and semantics) and to scientific linguistic methodology. (Also offered as ENGL 405.)

Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

**LING 405H - Honors/Introduction to Linguistics**
Credits: 4
Overview of the study of language: universal properties of human language, Chomsky’s innateness hypothesis, language acquisition in children, dialects and language variation, language change. Includes an introduction to modern grammar (phonology, syntax, and semantics) and to scientific linguistic methodology. (Also offered as ENGL 405.)

Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

**LING 605 - Intermediate Linguistic Analysis**
Credits: 4
Analysis and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis is both practical (learning how to describe grammar and sound system of a language) and theoretical (understanding languages’ behavior). Prereq: LING/ENGL 405, or permission. (Also offered as ENGL 605.)

**LING 606 - Languages of the World**
Credits: 4
A survey of the languages of the world from genetic, areal, and typological perspectives. Students learn about the geographic and demographic distribution of language families and language isolates, as well as about structural characteristics of languages, language families and language areas. Additional topics include language endangerment and the question of linguistic universals. Students work collaboratively on a project investigating a particular language family, giving in class presentations and writing up a final project report. Some prior knowledge of phonetics, phonology, morphology, and syntax is necessary. Prereq: ENGL 605/LING 606 or ENGL 405/LING 405 and permission of the instructor.

**LING 620 - Applied Experience in Linguistics**
Credits: 1-4
Students who have an opportunity for appropriate career-oriented work experience may arrange with a faculty sponsor to add an academic component. The work must be related to the linguistics major, and nonacademic employers must normally be an established organization approved by Career Services. Research and writing required in addition to the job experience. Registration requires permission of employer, faculty sponsor, and major adviser. May be repeated with permission to a maximum of 8 credits. Up to 4 credits may count toward the linguistics major requirements, with permission of the program coordinator. Prereq: LING 505; permission. Cr/F.

**LING 695 - Senior Honors**
Credits: 4
Open to senior LING majors who, in the opinion of the department, have demonstrated the capacity to do superior work. Prereq: permission.
LING 719 - Sociolinguistics Survey
Credits: 4
How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationships to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq; ENGL 405 (previously numbered 505) or permission. (Also offered as ENGL 719.)

LING 779 - Linguistic Field Methods
Credits: 4
Study of a non-Indo-European language by eliciting examples from an informant, rather than written descriptions of the language. Students learn how to work out the grammar of a language from raw data. Prereq: ENGL 405. (Also offered as ENGL 779.) (Not offered every semester.) Writing intensive.
Attributes: Writing Intensive Course

LING 790 - Special Topics in Linguistics Theory
Credits: 4
Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory, and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as ENGL 790.) Writing intensive.
Attributes: Writing Intensive Course

LING 793 - Phonetics and Phonology
Credits: 4
Sound system of English and of other languages viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as stress and intonation. Prereq: a basic linguistics course or permission. (Also offered as ENGL 793.)

LING 794 - Syntax
Credits: 4
Relationship of grammar and meaning viewed from the standpoint of modern linguistic theory. Emphasis on the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. Prereq: a basic linguistics course or permission of the instructor. (Also offered as ENGL 794.) Writing intensive.
Attributes: Writing Intensive Course

LING 795 - Independent Study
Credits: 1-4
A) Synchronic Linguistics, B) Diachronic Linguistics, C) Linguistic Theory. For students showing a special aptitude for linguistics who desire to pursue a line of inquiry for which no appropriate course is offered. All requests must be forwarded by the faculty sponsor to the director of the Inter-departmental Linguistics Committee.

LING 796 - Independent Study
Credits: 1-4
A) Synchronic Linguistics, B) Diachronic Linguistics, C) Linguistic Theory. For students showing a special aptitude for linguistics who desire to pursue a line of inquiry for which no appropriate course is offered. All requests must be forwarded by the faculty sponsor to the director of the Inter-departmental Linguistics Committee.

Management (MGT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MGT 444 - Meaning of Entrepreneurship
Credits: 4
This course explores the idea and ideals of entrepreneurship, the creating of value through individual initiative, creativity, and innovation. The idea of entrepreneurship is of significant relevance in the highly dynamic and competitive 21st century global economy. It is an idea that is important for students to understand and to critically consider and apply. The course encourages the development of multiple views of entrepreneurship, and uses a broad, not just business, approach to the study as it engages students in the subject matter. Open to freshmen from all majors. (Also offered as DS 444 in alternating terms). Writing intensive.
Attributes: Environment,TechSociety(Disc); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

MGT 580 - Introduction to Organizational Behavior
Credits: 4
Application of behavioral science concepts to work settings in profit and nonprofit organizations. Individual settings behavior, interpersonal relations, work groups, relations among groups studied in the context of organizational goals and structure. Experiential focus. For non-business administration majors and minors. No credit for students who have had ADMN 575.

MGT 598 - Topics
Credits: 4
Special topics; may be repeated.

MGT 614 - Organizational Leadership and Structure
Credits: 4
How structural characteristics in an organization (e.g., the design of roles, reporting relationships, coordinating mechanisms, communication systems, and processes, etc.) affect whether leader actions and choices enable or prevent high performance. An open systems framework is used to assess how reactions to change occurring inside and outside an organization determine whether individuals, groups, and organizations position themselves to adapt, grow and develop, or decline. Examination of individual roles in organizations. Prereq: ADMN ADMN 575.

MGT 647 - Business Law I
Credits: 4
Law of contracts, agency, sales, negotiable instruments, real and personal property, partnership and corporations, with application of the Uniform Commercial Code. Prereq: Junior standing, ECON 401, ECON 402, and ADMN 420.

MGT 701 - Business, Government, and Society
Credits: 4
Managerial problem solving and decision making relative to economic, ethical, legal, political, social, and technological aspects of an organization's environment. Case discussion, stakeholder analysis, managerial values and ethics, and social issues management are important course components. Open to WSBE majors only. Prereq: ADMN 575; at least two of ADMN 570 or ADMN 580 and ADMN 585.
MGT 713 - Leadership Assessment and Development
Credits: 4
Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student’s behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq: ADMN 575.

MGT 732 - Exploration in Entrepreneurial Management
Credits: 4
Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises. Prereq: ADMN 570, ADMN 575, and ADMN 585. Writing intensive.

Attributes: Writing Intensive Course

MGT 742 - Internship in Entrepreneurial and Management Practice
Credits: 4
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high growth environment of entrepreneurial ventures. Focuses on several topic areas, including venture capital. Prereq: senior standing; permission. (Also listed as DS 742.)

MGT 755 - International Management
Credits: 4
Develops an understanding of international ventures and partnerships from the viewpoint of management, leadership, human resource management, and organizational structure and strategy. Emphasizes the impact of culture on business practices and on interpersonal skills and global perspectives needed for personal effectiveness in international and multicultural environments. Students are required to read the current literature, write short papers and give presentations to the class. Cr/F.

Attributes: Writing Intensive Course

MGT 798 - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission.

MGT 798W - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission. Writing intensive.

Attributes: Writing Intensive Course

**Marine, Estuarine and Freshwater Biology (MEFB)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MGT 713 - Leadership Assessment and Development
Credits: 4
Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student’s behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq: ADMN 575.

MGT 732 - Exploration in Entrepreneurial Management
Credits: 4
Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises. Prereq: ADMN 570, ADMN 575, and ADMN 585. Writing intensive.

Attributes: Writing Intensive Course

MGT 742 - Internship in Entrepreneurial and Management Practice
Credits: 4
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high growth environment of entrepreneurial ventures. Focuses on several topic areas, including venture capital. Prereq: senior standing; permission. (Also listed as DS 742.)

MGT 755 - International Management
Credits: 4
Develops an understanding of international ventures and partnerships from the viewpoint of management, leadership, human resource management, and organizational structure and strategy. Emphasizes the impact of culture on business practices and on interpersonal skills and global perspectives needed for personal effectiveness in international and multicultural environments. Students are required to read the current literature, write short papers and give presentations to the class. Cr/F.

Attributes: Writing Intensive Course

MGT 798 - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission.

MGT 798W - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission. Writing intensive.

Attributes: Writing Intensive Course

**Marine, Estuarine and Freshwater Biology (MEFB)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MGT 713 - Leadership Assessment and Development
Credits: 4
Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student’s behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq: ADMN 575.

MGT 732 - Exploration in Entrepreneurial Management
Credits: 4
Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises. Prereq: ADMN 570, ADMN 575, and ADMN 585. Writing intensive.

Attributes: Writing Intensive Course

MGT 742 - Internship in Entrepreneurial and Management Practice
Credits: 4
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high growth environment of entrepreneurial ventures. Focuses on several topic areas, including venture capital. Prereq: senior standing; permission. (Also listed as DS 742.)

MGT 755 - International Management
Credits: 4
Develops an understanding of international ventures and partnerships from the viewpoint of management, leadership, human resource management, and organizational structure and strategy. Emphasizes the impact of culture on business practices and on interpersonal skills and global perspectives needed for personal effectiveness in international and multicultural environments. Students are required to read the current literature, write short papers and give presentations to the class. Cr/F.

Attributes: Writing Intensive Course

MGT 798 - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission.

MGT 798W - Topics
Credits: 4
Special topics; may be repeated. Prereq: permission. Writing intensive.

Attributes: Writing Intensive Course

**Marine, Estuarine and Freshwater Biology (MEFB)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MGT 713 - Leadership Assessment and Development
Credits: 4
Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student’s behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq: ADMN 575.

MGT 732 - Exploration in Entrepreneurial Management
Credits: 4
Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises. Prereq: ADMN 570, ADMN 575, and ADMN 585. Writing intensive.

Attributes: Writing Intensive Course
MEFB 503 - Introduction to Marine Biology  
Credits: 4  
Emphasizes the organization of marine biological communities. Various marine environments pelagic, benthic, temperate, tropical, and their characteristic communities. Major emphasis on the approaches (e.g., analysis of energy flow and predator-prey interactions) used to analyze marine communities as well as the sampling techniques employed for each approach and the characteristic habitat type. Prereq: BIOL 411 and BIOL 412. Special fee.

MEFB 504 - Field Wildlife Forensics  
Credits: 2  
Introduction to forensic science and the utilization of marine biology within the justice system. Comprehensive instruction concerning the recognition, documentation, collection, and preservation of physical evidence. Students develop practical incident response, scene management, and forensic teamwork skills. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 510 - Field Ornithology  
Credits: 4  
Introduces field ornithology focusing on the biology, ecology, and behavior of avifauna on the Isles of Shoals. Includes such ornithological field methods as censusing techniques, territory mapping, banding, behavioral observation, and creating a field notebook. Fieldwork is designed to supplement many classroom concepts, including territoriality, breeding biology, and survivorship. Prereq: one year of college-level biology. Lab. (Summers only at Shoals Marine Lab.) Special fee. Permission required.

MEFB 515 - Marine Environmental Science and Conservation  
Credits: 4  
Focuses on the major principles of conservation biology and methods to bring human communities into a better relationship with natural resources: Coastal ecosystem processes; coastal biodiversity; threats to coastal ecosystems; species conservation conserving ecosystem function and services. Projects: construct management goals/actions for local land owners. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 525 - Introduction to Aquatic Botany  
Credits: 4  
This team-taught course introduces students to microalgae, seaweeds, and vascular aquatic plants with an emphasis on unique habitats and plant adaptations to the aquatic environment. Students survey the diversity of algae and aquatic plants spanning fresh, estuarine, and marine habitats through a combination of lecture, field, and laboratory exercises. Special fee.

MEFB 527 - Aquatic Animal Diversity  
Credits: 4  
Provides a survey of aquatic animal groups from the simplest multicellular forms to birds and mammals. The emphasis is on comparing the basic functional systems (i.e., skeletal, digestive, reproductive, etc.) between groups and to illustrate how they change with increasing complexity and to describe adaptations to freshwater, estuarine and marine environments and the roles the groups play in aquatic communities. Special fee.

MEFB 530 - Evolution and Marine Diversity  
Credits: 4  
Patterns of diversity and processes of evolution. Topics include the diversity of life, the fossil record, macro-evolutionary patterns, the genetics and developmental basis of evolutionary change, processes at the population level, evolution by natural selection, modes of speciation, long-term trends in evolution, and human evolution. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 535 - Marine Mammal Biology  
Credits: 4  
This course explores the biology and conservation of the whales and seals, with a particular focus on species of the Gulf of Maine. Lectures examine many facets of marine mammal science including: taxonomy and species diversity, morphological and physiological adaptations for life in the sea, foraging ecology and behavior, reproductive cycles, bio-acoustics, anthropogenic interactions, and management of threatened species. Land and open water observations of whale and seal behavior give students hands on opportunities to study marine mammals in the field. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 540 - Introductory Field Oceanography  
Credits: 2 or 4  
Over 70% of the earth's surface is covered by oceans. Students in this course will gain familiarity with the basic concepts and field techniques (and equipment) used by biological oceanographers as we explore the Gulf of Maine waters using the Isles of Shoals as our base. Minimal lecture time, maximum boat time is the theme of this field immersion course. Special fee. Prereq: BIOL 411 or BIOL 412. Permission required.

MEFB #609 - Biology of the Lobster  
Credits: 3  
An introduction to the biology of the American lobster, Homarus americanus. The course includes an overview of this ecologically and economically important species, and covers several major topics in depth, each taught by a lobster biologist expert in that field. Topics may include life history, larval development and metamorphosis, anatomy, physiological adaptation, fisheries and fishing methods, feeding mechanisms, ecology, and behavior. Lecture, laboratory, discussion, and field work. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology.

MEFB #615 - Field and Experiment Oceanography  
Credits: 3  
Intended for mid-upper division undergrads, this course provides a foundation in oceanography (the four oceanographic disciplines: geological, chemical, physical, and biological) applied in experimental and field settings. Includes two oceanographic trips in the Gulf of Maine. Student groups develop a small oceanographic project while on Appledore Island, carry it out, and present their study to the Shoals academic community. The course integrates investigative, practical, and theoretical aspects of oceanography. Prereq: one term college biology or permission. Special fee.
MEFB 616 - Tropical Coastal Plant Ecology  
Credits: 4  
A field-based course taught on location in Grenada, West Indies, providing an introduction to the physical chemical and biological processes that form and sustain tropical coastal plant communities with an emphasis on mangroves and seagrasses. Plant adaptations to various environmental stresses will be examined over a range of habitats spanning a gradient of salinity from fresh to saline environments. As a dynamic ecosystem affected by both natural and anthropogenic disturbances from hurricanes to large-scale development, major environmental impacts and pressures will be examined first hand, and conservation and management actions will be discussed. A variety of on-going, community-based coastal habitat restoration and ecological monitoring sites will be visited throughout Grenada. Student participation in management actions will be encouraged through interaction with students from St. Georges University, local volunteers, and representatives from governmental environmental agencies and local non-governmental organizations. The course material is relatively specialized and is appropriate for juniors and seniors with interest/background in botany, coastal ecology and restoration, and conservation. Prereq: BIOL 411 and BIOL 412.

MEFB 625 - Introduction to Marine Botany  
Credits: 4  
Life history, classification, and ecology of micro- and macroscopic marine plants, including phytoplankton, seaweed, and salt marsh plants, and the interactions between humans and marine plant communities. Periodic Saturday morning field trips. Prereq: BIOL 412 or PBIO 412 or permission. Special fee. Lab.

MEFB 630 - Biodiversity and Biology of Marine Invertebrates  
Credits: 4  
An introduction to the biology and evolution of the major invertebrate phyla, concentrating on marine representatives. Emphasis placed on the evolution of form and function, and the ecology, behavior, physiology, chemical ecology, and natural history of invertebrates. Appledore Island’s unique location provides an excellent venue for the study of freshly collected and in situ representatives of most of the major phyla. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology. Permission required.

MEFB 674 - Ecology and Marine Environment  
Credits: 4  
Introduces the marine sciences with an emphasis on field work in natural habitats. Examines aspects of the systematics, morphology, physiology, behavior, and ecology of marine organisms, including intertidal plants and invertebrates, fishes, marine mammals and birds; fisheries biology; oceanography, marine geology; and human impacts on the marine environment. Sessions include lectures, discussions, field work, experience aboard a coastal research vessel, and excursions to distinctive habitats. Offered in cooperation with Cornell University. Students may not take Field Marine Science after taking Field Marine Biology and Ecology. Prereq: one full year of college-level biology/or permission. Special fee. (Summers only at Shoals Marine Lab.) Permission required.

MEFB 702 - Sustainable Marine Fisheries  
Credits: 4  
An intensive course for undergraduate students that introduces students to the complex challenges facing today's fishing industry, which is being asked to simultaneously sustain the livelihood of fishermen while meeting long-term conservation goals. The course is held both at the UNH Campus and at the Shoals Marine Laboratory. New England fisheries are used as a case-study for this course through global fishing management, trends, and issues are also discussed. Special fee. Permission required.

MEFB 714 - Field Animal Behavior  
Credits: 4  
An animal’s behavioral patterns represent its abilities to deal with the environment dynamically. Course focuses on ecological and evolutionary significance of behavioral patterns found in all organisms, particularly those animals that inhabit coastal marine environments. Strong emphasis on methods of behavioral research and interpretation of behavioral patterns using field observations of diverse fauna of Appledore Island and surrounding waters. Prereq: one year college biology or permission. Special fee. (Summers only at Shoals Marine Lab.) Permission required.

MEFB 717 - Lake Ecology  
Credits: 4  
Introduces the ecology of freshwater systems with emphasis on lakes. Origins of lakes and the effects of watersheds on lake chemistry and nutrient cycling are explored. Other topics include the impact of human disturbances on productivity and aquatic food webs and methods used for the management and restoration of lakes. Comparisons are made of the structure and functions of lake ecosystems found in temperate, tropical and arctic regions. Prereq: general biology.

MEFB 719 - Field Studies in Lake Ecology  
Credits: 4  
Ecology of lakes and other freshwater habitats examined through field studies. Emphasizes modern methods for studying lakes; analysis and interpretation of data; and writing of scientific papers. Seminars on research papers and student presentations of class studies. Field trips to a variety of lakes, from the coastal plain to White Mountains; investigate problems, such as eutrophication, acidification, biodiversity and biotoxins. Capstone experiences include interaction with state agencies, lake stakeholders and the submission of written manuscripts for publication. Prereq: general biology. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

MEFB 722 - Marine Phycology  
Credits: 4  
Identification, classification, ecology, and life histories of the major groups of marine algae, particularly the benthonic marine algae of New England. Periodic field trips. Prereq: BIOL 412 or BIOL 703. Lab. (Offered alternate years.) Special fee.

MEFB 725 - Marine Ecology  
Credits: 4  
Marine environment and its biota, emphasizing intertidal and estuarine habitats. Includes field, laboratory, and independent research project. Prereq: general ecology; permission. Marine invertebrate zoology, oceanography, and statistics are desirable. Special fee. (Offered alternate years.)
MEFB 727 - Algal Physiology
Credits: 3
Survey of major topics in the physiology and biochemistry of marine and freshwater algae including: nutrition, metabolic pathways, reproductive physiology, storage and extracellular products, cell inclusions, growth and development. Prereq: plant physiology or introductory biochemistry or permission. (Not offered every year.)

MEFB 730 - Underwater Research
Credits: 4
Hypothesis testing and experimental design, theoretical and practical aspects of sampling, and critiques of current research papers. Includes special problems of conducting research underwater (diving physics and physiology, theory and use of diving tables, hyperbaric medicine) and underwater techniques (underwater photography and video, photo quadrates, tagging and marking, cages and enclosures). Students must supply their own equipment. Students with special research interests are encouraged to enroll in an additional third week of independent underwater research. Prereq: recognized scuba certification, a medical examination, one year of biology or other supporting science. (Summers only at Shoals Marine Lab.) Special fee. Permission required.

MEFB 732 - Lake Management
Credits: 4
Lectures and seminars on interpreting lake water quality, developing a natural history inventory for lakes, the process of creating a lake management plan, and resolution of conflicting uses of lakes. Students develop lake management plans in cooperation with governmental agencies and lake associations. Guest speakers from state agencies and non-governmental organizations. Introduces use of GIS (Geographic Information Systems) methods for the analysis of lakes and watersheds. Presents lake management issues from scientific and social science points of view. Open to students from all disciplines. (Also offered as ZOOL 732.) Special fee. Lab.

MEFB #734 - Diversity of fishes
Credits: 3
Emphasizes the diversity of fishes in two aspects: diversity of evolutionary solutions to problems faced by fishes and the great diversity of different types of fishes that inhabit the world. Prereq: one full year of college level biology; background in vertebrate biology is recommended, but not required. Special fee. (Summers only at Shoals Marine Lab.)

MEFB 747 - Aquatic Plants in Restoration/Management
Credits: 4
A field-intensive class focusing upon freshwater and marine vascular plants with an emphasis on species commonly associated with ecological restoration, the identification and conservation of rare species, and the adaptations and management of invasive species of aquatic habitats in New England. Field trips emphasize the flora of various wetland habitats, including open water and vegetated fresh water wetlands, as well as coastal and estuarine habitats. Lectures and readings examine the current trends in research and management focusing upon specific taxa and pertinent facets of their taxonomy, physiology, and natural history. Prereq: PBIO 566 or permission. Special fee.

MEFB 751 - Research in Marine Biology
Credits: 4
Introduces the adaptations of organisms to marine environments and the role these adaptations have in structuring marine communities using an experimental approach. Emphasizes experimental design, implementation, data analysis, and scientific presentations. Prereq: one year of college-level biology or permission. Additional experience in biology, ecology or physiology is recommended. Prereq: BIOL 411, BIOL 412. Special fee. (Summers only at Marine Lab.)

MEFB 754 - Anatomy and Function of Marine Vertebrates
Credits: 4
The course is designed to introduce students to a comparative study of the principal organ systems of vertebrates (i.e., fishes, sea turtles, marine birds, marine mammals) that are specifically adapted to the marine environment. Rather than focusing only on description of anatomical structure, the anatomy of structures are investigated with function, biological role, and evolutionary relationships. Laboratory exercises cover osteology, dissection, behavior and biomechanics. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college biology/or permission. Permission required.

Marketing (MKTG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MKTG 550 - Survey of Marketing
Credits: 4
Focuses on marketing as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational objectives. For business administration minors and non-business administration majors. No credit for students who have had ADMN 585 or HMGT 600.

MKTG 557 - Promotion and Advertising
Credits: 4
Focuses on advertising and promotions while providing coverage of other marketing communication tools (direct marketing, point-of-purchase, personal selling, public relations). Examines both traditional and electronic/online/digital approaches to advertising and promotions as means to reach audiences with messages that support the organization's goals. Prereq: MKTG 550.

MKTG 559 - Foundations of Personal Selling
Credits: 4
The Foundations of Personal Selling combines heavy experiential learning with the academic principles of relationship selling to prepare students for the professional world. Students learn personal selling as they develop an understanding of, and appreciation for, applying the consultative sales process through partnering with customers. This course is ideal for those exploring a career in sales or simply interested in knowing how to sell their own strengths.

MKTG 598 - Topics in Marketing
Credits: 1-4
Special topics covering a variety of marketing principles. Topics may include promotion and advertising; retail and retail management; sales and sales management. Certain topics may have pre- or co-requisite courses. May be repeated up to 12 credits. Certain topics may have a special fee.
MKTG 598T - Topics in Marketing/Study Away  
Credits: 1-4  
Study away. May be repeated up to 12 credits. Special fee.

MKTG 750 - Marketing Strategy  
Credits: 4  
An integrative marketing course designed to provide the student with a cohesive understanding of marketing decision making through the exploration of marketing problems with an emphasis on qualitative analysis as well as strategy formulation. Through the use of case studies, the course is designed for students who want to learn and apply what they learn, and thus emphasizes both the understanding and the application of concepts and practices in marketing strategy. Prereq: ADMN 585. MKTG 752 and/or MKTG 753 are recommended.

MKTG 752 - Marketing Research  
Credits: 4  
Understanding fundamental concepts, tools, and methods used in conducting a marketing research study. Taking general managerial problems and structuring them in terms of specific questions amenable to research. Developing a competence in designing and conducting common qualitative and quantitative research (e.g., survey research). Students will learn various statistic techniques commonly used in marketing research and be able to use these analyses to provide managerial recommendations. Prereq: ADMN 585 or HMGT 600.

MKTG 753 - Consumer/Buyer Behavior  
Credits: 4  
Covers concepts, models, and theories from the behavioral sciences applied to consumer decision making and purchasing behavior. Examines consumer behavior from economic, psychological, sociological, and anthropological perspectives. Topic coverage includes discussion of marketing strategies and tactics to understand and influence consumer choice. Prereq: ADMN 585 or HMGT 600. Writing intensive.  
Attributes: Writing Intensive Course

MKTG 756 - International Franchising  
Credits: 4  
Designed to provide an understanding of franchising as a system of distribution and business expansion. Franchising is studied from both the perspectives of the franchise and the franchiser. In addition, economic, financial, and legal issues associated with franchising are covered. By the end of the course, students have skills and sources of information that permit sound assessment of the business opportunities available in franchising. Prereq: ADMN 585 or HMGT 600. (Also offered as HMG 756.)

MKTG 757 - Integrated Marketing Communication  
Credits: 4  
Provides balanced coverage of all marketing communication tools: advertising, sales promotion, public relations, direct marketing, personal selling, POP, packaging, sponsorships, licensing, customer service. Emphasizes the integration of these tools to send target audiences a consistent, persuasive message that promotes the organization's goals. Prereq: ADMN 585 or HMGT 600.

MKTG 759 - The Business of Sales  
Credits: 4  
The Business of Sales combines heavy experiential learning with the academic principles of relationship selling to prepare students for the professional world. Students learn personal selling skills as they develop an understanding of, and appreciation for, applying the consultative sales process through partnering with customers. This course builds on the core business curriculum to help shape and present compelling value proposals. It is ideal for those exploring a career in sales or simply interested in knowing how to sell their own strengths.

MKTG 760 - International Marketing  
Credits: 4  
Environmental factors affecting international trade: culture and business customs, political and legal factors and constraints, economic and technological development, and the international monetary system. Integration of these with the marketing management functions of market research and segmentation, product, promotion, distribution, and pricing decisions. Prereq: ADMN 585 or HMGT 600.

MKTG 762 - Marketing Workshop  
Credits: 4  
This course is open only to senior marketing option students and serves as their capstone learning experience. Students work in small teams on a real-world marketing problem given them by outside businesses, non-profits, or government agencies. The teams conduct extensive field research, formulate strategy, and then implement, or test marketing campaign ideas and programs. Prereq: Senior standing; at least two of MKTG 752, MKTG 753, and MKTG 763. Writing intensive.  
Attributes: Writing Intensive Course

MKTG 763 - Marketing Analytics  
Credits: 4  
Marketing Analytics introduces students to the fascinating world of marketing analytics. It provides a broad perspective on product, consumer, marketing-mix, and digital analytics areas. It blends the art and science of marketing and orients students to the systematic use of data and empirical models, which enhance the decision-making of a company about its customers, competitors, and the industry. Prereq: ADMN 585 or HMGT 600. Pre- or Coreq: ADMN 580.

MKTG 764 - New Product Development  
Credits: 4  
Tactical and strategic issues concerned with the development and marketing of product and service innovations. Equips students with the concepts, tools, and approaches useful in the development, management, and marketing of products and services. Provides an integrated experience of the process of uncovering customer problems, understanding these problems, and providing superior solutions. Prereq: ADMN 585 or HMGT 600.

MKTG 765 - Applications in Digital Marketing  
Credits: 4  
This class will introduce students to the different disciplines that make up digital marketing in order to better prepare them for roles as either digital marketing generalists (where they will need to appreciate and possess a broad understanding of these disciplines), or as digital marketing specialists, (where they will need to focus on and master one of these disciplines). Prereq: ADMN 585.

MKTG 798 - Topics  
Credits: 4  
Special topics; may be repeated. Prereq: ADMN 585 OR HMGT 600. Special fee on some topics.
Materials Science (MS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MS 401 - Science of Stuff
Credits: 4
Materials Science is a relatively new and fast growing field that studies all types of materials, including metals, ceramics, polymers, semiconductors, and composites. Material Science explores how stuff is put together, how to change stuff and make it better, the properties and applications of stuff, and even how to make totally brand new stuff. This course explores materials from various topic areas, including sports, forensics, medicine and health, fashion, architecture and construction, music and art, food and transportation from the perspective of materials science. Students explore additional materials independently as well as practice the process of science through simple experimentation and data analysis. Special fee.
Attributes: Physical Science(Discovery); Technology GP 3T

MS 402 - Nanoscience in Energy
Credits: 4
An introduction to nanomaterials, or matter with important structural features that are nanometers in size. A nanometer is very small—a billionth of a meter; a sugar molecule is only about 1 nm wide. Scientists and engineers are now building materials by manipulating atoms or groups of atoms. The course explores how materials with nanoscale features demonstrate novel and beneficial properties for energy applications. the growing energy demands of the planet require timely, if not urgent, innovative multidisciplinary solutions. These solutions require an informed citizenry knowledgeable about the various perspectives related to powering our planet. This course is a means to inform the non-scientist student about the physical science aspects of energy, nanomaterial solutions for our energy needs, along with some historical, economic, and environmental perspectives. The energy discussion provides a backdrop for our exploration of the structure and properties of nanomaterials. Special fee.
Attributes: Physical Science(Discovery); Physical Science GP 3P

MS 762 - Electronic Materials Science
Credits: 4
Provides students with a foundation in the materials science of modern electronic devices. Examples are taken primarily from the fields of semiconductor electronics and nanotechnology. Prereq: PHYS 408, MATH 527.

Mathematics & Statistics (MATH)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MATH 301 - Elementary Math I
Credits: 4
Beginning algebra including integer operations, solving linear equations, graphing linear functions, solving linear inequalities, systems of linear equations, polynomials, rational expressions and equations, and exponents and radicals. May not be taken for credit toward a bachelor’s degree.

MATH 302 - Elementary Math II
Credits: 4
Review of elementary algebra, exponents, polynomials, factoring, rational exponents, and absolute value. Solving linear and quadratic equations and inequalities; systems of equations; radical equations. Linear functions and related notions; quadratic functions. May not be taken for credit toward a bachelor’s degree. Prereq: MATH 301 or the equivalent.

MATH 400 - Freshman Seminar
Credits: 1
A seminar experience that presents a mathematical culture associated with first-year college mathematics, including the ideas of abstraction, theorem and proof, ad that provides a perspective of the diversity of mathematical areas of research and their interrelationships. Emphasis is on reading and writing mathematics. Cr/F.

MATH 418 - Analysis and Applications of Functions
Credits: 4
Analysis and applications of algebraic and transcendental functions, with special emphasis on exponential, logarithmic, and trigonometric functions. Graphical analysis. Written projects are required on some or all of the following topics: rates of change, optimization, logarithmic or exponential modeling, and trigonometric functions. Intended for students planning to take MATH 425. Prereq: MATH 302 or equivalent. Not offered for credit if credit is received for MATH 424 or MATH 425.

MATH 420 - Finite Mathematics
Credits: 4
Topics selected from probability, systems of linear equations, matrix algebra, linear programming, mathematics of finance. Not a preparation for calculus. Prereq: MATH 302 or the equivalent. Not offered for credit to mathematics majors.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 421 - Pathways between Mathematics and the Arts
Credits: 4
Exploration of the interaction between mathematics and the arts on numerous levels. The course builds on basic knowledge of elementary number systems to illuminate such topics symmetry, fractals, light, color, sound structures and musical materials. Student immediately apply new knowledge and techniques to make computer generated 2-D and 3-D images, animations and sound/music.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2
MATH 424A - Calculus for Social Sciences
Credits: 4
Rational, exponential and logarithmic functions; associated derivatives and their applications; associated antiderivatives and their applications. Applications focus on contexts relevant to majors in the College of Liberal Arts and the Paul College. Not offered for credit to CEPS majors. Not offered for credit if credit is received for MATH 425. Students wanting a two-semester calculus course are strongly advised to take MATH 425-426. Those students who successfully complete MATH 424A and subsequently wish to continue their study of mathematics with MATH 426 are encouraged to complete supplementary modules available from the Mathematics Center (MaC).
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 424B - Calculus for Life Sciences
Credits: 4
Rational, exponential and logarithmic functions; associated derivatives and their applications; associated antiderivatives and their applications. Applications focus on contexts relevant to majors in the College of Life Sciences and Agriculture. Not offered for credit to CEPS majors. Not offered for credit if credit is received for MATH 425. Students wanting a two-semester calculus course are strongly advised to take MATH 425-426. Those students who successfully complete MATH 424B and subsequently wish to continue their study of mathematics with MATH 426 are encouraged to complete supplementary modules available from the Mathematics Center (MaC).
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 425 - Calculus I
Credits: 4
Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. (Not offered for credit if credit is received for MATH 424.)
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 425H - Honors/Calculus I
Credits: 4
Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. (Not offered for credit if credit is received for MATH 424.) Enrollment in MATH 425H requires concurrent enrollment in PHYS 407H.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 426 - Calculus II
Credits: 4
Second course in calculus of one argument, techniques and applications of integration, polar coordinates, and series. Prereq: MATH 425.

MATH 426H - Honors/Calculus II
Credits: 4
Second course in calculus of one argument, techniques and applications of integration, polar coordinates, and series. Prereq: MATH 425. Enrollment in MATH 426H requires concurrent enrollment in PHYS 408H.

MATH 439 - Statistical Discovery for Everyone
Credits: 4
Introduces the framework and concepts for learning with data. Emphasis on statistical discovery in everyday life and on drawing valid conclusion from data. Topics include: good and bad data, data ethics, how to conduct a valid survey, how to describe a population distribution; when to believe a poll; how to design an experimental study; how to avoid ambiguous results caused by "lurking" variables; how to make inference about an entire population based on a sample; how to describe relationships among variables; an understanding of the question of causation and chance in everyday life and in scientific studies, as well as the use and misuse of statistics in explaining what is statistical significance. This course has an activity-based learning component with lab exercises using statistical software for calculations without assuming a calculus background. The course may be used as a preparation for a more technical introductory statistics course. Not offered for credit if credit is received for ADM 430, ADMN 420, BIOL 528, EREC 525, HHS #540, MATH 539, MATH 644, PSYC 402, SOC 502. Science and Engineering students should take MATH 539 or MATH 644 according to their programs.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

MATH 444 - Excursions in Quantitative Reasoning
Credits: 4
Problems involving quantitative reasoning (most are nontraditional, some are fun, while others are interdisciplinary) designed to inspire curiosity encourages students to formulate and evaluate questions, all the while slowly drawing them into the process of scholarly investigation. In this regard, in addition to traditional mathematics homework, students need to do research outside of class to write and present projects.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2; Inquiry (Discovery)

MATH 445 - Mathematics and Applications with MATLAB
Credits: 4
Through the use of the MATLAB computation software, this course reinforces and builds on a student's mathematics foundation and previews more advanced mathematical concepts. The power and limitations of modern computational algorithms to solve real world problems are introduced and shown to influence nearly every aspect of modern society. The state-of-the-art computational tools afforded by MATLAB provide the student with a strategy for enhancing their knowledge and comprehension in subsequent Science, Engineering, or Technology themed courses. Prereq: MATH 418 or permission.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

MATH 525 - Linearity I
Credits: 6
Examines the fundamental role that linear models play in science and engineering; and the role of linearization in understanding nonlinear phenomena. Models are considered along several conceptual axes: discrete to continuous, one-dimensional to multidimensional, and static to dynamic, with an emphasis on the former. Mathematical areas of coverage include matrix algebra, concepts from calculus of several variables, difference equations, and linear transformations. Prereq: MATH 426, permission. Lab.
MATH 526 - Linearity II  
Credits: 6  
Continuation of study of linear models and the process of linearization begun in MATH 525, with an emphasis on models of dynamic phenomena. Additional mathematical areas of coverage include differential equations, eigenvalue and eigenvector analysis, phase plane analysis, and additional concepts from vector calculus. Prereq: MATH 525, permission. Lab.

MATH 527 - Differential Equations with Linear Algebra  
Credits: 4  
Fundamental methods of solving first-order equations, essentials of matrix algebra; higher-order linear equations, and linear systems; series solutions; Laplace transforms; selected applications. Prereq: MATH 426.

MATH 528 - Multidimensional Calculus  
Credits: 4  
Partial differentiation; composite functions and chain rules; maximum and minimum; transformations; vector algebra; vector functions; gradient, divergence, and curl; curves and surfaces; multiple, line, and surface integrals; divergence, Green's and Stoke's theorem. Prereq: MATH 426.

MATH 531 - Mathematical Proof  
Credits: 4  
Introduces reading and writing proofs in mathematics. The basic language of mathematics common to all branches of the subject, especially set theory and basic logic. Prereq: MATH 425; or permission. Writing intensive.  
Attributes: Writing Intensive Course

MATH 532 - Discrete Mathematics  
Credits: 4  
Counting principles (including permutations, combinations, pigeonhole principle, inclusion-exclusion principle); big-O relation; graphs, trees, and related topics. Prereq: MATH 531.

MATH 539 - Introduction to Statistical Analysis  
Credits: 4  
A first course introducing concepts of probability and scientific methods for data analysis. Exploratory data analysis, survey sampling, probability, discrete and continuous distributions, confidence intervals, hypothesis testing, comparing samples, linear regression, analysis of variance. Statistical software is used. Prereq: MATH 425; or permission. Not offered for credit if credit is received for MATH 644. Offered primarily for mathematics majors; engineering majors should take MATH 644.

MATH 545 - Introduction to Linear Algebra  
Credits: 4  
Designed to reinforce ideas seen throughout the mathematics curriculum. Centered on a study of vector spaces and linear systems, beginning with a brief focus on systems of linear equations and progressing to a full discussion of linear transformation and vector spaces. The course includes a survey of properties of matrices, such as rank, kernel, eigenvalues, eigenvectors, and diagonalization. Prereq: MATH 426 Writing intensive. No credit offered if credit is received for MATH 645 or MATH 762.  
Attributes: Writing Intensive Course

MATH 545 - Introduction to Linear Algebra  
Credits: 4  
Partial differentiation; composite functions and chain rules; maximum and minimum; transformations; vector algebra; vector functions; gradient, divergence, and curl; curves and surfaces; multiple, line, and surface integrals; divergence, Green's and Stoke's theorem. Prereq: MATH 426.

MATH 601 - Exploring Mathematics for Teachers I  
Credits: 4  
Provides prospective elementary teachers with the opportunity to explore and master concepts involving number systems and operations, data analysis and probability. Additional topics may include geometry, measurement, and algebraic thinking. Mathematical reasoning, problem solving, and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. (Not offered for credit if credit is received for MATH 621 or MATH 623; not offered for credit to CEPS majors.)

MATH 621 - Number Systems for Teachers  
Credits: 4  
Ways of representing numbers, relationships between numbers, number systems, the meanings of operations and how they relate to one another, and computation within the number system as a foundation for algebra; episodes in history and development of the number system; and examination of the developmental sequence and learning trajectory as children learn number concepts. Prereq: permission.

MATH 622 - Geometry for Teachers  
Credits: 4  
Explorations of the foundations of informal measurement and geometry in one, two and three dimensions. The van Hiele model for geometric learning is used as a framework for how children build their understanding of length, area, volume, angles and geometric relationships. Visualization, spatial reasoning and geometric modeling are stressed. As appropriate, transformational geometry, congruence, similarity and geometric constructions will be discussed. Prereq: permission.

MATH 623 - Probability and Statistics for Teachers  
Credits: 4  
An introduction to probability, descriptive statistics and data analysis; exploration of randomness, data representation and modeling. Descriptive statistics will include measures of central tendency, dispersion, distributions and regression. Analysis of experiments requiring hypothesizing, experimental design and data gathering. Prereq: permission.

MATH 624 - Analysis of Secondary School Mathematics  
Credits: 4  
Examines concepts from calculus and pre-calculus mathematics with an emphasis on connecting and logically refining the concepts of function, limit, sequences, series, and probability. Includes a deeper analysis of problems and topics drawn from secondary school mathematics with the kind of mathematical knowledge and sophistication that the student has gained from other collegiate mathematics courses. Proofs for many of the theorems that are typically introduced in a non-rigorous fashion in calculus are studied. Prereq: EDUC 500, MATH 425 and 545 (or equivalent); or permission. Offered in alternate years in the spring semester following MATH 623.

MATH 625 - Functions and Algebra for Teachers  
Credits: 4  
Representation and analysis of mathematical situations and structures using generalization and algebraic symbols and reasoning. Attention is given to the transition from arithmetic to algebra, working with quantitative change, and the description of and prediction of change. Prereq: MATH 621. The course is offered in alternative years in spring semester.
MATH 632 - Financial Mathematics
Credits: 4
A mathematical introduction to interest theory and an overview of mathematical models used to analyze and price standard financial instruments including: interest bearing accounts, stocks and bonds. Introduction to basic concepts used in mathematical finance including: random variables, mathematics of arbitrage, risk and diversification. Includes a substantive introduction to all aspects of the financial mathematics actuarial exam.

MATH 644 - Statistics for Engineers and Scientists
Credits: 4
Introduces the design of controlled experiments and the collection and analysis of scientific data. Use of a statistical software package is an integral part of the course; interpreting and drawing conclusions from standard software output is emphasized. Graphical data analysis, statistical process control, regression and correlation, multifactor experimental designs, confidence intervals, hypothesis testing. Not offered for credit if credit is received for MATH 539. Prereq: MATH 426.

MATH 645 - Linear Algebra for Applications
Credits: 4
Fundamental notions of vector space theory, linear independence, basis, span, scalar product, orthogonal bases. Includes a survey of matrix algebra, solution of systems linear equations, rank, kernel, eigenvalues and eigenvectors, the LU- and QR-factorizations, and least squares approximation. Selected applications in mathematics, science, engineering and business. Prereq: MATH 426. (Not offered for credit if credit is received for MATH 545 or MATH 762.)

MATH 647 - Complex Analysis for Applications
Credits: 4
Complex numbers, analytic functions, Cauchy-Riemann equations, conformal mapping, contour integration, Cauchy's integral formula, infinite series, residue calculus, Fourier and Laplace transforms. Prereq: MATH 528. (Not offered for credit if credit is received for MATH 788.)

MATH 656 - Introduction to Number Theory
Credits: 4
Unique factorization, arithmetic functions, linear and quadratic congruence's, quadratic reciprocity law, quadratic forms, introduction to algebraic numbers. Prereq: MATH 531. Offered in alternate years.

MATH 658 - Topics in Geometry
Credits: 4
Topics selected from among projective geometry, finite geometrics, convexity, transformational geometry, non-Euclidean geometry, and other areas of elementary geometry within the framework of modern mathematics. Prereq: MATH 657. Offered in alternate years.

MATH 696 - Independent Study
Credits: 1-4
Individual projects of study developed by the student and a faculty sponsor. Intended for students with superior scholastic achievement. May be repeated up to 8 credits. May be taken as writing intensive. Prereq: a written proposal, including goals and assessment, endorsed by a faculty sponsor and approved by the department chairperson.

MATH 696W - Independent Study
Credits: 1-4
Individual projects of study developed by the student and a faculty sponsor. Intended for students with superior scholastic achievement. May be repeated up to 8 credits. May be taken as writing intensive. Prereq: a written proposal, including goals and assessment, endorsed by a faculty sponsor and approved by the department chairperson. Writing intensive.

Attributes: Writing Intensive Course

MATH 699 - Internship Experience
Credits: 1
Provides the opportunity to apply and enhance knowledge in a setting associated with future professional employment. A written mid-semester report is required as well as a final report along with an oral presentation that is open to other undergraduates. Prereq: A written proposal, endorsed by a faculty sponsor and approved by the department chairperson (or designee), that outlines the goals, academic merit and assessment of the work experience. May be repeated up to 4cr. Only open to Math majors. Cr/F.

MATH 700 - Introduction to Mathematics Education
Credits: 4
General background information about mathematics education, such as theories of learning and teaching mathematics, mathematics curricula, classroom management, and techniques for the teaching and learning of mathematics that are common to all levels of mathematics education K-12. Prereq: MATH 426 and EDUC 500; or permission.

MATH 703 - Teaching of Mathematics, K-6
Credits: 4
Methods of teaching mathematics at the elementary school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 621 (or MATH 601) and MATH 700; or permission.

MATH 708 - Teaching Mathematics in Grades K-8
Credits: 4
Methods of teaching mathematics in grades K-8, uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; investigating instructional formats. Prereq: MATH 700 or permission. Offered in alternate years in the spring semester.

MATH 709 - Teaching of Mathematics, 7-12
Credits: 4
Methods of teaching content at the secondary school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 700; or permission. Offered in alternate years in the spring semester.

MATH 736 - Advanced Statistical Methods for Research
Credits: 4
An introduction to multivariate statistical methods, including principal components, discriminant analysis, cluster analysis, factor analysis, multidimensional scaling, and MANOVA. Additional topics include generalized linear models, general additive models, depending on the interests of class participants. The use of statistical software, such as JMP, S PLUS, or R, is fully integrated into the course. Prereq: MATH 739.
MATH 737 - Statistical Methods for Quality Improvement and Design
Credits: 4
Six Sigma is a popular, data-focused methodology used worldwide by organizations to achieve continuous improvement of their existing processes, products and services or to design new ones. This course provides a thorough introduction to the Six Sigma principles, methods, and applications for continuous improvement (DMAIC process) and an overview of Design for Six Sigma (DFSS). Both manufacturing and non-manufacturing (transactional Six Sigma) applications are included. Emphasis is placed on the use of case studies to motivate the use of, as well as the proper application of, the Six Sigma methodology. Formal Six Sigma Green Belt certification from UNH may be attained by successfully completing TECH 696. Prereq: MATH 539, MATH 644; or permission.

MATH 738 - Data Mining and Predictive Analytics
Credits: 4
An introduction to supervised and unsupervised methods for exploring large data sets and developing predictive models. Unsupervised methods include: market basket analysis, principal components, clustering, and variables clustering. Important statistical and machine learning methods (supervised learning) include: Classification and Regression Trees (CART), Random Forests, Neural Nets, Support Vector Machines, Logistic Regression and Penalized Regression. Additional topics focus on metamodelling, validation strategies, bagging and boosting to improve prediction or classification, and ensemble prediction from a set of diverse models. Required case studies and projects provide students with experience in applying these techniques and strategies. The course necessarily involves the use of statistical software and programming languages. Undergraduate students are required to have junior or senior status to in enroll in this course. Prereq: MATH 539 (or MATH 644); or permission.

MATH 739 - Applied Regression Analysis
Credits: 4
Attributes: Writing Intensive Course

MATH 740 - Design of Experiments I
Credits: 4
Course in design of experiments with applications to quality improvement in industrial manufacturing, engineering research and development, or research in physical and biological sciences. Experimental factor identification, statistical analysis and modeling of experimental results, randomization and blocking, full factorial designs, random and mixed effects models, replication and sub-sampling strategies, fractional factorial designs, response surface methods, mixture designs, and screening designs. Focuses on various treatment structures for design experimentation and the associated statistical analyses. Use of statistical software. Prereq: MATH 539 (or 644); or permission.

MATH 741 - Survival Analysis
Credits: 4
Explorations of models and data-analytic methods used in medical, biological, and reliability studies. Event-time data, censored data, reliability models and methods, Kaplan-Meier estimator, proportional hazards, Poisson models, loglinear models. The use of statistical software, such as SAS, JMP, or R, is fully integrated into the course. Prereq: MATH 739. (Offered in alternate years in the spring semester.)

MATH 742 - Introduction to Nonlinear Dynamics and Chaos
Credits: 4
An introduction to special functions, asymptotic analysis, and transform methods applied to partial differential equations. Topics include: Boundary value problems in cylindrical coordinates, the Bessel equation and Bessel functions, Fourier-Bessel expansions in cylindrically symmetric spatial domains, the Fourier Transform, the Hilbert Transform, Cosine and Sine Transforms, problems on semi-infinite intervals, and Asymptotic Analysis. Prereq: MATH 527 and MATH 528; or equivalent.

MATH 743 - Time Series Analysis
Credits: 4
An introduction to univariate time series models and associated methods of data analysis and inference in the time domain and frequency domain. Topics include: auto regressive (AR), moving average (MA), ARMA and ARIMA processes, stationary and non-stationary processes, seasonal ARIMA processes, auto-correlation and partial auto-correlation functions, identification of models, estimation of parameters, diagnostic checking of fitted models, forecasting, spectral density function, periodogram and discrete Fourier transform, linear filters, parametric spectral estimation, dynamic Fourier analysis. Additional topics may include wavelets and long memory processes (FARIMA) and GARCH Models. The use of statistical software, such as JMP, or R, is fully integrated into the course. Prereq: MATH 739. Offered in alternate years in the spring semester.

MATH 744 - Design of Experiments II
Credits: 4
A second course in design of experiments, with applications in quality improvement and industrial manufacturing, engineering research and development, research in physical and biological sciences. Covers experimental design strategies and issues that are often encountered in practice: complete and incomplete blocking, partially balanced incomplete blocking (PBIB), partial confounding, intra and inter block information, split plotting and strip plotting, repeated measures, crossover designs, Latin squares and rectangles, Youden squares, crossed and nested treatment structures, variance components, mixed effects models, analysis of covariance, optimizations, space filling designs, and modern screening design strategies. Prereq: MATH 740; or permission.

MATH 745 - Foundations of Applied Mathematics I
Credits: 4
An introduction to Partial Differential Equations (PDEs) and associated mathematical methods and the analytical foundation for applied mathematics. Topics include: PDE classification, superposition, separation of variables, orthonormal functions, completeness, convergence, Fourier Series, Sturm-Liouville eigenvalue problems, and eigenfunctions. Methods are introduced for the analysis and solution of boundary value problems, in particular, the Heat, Wave, and Laplace equations. Prereq: MATH 527 and MATH 528; or equivalent.

MATH 746 - Foundations of Applied Mathematics II
Credits: 4
An introduction to special functions, asymptotic analysis, and transform methods applied to partial differential equations. Topics include: Boundary value problems in cylindrical coordinates, the Bessel equation and Bessel functions, Fourier-Bessel expansions in cylindrically symmetric spatial domains, the Fourier Transform, the Hilbert Transform, Cosine and Sine Transforms, problems on semi-infinite intervals, and Asymptotic Analysis. Prereq: MATH 527 and MATH 528; or equivalent.
MATH 753 - Introduction to Numerical Methods I
Credits: 4
Introduces mathematical algorithms and methods of approximation. Topics include a wide survey of approximation methods. Methods examined include polynomial interpolation, root finding, numerical linear algebra, numerical integration, and the approximation of differential equations. Included in each case is a study of the accuracy and stability of a given technique, as well as its efficiency. Prereq: MATH 426; MATH 445 (or CS 410 or IAM 550).

MATH 755 - Probability with Applications
Credits: 4
Introduces the theory, methods, and applications of randomness and random processes. Probability concepts, random variable, expectation, discrete and continuous probability distributions, joint distributions, conditional distributions; moment-generating functions, convergence of random variables. Prereq: MATH 528 and MATH 539 (or MATH 644).

MATH 756 - Principles of Statistical Inference
Credits: 4
Introduces the basic principles and methods of statistical estimation and model fitting. One- and two-sample procedures, consistency and efficiency, likelihood methods, confidence regions, significance testing, Bayesian inference, nonparametric and re-sampling methods, decision theory. Prereq: MATH 755; or permission.

MATH 760 - Geometry
Credits: 4
Advanced approach to fundamental properties of Euclidean and other geometries through deductive reasoning and proof. Prereq: MATH 531. Writing intensive.
Attributes: Writing Intensive Course

MATH 761 - Abstract Algebra
Credits: 4
This course establishes the axiomatic framework that underlies number systems and similar mathematical structures, investigating basic properties of groups, rings, fields and their homomorphisms. Prereq: MATH 531. Writing intensive.
Attributes: Writing Intensive Course

MATH 762 - Linear Algebra
Credits: 4
Vector spaces over arbitrary fields, linear transformations and their relationship with matrices, eigenvalues and eigenvectors, the rational and Jordan canonical forms for linear transformations. Prereq: MATH 761.

MATH 763 - Abstract Algebra II
Credits: 4
This course extends the investigations of MATH 761 into more specialized situations related to old and new problems in mathematics, such as the nature of solutions of polynomial equations. It presents advanced properties of groups, rings, fields and their applications. Prereq: MATH 761.

MATH 765 - Introduction to Commutative Algebra and Algebraic Geometry
Credits: 4
Methods of determining solution sets of polynomial systems; affine varieties and their ideals; the 'algebra-geometry correspondence'; theory and applications of Grobner bases. Prereq: MATH 531, MATH 761 or permission of instructor.

MATH 767 - One-Dimensional Real Analysis
Credits: 4
Attributes: Writing Intensive Course

MATH 768 - Real Analysis II
Credits: 4
Theory of integration; series; power series and uniform convergence of power series. Prereq: MATH 767.

MATH 769 - Introduction to Differential Geometry
Credits: 4
Introduction to the study of geometric properties of curves and surfaces in 3-dimensional space. Prereq: MATH 527, MATH 528, MATH 645.

MATH 770 - Foundations of Number Theory
Credits: 4
Factorization and prime numbers, arithmetic functions, congruences, reciprocity laws, quadratic forms, Diophantine equations, computational number theory. Prereq: MATH 531. Offered in alternate years.

MATH 772 - Combinatorics
Credits: 4
Graph theory (including planar graphs, graph coloring, Hamiltonian circuits, trees); counting principles (including permutations, combinations, pigeonhole principle, inclusion-exclusion principle); and related topics. Prereq: MATH 531.

MATH 776 - Logic
Credits: 4
Examination of the basic notions of soundness and completeness, first for sentential and then for propositional logic. Turning to the question of decision procedures for logical formulae, the concept of recursive function, which emerges in the work of Church and Turing, provides the essential link between logic and theory of computation. The course culminates with Godel's Incompleteness Theorems, which demonstrate the intrinsic limitations of the logical method. Prereq: MATH 531. Offered in alternate years.

MATH 783 - Set Theory
Credits: 4
Axiomatic set theory, including its history. Cantor's theory of infinite cardinal and ordinal numbers seemed laden with contradictions and paradoxes. A satisfactory treatment of these difficulties came with the axiomatic set theory of Zermelo and Fraenkel. This course develops the Zermelo-Fraenkel axioms and examines cardinal and ordinal arithmetic in the context they provide. The course then investigates the consequences of various additional axioms extending Zermelo-Fraenkel, such as the Axiom of Choice, the Continuum Hypothesis, large cardinal axioms of determinacy. Prereq: MATH 531. Offered in alternate years.

MATH 784 - Topology
Credits: 4
Open sets, closure, base, and continuous functions; connectedness, compactness, separation axioms, and metrizability. Prereq: MATH 531. Writing intensive.
Attributes: Writing Intensive Course

MATH 788 - Complex Analysis
Credits: 4
Complex functions, sequences, limits, differentiation and Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor's and Laurent's series, residues, conformal mapping. Prereq: MATH 767. Not offered for credit if credit is received for MATH 647.
MATH 790 - Historical Foundations of Mathematics
Credits: 4
Historical development of number theory, geometry, probability, algebra, and analysis. Study of the significant mathematical contributions to these topics made by prominent mathematicians spanning several historical periods. Prereq: MATH 531 or MATH 545. Writing intensive. Attributes: Writing Intensive Course

MATH 796 - Topics
Credits: 1-4
New or specialized courses not covered in regular course offerings. Prereq: permission of instructor. May be repeated.

MATH 797 - Senior Seminar
Credits: 4
Exploration of mathematical topics beyond the student's previous coursework in the seminar format. The course focus is on independent research, collaborative work and classroom engagement; oral presentations and written work are required. Prereq: senior standing.

MATH 798 - Senior Project
Credits: 4
Students work either individually or as a group under the direction of a faculty sponsor to plan and carry out an independent research project resulting in a written report and presentation to the department. Prereq: Senior standing in the department; a written proposal approved by a faculty sponsor and by the department chairperson (or designee). May be repeated up to 4 credits. Writing intensive. Attributes: Writing Intensive Course

MATH 799 - Senior Thesis
Credits: 2 or 4
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Prereq: senior standing; a written proposal endorsed by a faculty sponsor and approved by the department chairperson (or designee). May be repeated up to 4 credits. Writing intensive. Attributes: Writing Intensive Course

MATH 790 - Historical Foundations of Mathematics

Mechanical Engineering (ME)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ME 441 - Introduction to Engineering Design and Solid Modeling
Credits: 4
Why are some products better than others? What is the definition of "better"? This course uses an inquiry-guided approach to explore the product design process via team design projects and laboratory exercises. Everyday products are examined from historical, societal, design, safety and manufacturing perspectives. Topics include ideation, sketching, design constraints, solid modeling, decision making, statistical quality control, manufacturing methods and engineering analysis. Students develop an appreciation for good design and the ability to communicate design ideas via 3-D solid models, written and oral reports. Prereq: MATH 418 or equivalent. Writing intensive. Attributes: Inquiry (Discovery); Writing Intensive Course

ME 477 - Introduction to Solid Modeling
Credits: 1
Introduction to solid modeling and engineering drawings using computer-aided design software. For Mechanical Engineering students, this course can only be taken with permission as an alternative to the required ME 441 Introduction to Engineering Design and Solid Modeling for students with extensive engineering design experience (e.g., high school or another university course), an engineering project based program (e.g., FIRST Robotics or Project Lead the Way), or similar experience (e.g., working in the industry). Students should not take both ME 441 and ME 477. Lecture and Lab.

ME 503 - Thermodynamics
Credits: 3
Properties of a pure substance, work and heat, laws of thermodynamics, entropy, thermodynamic relations, cycles. Prereq: PHYS 407. Pre- or Coreq: CHEM 405; MATH 528.

ME 523 - Introduction to Statics and Dynamics
Credits: 3
Overview of statics and dynamics applying concepts to particles then to rigid bodies. Topics include two- and three-dimensional force systems; laws of equilibrium; analyses of trusses and frames; friction; relative motion; impulse-momentum principles; work-energy relationships. Prereq: MATH 426; PHYS 407. Not for ME majors.

ME 525 - Statics
Credits: 3
Introduces statics. Two- and three-dimensional force systems, the concept of equilibrium, analysis of trusses and frames, centroids, bending moment and shear force diagrams, and friction. Prereq: PHYS 407 and MATH 426. Writing intensive. Attributes: Writing Intensive Course

ME 526 - Mechanics of Materials
Credits: 3
Introduces strength of materials. Analysis of members under torsion, axial, shear and bending stresses, superposition of stresses, stability of columns. Prereq: ME 525. Writing intensive. Attributes: Writing Intensive Course

ME 561 - Introduction to Materials Science
Credits: 4
The concepts of materials science and the relation of structure of material properties. Atomic structure, bonding material transport, mechanical properties of materials, solidification, phase diagrams, solid state transformations, and corrosion and oxidation. Laboratory exercises are carried out to demonstrate the basic concepts of the course. Prereq: one semester of introductory chemistry with a lab or equivalent; MATH 425. Writing intensive. Attributes: Writing Intensive Course

ME 603 - Heat Transfer
Credits: 3
Analysis of phenomena; steady-state and transient conduction, radiation, and convection; engineering applications. Prereq: MATH 527, ME 608.

ME 608 - Fluid Dynamics
Credits: 3
Dynamics and thermodynamics of compressible and incompressible fluid flow; behavior of fluids as expressed by hydrostatic, continuity, momentum, and energy equations. Prereq: ME 503. Pre- or Coreq: MATH 527, IAM 550.
ME 627 - Dynamics
Credits: 3
Introduction to particle and rigid body dynamics. Rectilinear and curvilinear motion, translation and rotation, momentum and impulse principles, and work-energy relationships. Prereq: ME 525 or permission. Writing intensive.
Attributes: Writing Intensive Course

ME 643 - Machine Design
Credits: 3
Analysis, synthesis, and design of machine elements and systems. Development of engineering judgment; selection of materials stress and failure analysis; kinematic arrangement design for finite and infinite life. Open-ended design problems unify course topics. Prereq: ME 526, ME 561, ME 627. Writing intensive.
Attributes: Writing Intensive Course

ME 646 - Experimental Measurement and Data Analysis
Credits: 4
Basic and advanced techniques of engineering and scientific parameter measurement including statistical data and error analysis, curve fitting, calibration and application of transducers, and technical writing. Laboratory experiments draw on concepts from mechanics, thermodynamics, and fluid mechanics. Prereq: ME 526. Pre - or Co-req: ME 608. Writing intensive.
Attributes: Writing Intensive Course

ME 670 - Systems Modeling, Simulation, and Control
Credits: 4
Lumped parameter models for mechanical, electrical, thermal, fluid, and mixed systems. Matrix representation, eigenvalues, eigenvectors, time domain solutions, frequency response plots, and computer simulations are used to explore system response. Design of system for desired responses. Introduces feedback control, stability, and performance criteria. Prereq: ECE 537, ME 627, MATH 527. Writing intensive.
Attributes: Writing Intensive Course

ME 695 - Special Topics
Credits: 2-4
Course topics not offered in other courses. May be repeated for credit. Lab. Prereq: permission.

ME 696 - Projects
Credits: 1-4
Analytical, experimental, or design projects undertaken individually or in teams under faculty guidance. May be repeated for credit.

ME 699 - Engineering Internship
Credits: 1
Internship experience provides on-the-job reinforcement of academic programs in mechanical engineering. Contact the Mechanical Engineering department office for guidelines. May be repeated to a maximum of 3 credits. Prereq: appropriate class standing in major, 2.5 grade point average, and permission. Cr/F.

ME 705 - Thermal System Analysis and Design
Credits: 4
Engineering design of thermal systems that involve real problems and analysis of performance of the design. Design criteria include function, performance, optimization, economy, safety, and others as appropriate for the system. Required for ME seniors. Prereq: ME 503. Writing intensive.
Attributes: Writing Intensive Course

ME 706 - Renewable Energy: Physical and Engineering Principles
Credits: 3
The goal of this course is to become "Fluent in energy" and to learn about the engineering fundamentals of renewable energy technologies. The course will begin by giving an overview of U.S. energy usage and sources, as well as history and trends. Various renewable energy topics will then be discussed. Where applicable, topics will be discussed in detail from a fluid and thermal sciences point of view. Guest lecturers and a field trip may be included. This course is open to all engineering seniors. Prereq: ME 503 - Thermodynamics, ME 608 - Fluid Dynamics, or equivalent, or instructor permission.

ME 707 - Analytical Fluid Dynamics
Credits: 4
Kinematics of flow; constitutive relationships; development of the Navier-Stokes equations; vorticity theorems; potential flow. Prereq: ME 608.

ME 709 - Computational Fluid Dynamics
Credits: 3
Review of matrix methods; basics of finite differences, basics of spectral methods, stability, accuracy, Navier-Stokes solvers. Prereq: ME 603 or permission.

ME 712 - Waves in Fluids
Credits: 3
Linear and nonlinear dynamics of hyperbolic and dispersive wave systems with application to acoustic waves, surface and internal gravity waves, Rossby waves, and capillary waves. Key physical concepts include wave-generation mechanisms, wavelength and amplitude dispersion, group velocity and energy propagation, steady streaming, and mode interactions. Prereq: ME 608 or equivalent.

ME 724 - Vibration Theory and Applications
Credits: 4
Discrete vibrating systems. Linear system concepts; single-degree-of-freedom system with general excitation. Matrix theory and eigenvalue problems. Many degrees of freedom, normal mode theory for free and forced vibration. Numerical methods; introduction to continuous systems; applications to structural and mechanical systems. Prereq: ME 526; ME 627 or permission.

ME 727 - Advanced Mechanics of Solids
Credits: 4
Stress, strain, stress-strain relations, anisotropic behavior, introduction to elasticity, plane stress/strain, bending and torsion of members with general cross-sections introduction to thin plates and shells, energy methods. Prereq: ME 526 or permission.

ME 730 - Mechanical Behavior of Materials
Credits: 4
Elastic and inelastic behavior of materials in terms of micro- and macro-mechanics. Stress, strain, and constitutive relations related to recent developments in dislocation theory and other phenomena on the atomic scale and to the continuum mechanics on the macroscopic scale. Elasticity, plasticity, visoelasticity, creep, fracture, and damping. Anisotropic and heterogeneous materials. Prereq: ME 526; 561 or permission.

ME 731 - Fracture and Fatigue Engineering Material
Credits: 4
Reviews fundamentals of linear elastic fracture mechanics and strain energy release rate analyses. Discusses basic methods of design for prevention of failure by fast fracture and fatigue for metals, ceramics, and polymers with attention to the effect of material properties and subsequent property modification on each design approach. Prereq: ME 526; ME 561 or permission.
ME 735 - Mechanics of Composite Materials  
Credits: 4  

ME 743 - Satellite Systems, Dynamics, and Control  
Credits: 3  
General satellite systems with emphasis on spacecraft dynamics and control. Topics include general satellite information such as types of satellites, missions, and orbits, as well as satellite subsystems. Basic spacecraft dynamics and orbital mechanics topics are covered. Advanced topics include attitude and orbit estimation, and automatic attitude control. Prereq: ME 670 or permission.

ME 744 - Corrosion  
Credits: 4  
The course is split into three parts. The first part reviews and develops basic concepts of electro-chemistry, kinetics, and measurement methods. The second part covers the details of specific corrosion mechanisms and phenomena including passivity, galvanic corrosion, concentration cell corrosion, pitting and crevice corrosion, and environmentally induced cracking. The third part focuses on the effects of metallurgical structure on corrosion, corrosion in selected environments, corrosion prevention methods, and materials selection and design. Prereq: CHEM 405 or 403; ME 561 or permission. Lab. (Also listed as CHE 744 and OE 744.)

ME 747 - Experimental Measurement and Modeling of Complex Systems  
Credits: 4  
Experimental measurements for evaluation, design, and control of mechanical, electrical, and thermal/fluid phenomena. Emphasizes the dynamic response of both sensors and systems and the interactions between physical processes. Experimental examples are drawn from mechanics, material science, thermal-fluid science and controls. Prereq: ME 646; ME 670. Writing intensive.  
Attributes: Writing Intensive Course

ME 755 - Senior Design Project I  
Credits: 2  
Part I of this two-part sequence emphasizes problem definition, analysis, development of alternative concepts, decision-making processes, synthesis of an optimum solution and the development of a conceptual design. Lectures on these and other topics are combined with seminars given by professionals from industry, government, and academia. Related topics include ISO9000 quality systems, engineering management, design review process, engineering economics, team building and communications. Students are organized into project teams to develop a conceptual design. Formal design reviews are conducted. A formal proposal documents the semester's work. Prereq: Senior standing in ME. Lab. Writing intensive.  
Attributes: Writing Intensive Course

ME 756 - Senior Design Project II  
Credits: 2  
Continuation of Senior Design Project I, in which the proposal submitted in the previous course is developed into a prototype system. Part II emphasizes the development, assembly, testing and evaluation of the system designed in Part I. Lectures and seminars focus on the prototype development process, design verification and industry practices. A formal report documents the semester's work. Prereq: ME 755. Writing intensive.  
Attributes: Writing Intensive Course

ME 757 - Coastal Engineering and Processes  
Credits: 3  
Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduces mathematical and physical modeling. Prereq: ME 608 or permission. (Also offered as CIE 757 and OE 757.)

ME #760 - Physical Metallurgy I  
Credits: 4  
Introduction to physical metallurgy: dislocations; thermodynamics of materials, diffusion, phase transformations, and strengthening mechanisms in solids. Prereq: ME 561 or permission. Lab.

ME 761 - Diffraction and Imaging Methods in Materials Science  
Credits: 4  
Introduces x-ray diffraction and electron microscopy. Basic crystallography, reciprocal lattice, x-ray and electron diffraction, x-ray methods, transmission and scanning electron microscopy. Prereq: CHEM 403; PHYS 408 or permission. Lab.

ME 770 - Design with Microprocessors  
Credits: 4  
Basic operation of microprocessors and micro-controllers is explained, and interfacing these devices to sensors, displays and mechanical systems is explored. Topics include: number systems, architecture, registers, memory mapping, interrupts and interfacing for system design. Methods of programming and interfacing with mechanical/electrical systems are covered in class, and then implemented in lab. Prereq: ECE 537 or permission. Lab.

ME 772 - Control Systems  
Credits: 4  
Development of advanced control system design concepts such as Nyquist analysis, lead-lag compensation, state feedback, parameter sensitivity, controllability, observability, introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ME 747 or permission. (Also offered as ECE 772.) Lab.

ME 773 - Electromechanical Analysis and Design  
Credits: 4  
Analysis and design of electromechanical systems using lumped parameter models and magnetic finite element analysis (FEA). Electrostatic and magnetic field equations are discussed and used to derive magnetic and electric lumped model elements. Brushless dc motor is analyzed using lumped models and FEA. Various drive types are discussed and the motor system analyzed to obtain torque-speed curves. Design principles are given and utilized in a design project. Prereq: ME 670 or permission.

ME 777 - Computer Aided Engineering  
Credits: 4  
In this course, modules of Solid Works (beyond its basic solid modeling capabilities) and other software is used to demonstrate how computer based tools can be used in engineering practice, in particular design analysis and optimization. Emphasis placed on using knowledge from past engineering courses to obtain theoretical calculations to compare with the results from the computer software package. Prereq: ME 526 Strength of Materials; ME 627 Mechanics III; ME 603 Heat Transfer; and ME 608 Fluid Dynamics (or equivalent).  
Attributes: Writing Intensive Course
ME 785 - Solid Mechanics in Manufacturing
Credits: 4
Characterization of material properties are studied with emphasis on plastic deformation. Also, numerical approaches to solve for the forces, stresses, and strains in manufacturing processes are covered. In particular, two prominent mass production manufacturing areas, metal forming and cutting, are examined. Prereq: ME 561; ME 627.

ME 786 - Introduction to Finite Element Analysis
Credits: 4
Topics include basic matrix theory, potential energy approach, direct stiffness method, calculus of variations, development of finite element theory, and modeling techniques. Applications in solid mechanics, heat transfer, fluids, and electromagnetic devices, via both commercially available codes and student-written codes. Prereq: ME 526, ME 603 or permission. Lab.

ME 795 - Special Topics
Credits: 1-4
New or specialized courses and/or independent study. May be repeated for credit.

ME 797 - Honors Seminar
Credits: 1
Course enrichment and/or additional independent study in subject matter pertaining to a 600- or 700-level ME course other than ME 695, ME 696, ME 697, or ME 795.

Military Science (MILT)

* Course numbers with the * symbol included (e.g. #400) have not been taught in the last 3 years.

MILT 401 - Leadership Laboratory I
Credits: 0
Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include a team-building leader reaction course, orientation to military weapons, basic tactical movement, and land navigation. Cr/F.

MILT 402 - Leadership Laboratory II
Credits: 0
Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include basic marksmanship, advanced tactical movement, orienteering and land navigation. Cr/F.

MILT 403 - United States Army History
Credits: 3
Develops an understanding of the effects the US military and society have on each other through the establishment and background of the United States Army. Presented in the context of broader US Military history and military strategy and global involvement. Through readings, oral and written presentations, and exams, students describe the role of the US Army, its evolution and its impact on society and technology; and critically analyze an armed conflict using the principles of war. This is a pre-commissioning requirement for professional military education (PME) required by the United States Army Cadet Command. It is open to non-ROTC students.

MILT 413 - Introduction to ROTC
Credits: 2
Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, planning of events, advanced first aid, physical fitness, and land navigation. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 401L) plus optional (mandatory for scholarship cadets) participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required for all cadets. Open to all college students, no military commitment required.

MILT 501 - Self/Team Development I
Credits: 2
Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, planning of events, advanced first aid, physical fitness, and land navigation. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 401L) plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required.
MILT 502 - Individual/Team Military Tactics
Credits: 2
Introduces individual and team aspects of military tactics in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security, and methods of pre-execution checks. Practical exercises with other ROTC students. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 402L), plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required.

MILT 550 - Camp Challenge
Credits: 4
Five-week leadership training course at Fort Knox, Kentucky during the summer that exposes students to intensive leadership evaluation and development. Students learn fundamental military skills such as land navigation using a map and compass, principles of leadership, first aid, drill and ceremony, team building exercises, etc. in preparation for future training as ROTC cadets. Students gain professional knowledge in management and organization and experience group interaction and interpersonal communications through total immersion in a military type environment. Open only to students who have not completed all of the following: MILT 401, MILT 402, MILT 501, and MILT 502. Airfare, lodging, and expenses are paid by the Army. Student incurs no military obligation; program offers opportunities to earn a two-year scholarship and qualifies students to take MILT 601.

MILT 601 - Leading Small Organizations I
Credits: 4
Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Plan and conduct training for other ROTC students in small unit offensive and defensive operations. Three hours and required leadership lab (MILT 401L) plus required participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required. Other weekend exercises are offered for optional participation. Prereq: Cadet completes MILT 550 or completes MILT 413, MILT 414, MILT 501, and MILT 502.

MILT 602 - Leading Small Organizations II
Credits: 4
Continues the methodology from MILT 601. Analyze tasks; prepare written and oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation.

MILT 611 - Seminar on Leadership and Management I
Credits: 4
Plan, conduct and evaluate activities of the ROTC cadet organization. Articulate goals and put plans into action to attain them. Assess organizational cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Learn/apply various Army policies and programs in this effort. Three hours and a required leadership lab (MILT 401L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 601 and MILT 602.

MILT 612 - Transition to Lieutenant
Credits: 4
Continues the methodology from MILT 611. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as related to leading as an officer in the Army. Prepare for a future as a successful Army lieutenant. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 611.

MILT 695 - Officer Internship
Credits: 1-4
Experiential learning through fieldwork in a military-type unit. Written analysis required. Prereq: MILT 611 (may be taken concurrently). By permission only. Coreq: MILT 401. May be taken up to a total of 8 credits.

Music (MUSI)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MUSI 401H - Honors/Introduction to Music
Credits: 4
Fundamental approach to perceptive listening based on a detailed study of several masterpieces representing different periods and forms. Historical perspective, but main emphasis is on confronting significant works of musical art on their own terms. Some participation in musical life of the University required. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 401H - Honors/Introduction to Music
Credits: 4
Fundamental approach to perceptive listening based on a detailed study of several masterpieces representing different periods and forms. Historical perspective, but main emphasis is on confronting significant works of musical art on their own terms. Some participation in musical life of the University required. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6
MUSI 402 - Survey of Music History
Credits: 4
The study of the development of musical styles and idioms in the context of selected historical and cultural aspects of Western civilization. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 402H - Honors/Survey of Music History
Credits: 4
The study of the development of musical styles and idioms in the context of selected historical and cultural aspects of Western civilization. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 403 - Roots of Rock
Credits: 4
Focuses on the musical styles, traditions, and social circumstances that led to a distinctive form of American popular music in the 1950's and '60's. In addition to developing critical listening skills to discern subtle distinctions among such styles and sub-styles as blues, folk, jazz, and country, the course also considers the diverse social trends that helped drive changes and developments in the various styles and genres covered. While some attention will be devoted to rock music of the mid-late sixties, the course emphasizes the various musical styles that preceded rock.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 404 - An Introduction to Music, Media, and the Moving Image
Credits: 4
Through selected readings, attentive listening, viewing, and discussion of a variety of films and multi-media productions, students develop a common vocabulary for analyzing music accompanying moving images. Students develop an understanding of the western and non-western musical conventions that work, often at a subconscious level, in conjunction with images to shape and cue audience responses to, and interaction with, visual cues. Media includes canonic Hollywood films, independent and foreign cinema, with explorations of non-Western films, video game scoring, television, and animation. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 405 - Survey of Music in America
Credits: 4
From colonial times to the present, including various European influences, the quest for an American style, and the emergence of such indigenous phenomena as jazz. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. (Formerly MUSI 511).
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 406 - Country Music
Credits: 4
This course surveys the rich musical, cultural, and economic history of country music in the United States. Since its inception, country music has embodied a tension between tradition and progress. Country music thereby reflects a basic feature of the American story, valoring our history while valuing social and technological development. Throughout the course, we consider this tension as it affects the musical content and cultural meaning of country music.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

MUSI 411 - Fundamentals of Music Theory
Credits: 4
Elements of music theory for the non-music major; principles of musical structure, analysis, elementary written counterpoint and harmony, and ear training. May not be counted for credit toward a music major. Prereq: ability to read music and permission of the instructor.

MUSI 412 - Fundamentals of Music Theory
Credits: 4
Elements of music theory for the non-music major; principles of musical structure, analysis, elementary written counterpoint and harmony, and ear training. May not be counted for credit toward a music major. Prereq: ability to read music and permission of the instructor. Prereq: MUSI 411 or permission of instructor.

MUSI 441 - Concert Choir
Credits: 1
A mixed chorus that studies and performs classical and modern literature. Recommended for voice majors. Open to all students. May be repeated for a maximum of 8 credits.

MUSI 442 - Chamber Singers
Credits: 1
A specialized mixed chamber choir that concentrates on the a cappella repertoire from the Renaissance to the present. Prereq: Audition.

MUSI 444 - Opera Workshop
Credits: 4
The connections between music and social change with a twofold goal: 1) to heighten critical listening skills so as to become more aware of ways in which music can express social attitudes; and 2) to introduce the social, cultural, and political issues surrounding the music being studied. Course work consists of listening to selected repertoires, reading scholarly and popular essays about those repertories, and extensive in-class (and on-line) discussion about issues raised by the listening and reading. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course

MUSI 448 - Opera Workshop
Credits: 1
Operatic singing, acting, and production techniques; performance of both complete operas and operatic excerpts. Prereq: audition.

MUSI 450 - Symphony
Credits: 1
Presents several concerts during the year of repertoire ranging from the great, standard symphonic literature to large modern works. Prereq: audition.
MUSI 451 - Concert Band
Credits: 1
The Concert Band performs serious, concert music, ranging from transcriptions of works for other mediums, to the 20th century "classics" of the wind band repertoire and music written for wind band. Anyone with previous band experience is welcome. Auditions are for chair placement only. May be repeated up to a maximum of 12 credits.

MUSI 452 - Wind Symphony
Credits: 1
Select wind ensemble which performs difficult classical and contemporary literature. Prereq: audition.

MUSI 453 - Symphonic Band
Credits: 1
Original band music, transcription, marches, etc. For students whose program does not permit music as a major interest, but who are interested in maintaining their playing proficiency and continuing their study of music. May be repeated for a maximum of 8 credits. Prereq: audition.

MUSI 454 - UNH Marching Band
Credits: 1
Open to all students; performs during football games. Rehearsals conclude at the end of the football season. May be repeated up to a maximum of 8 credits. 0 or 1 credit.

MUSI 455 - Piano Ensemble
Credits: 1
Drawing from available student instrumentalists and singers, pianists learn the art of performing in trios, duo sonatas, and two-piano works, and gain experience in Lieder accompaniment.

MUSI 456 - String Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 457 - Woodwind Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 458 - Brass Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 459 - Percussion Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 460 - Jazz Band
Credits: 1
Two jazz bands perform a wide spectrum of big band literature. May be repeated up to a maximum of 8 credits. Prereq: audition.

MUSI 461 - Vocal Jazz Ensemble
Credits: 1
Singers perform a wide spectrum of vocal jazz literature. May be repeated up to a maximum of 8 credits. Open to all students pending an audition during the first week of the semester. Contact the Department of Music for further information.

MUSI 462 - Pep Band
Credits: 1
Rehearsal and performance of a broad range of band music at hockey and basketball games. May be repeated up to a maximum of 8 credits. 0 or 1 credit.

MUSI 463 - Jazz Combo
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller jazz ensemble. May be repeated up to a maximum of 9 credits. Prereq: permission.

MUSI 464 - Guitar Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. May be repeated up to a maximum of 9 credits. Prereq: permission.

MUSI 471 - Theory I
Credits: 3
Introduces the tonal system; species counterpoint; principles of voice leading and harmonic progression through the analysis, realization, and composition of one-, two-, and four-voiced textures. Concept of triad inversion and consonant diatonic harmonies of the major and minor modes. Students should register for MUSI 473 and MUSI 474 concurrently. Prereq: permission.

MUSI 472 - Theory I
Credits: 3
Introduces the tonal system; species counterpoint; principles of voice leading and harmonic progression through the analysis, realization, and composition of one-, two-, and four-voiced textures. Concept of triad inversion and consonant diatonic harmonies of the major and minor modes. Students should register for MUSI 473 and MUSI 474 concurrently. Prereq: permission. Prereq: MUSI 471.

MUSI 473 - Ear Training I
Credits: 1
Laboratory exercises to develop aural skills; sight-singing and dictation. Students should register for MUSI 471 and MUSI 472 concurrently. Prereq: permission.

MUSI 474 - Ear Training I
Credits: 1
Laboratory exercises to develop aural skills; sight-singing and dictation. Students should register for MUSI 471 and MUSI 472 concurrently. Prereq: permission. Prereq: MUSI 473.

MUSI 475 - Functional Piano I
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission.

MUSI 476 - Functional Piano I
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 475.
MUSI 501 - History and Literature of Music
Credits: 3
Styles, forms, and techniques of composition in Western music. Prereq: completion of MUSI 472 or MUSI 412; permission.
Attributes: Fine Arts GP 6

MUSI 502 - History and Literature of Music
Credits: 3
Styles, forms, and techniques of composition in Western music. Prereq: completion of MUSI 472 or MUSI 412; permission.
Attributes: Inquiry (Discovery)

MUSI 515 - Music in World Cultures
Credits: 4
An introduction to musicking (participating in any way, including listening, in musical performance) beyond the Western tradition, this course offers students an opportunity to explore the music and culture of diverse regions from an ethnomusicological perspective. Through listening to and analyzing music, readings, lecture, discussion, and individual fieldwork projects, students discover how music functions within different world cultures and gain understanding of the ways people "make music meaningful and useful in their lives," as, through musicking, they articulate, resist, and transform cultural norms.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

MUSI 520 - Diction for Singers I
Credits: 2
Application of International Phonetic Alphabet (IPA) to English, French, German, and Italian. Emphasizes both written and spoken performance.

MUSI 521 - Diction for Singers II
Credits: 2
Application of International Phonetic Alphabet (IPA) to English, French, German, and Italian. Emphasizes both written and spoken performance. Prereq: MUSI 520.

MUSI 536 - Early Wind Instruments
Credits: 1-4
Private instruction in Renaissance and Baroque wind instruments. May be repeated. Special fee.

MUSI 541 - Piano
Credits: 1-4
Private instruction in piano. May be repeated. Special fee for non-majors.

MUSI 545 - Voice
Credits: 1-4
Private instruction in voice. May be repeated. Special fee for non-majors.

MUSI 546 - Violin
Credits: 1-4
Private instruction in violin. May be repeated. Special fee for non-majors.

MUSI 547 - Viola
Credits: 1-4
Private instruction in viola. May be repeated. Special fee for non-majors.

MUSI 548 - Violoncello
Credits: 1-4
Private instruction in violoncello. May be repeated. Special fee for non-majors.

MUSI 549 - String Bass
Credits: 1-4
Private instruction in string bass. May be repeated. Special fee for non-majors.

MUSI 550 - Classical Guitar
Credits: 1-4
Private instruction in classical guitar. Special fee.

MUSI 551 - Flute
Credits: 1-4
Private instruction in flute. May be repeated. Special fee for non-majors.

MUSI 552 - Clarinet
Credits: 1-4
Private instruction in clarinet. May be repeated. Special fee for non-majors.

MUSI 553 - Saxophone
Credits: 1-4
Private instruction in saxophone. May be repeated. Special fee for non-majors.

MUSI 554 - Oboe
Credits: 1-4
Private instruction in oboe. May be repeated. Special fee for non-majors.

MUSI 555 - Bassoon
Credits: 1-4
Private instruction in bassoon. May be repeated. Special fee for non-majors.

MUSI 556 - French Horn
Credits: 1-4
Private instruction in French horn. May be repeated. Special fee for non-majors.

MUSI 557 - Trumpet
Credits: 1-4
Private instruction in trumpet. May be repeated. Special fee for non-majors.

MUSI 558 - Trombone
Credits: 1-4
Private instruction in trombone. May be repeated. Special fee for non-majors.

MUSI 559 - Euphonium
Credits: 1-4
Private instruction in euphonium. May be repeated. Special fee for non-majors.

MUSI 560 - Tuba
Credits: 1-4
Private instruction in tuba. May be repeated. Special fee for non-majors.

MUSI 561 - Percussion
Credits: 1-4
Private instruction in percussion. May be repeated. Special fee for non-majors.

MUSI 562 - Jazz Piano
Credits: 1-4
Private instruction in jazz piano. May be repeated. Special fee for non-majors. Permission required.

MUSI 563 - Jazz Guitar
Credits: 1-4
Private instruction in jazz guitar. May be repeated. Special fee for non-majors.

MUSI 564 - Drum Set
Credits: 1-4
Private instruction in drum set. May be repeated. Special fee for non-majors.
MUSI 571 - Theory II  
Credits: 3  
Continuation of MUSI 471- MUSI 472. Compositional and analytical work stresses the treatment of dissonance within the tonal system; accessory tones, seventh chords, tonization, modulation, basic principles of chromatic harmony, and harmonization of chorale melodies are covered. Students should register for MUSI 573 and MUSI 574 concurrently. Prereq: MUSI 472; MUSI 474.

MUSI 572 - Theory II  
Credits: 3  
Continuation of MUSI 471- MUSI 472. Compositional and analytical work stresses the treatment of dissonance within the tonal system; accessory tones, seventh chords, tonization, modulation, basic principles of chromatic harmony, and harmonization of chorale melodies are covered. Students should register for MUSI 573 and MUSI 574 concurrently. Prereq: MUSI 472; MUSI 474.

MUSI 573 - Ear Training II  
Credits: 1  
Laboratory exercises to develop aural skills further. Students should register for MUSI 571-572 concurrently. Prereq: MUSI 472; 474; permission.

MUSI 574 - Ear Training II  
Credits: 1  
Laboratory exercises to develop aural skills further. Students should register for MUSI 571-572 concurrently. Prereq: MUSI 472; 474; permission.

MUSI 575 - Functional Piano II  
Credits: 1  
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 476.

MUSI 576 - Functional Piano II  
Credits: 1  
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 575.

MUSI 595 - Special Topics in Music Literature  
Credits: 1-4  
Open to music majors and non-majors; topics in areas not easily covered in historical courses. Prereq: permission. May be repeated for credit.

MUSI 610 - Popular Music and Rebellion in the 1960's  
Credits: 4  
Examines the ways in which popular music helped form the youth culture, was used as an act of rebellion, and came to be a focal point of generational conflict and protest in the United States during the 1960s.

MUSI 703 - Music of the Renaissance  
Credits: 3  
Works of the 15th- and 16th-century composers from Dunstable to Palestrina. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 705 - Music of the Baroque  
Credits: 3  
Music of Europe from de Rore to Bach. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 707 - Music of the Classical Period  
Credits: 3  
Growth of musical styles and forms from early classicism through the high classicism of Haydn, Mozart, and the young Beethoven. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 709 - Music of the Romantic Period  
Credits: 3  
A survey of romanticism in music from Beethoven's late period to the end of the 19th century. The works of Schubert, Berlioz, Schumann, Mendelssohn, Chopin, Wagner, Verdi, Brahms, Austrian symphonists, French pre-impressionists, and national styles in European music. Prereq: MUSI 501 and MUSI 502 or permission.

MUSI 709W - Music of the Romantic Period  
Credits: 3  
A survey of romanticism in music from Beethoven's late period to the end of the 19th century. The works of Schubert, Berlioz, Schumann, Mendelssohn, Chopin, Wagner, Verdi, Brahms, Austrian symphonists, French pre-impressionists, and national styles in European music. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 711 - Music of the 20th and 21st Centuries  
Credits: 3  
Styles and techniques of composers from Debussy to the present. Special emphasis on tonal music before World War I, neoclassical trends, the emergence of atonality and serial techniques, electronic music. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 713 - Art Song  
Credits: 3  
History and literature of the solo song with piano accompaniment. Survey of national styles of the 19th and 20th centuries and deeper study of the central core of the art song—the German Lied. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 715 - Survey of Opera  
Credits: 3  
History of the genre from Monteverdi to the present. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 731 - Conducting  
Credits: 2  
Physical aspects, equipment of conductor, fundamental gestures and beats, baton techniques. Reading and analysis of full and condensed scores, study of transposition, psychology of rehearsal. Prereq: MUSI 571.
MUSI 732 - Conducting
Credits: 2
Physical aspects, equipment of conductor, fundamental gestures and beats, baton techniques. Reading and analysis of full and condensed scores, study of transposition, psychology of rehearsal. Prereq: MUSI 571. Prereq: MUSI 731.

MUSI 736 - Early Wind Instruments
Credits: 1-4
Private instruction in Renaissance and Baroque wind instruments. May be repeated. Special fee.

MUSI 741 - Piano
Credits: 1-4
Private instruction in piano. May be repeated. Special fee for non-majors.

MUSI 745 - Voice
Credits: 1-4
Private instruction in voice. May be repeated. Special fee for non-majors.

MUSI 746 - Violin
Credits: 1-4
Private instruction in violin. May be repeated. Special fee for non-majors.

MUSI 747 - Viola
Credits: 1-4
Private instruction in viola. May be repeated. Special fee for non-majors.

MUSI 748 - Violoncello
Credits: 1-4
Private instruction in violoncello. May be repeated. Special fee for non-majors.

MUSI 749 - String Bass
Credits: 1-4
Private instruction in string bass. May be repeated. Special fee for non-majors.

MUSI 750 - Classical Guitar
Credits: 1-4
Private instruction in classical guitar. Special fee.

MUSI 751 - Flute
Credits: 1-4
Private instruction in flute. May be repeated. Special fee for non-majors.

MUSI 752 - Clarinet
Credits: 1-4
Private instruction in clarinet. May be repeated. Special fee for non-majors.

MUSI 753 - Saxophone
Credits: 1-4
Private instruction in saxophone. May be repeated. Special fee for non-majors.

MUSI 754 - Oboe
Credits: 1-4
Private instruction in oboe. May be repeated. Special fee for non-majors.

MUSI 755 - Bassoon
Credits: 1-4
Private instruction in bassoon. May be repeated. Special fee for non-majors.

MUSI 756 - French Horn
Credits: 1-4
Private instruction in French horn. May be repeated. Special fee for non-majors.

MUSI 757 - Trumpet
Credits: 1-4
Private instruction in trumpet. May be repeated. Special fee for non-majors.

MUSI 758 - Trombone
Credits: 1-4
Private instruction in trombone. May be repeated. Special fee for non-majors.

MUSI 759 - Euphonium
Credits: 1-4
Private instruction in euphonium. May be repeated. Special fee for non-majors.

MUSI 760 - Tuba
Credits: 1-4
Private instruction in tuba. May be repeated. Special fee for non-majors.

MUSI 761 - Percussion
Credits: 1-4
Private instruction in percussion. May be repeated. Special fee for non-majors.

MUSI 762 - Jazz Piano
Credits: 1-4
Private instruction in jazz piano. May be repeated. Special fee for non-majors. Permission required.

MUSI 763 - Jazz Guitar
Credits: 1-4
Private instruction in jazz guitar. May be repeated. Special fee for non-majors.

MUSI 764 - Drum Set
Credits: 1-4
Private instruction in drum set. May be repeated. Special fee for non-majors.

MUSI 771 - Counterpoint
Credits: 3
Contrapuntal techniques of tonal music. Melodic construction and dissonance treatment through work in species counterpoint and studies in harmonic elaboration and prolongation. Analysis of selected compositions emphasizes the connection between fundamental contrapuntal techniques and the voice-leading of composition. Prereq: MUSI 572 or permission.

MUSI 775 - Composition
Credits: 1-4
Construction of phrases, periods, and short compositions following classical models. Problems of text-setting. Prereq MUSI 572 or permission.

MUSI 776 - Composition
Credits: 1-4
Construction of phrases, periods, and short compositions following classical models. Problems of text-setting. Prereq MUSI 572 or permission. Prereq: MUSI 775 or permission.

MUSI 777 - Advanced Composition
Credits: 1-4
Continuation of MUSI 776. Individual compositional projects. Prereq: MUSI 776 and permission. May be repeated for credit.
MUSI 778 - Topics in Electronic Music  
Credits: 1-4  
Introduces and develops skills in the fundamentals of musical acoustics, and the principal compositional resources of digital/electronic music. Permission required.

MUSI 779 - Orchestration  
Credits: 3  
Characteristics of band and orchestral instruments both individually and in small (homogeneous) and large mixed groupings. Students study scores, write assignments, and have arrangements performed if possible. Prereq: MUSI 572 or permission.

MUSI 781W - Analysis: Form and Structure  
Credits: 3  
Introduces analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 18th- and 19th century works. Prereq: MUSI 572 or permission. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 782W - Analysis: Form and Structure  
Credits: 3  
Introduction to analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 20th- and 21st-century works. Prereq: MUSI 572 or permission. Writing intensive.  
Attributes: Writing Intensive Course

MUSI 795 - Special Studies  
Credits: 1-4  

MUSI 795W - Special Studies/Cardiff  
Credits: 3  
Advanced Music History or Advance Music Theory for Cardiff U. Study Abroad. Prereq: permission. Writing intensive.  
Attributes: Writing Intensive Course

Music Education (MUED)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MUED 595 - Special Projects  
Credits: 1-4  
Individual investigation, research, or study. Creative projects may be included. Prereq: permission.

MUED 741 - Techniques and Methods in Choral Music  
Credits: 2  
Problems in the organization and performance of high school, college, and community choruses. Techniques of choral conducting and rehearsal, repertory and materials.

MUED 743 - Materials and Methods in Piano Music  
Credits: 2  
Gives potential piano teachers a coherent but flexible approach to the instruction of students of different ages and levels of talent through evaluation of methods and materials and discussion of the role of the private teacher.

MUED 745 - Techniques and Methods in String Instruments  
Credits: 2  
Class and individual instruction. Intensive training on the violin, viola, cello, and double bass. Classroom procedures, establishment of string programs, and evaluation of available methods materials. Permission required.

MUED 746 - Techniques and Methods in String Instruments  
Credits: 2  
Class and individual instruction. Intensive training on the violin, viola, cello, and double bass. Classroom procedures, establishment of string programs, and evaluation of available methods materials. Permission required.

MUED 747 - Techniques and Methods in Woodwind Instruments  
Credits: 2 or 3  
Basic course in embouchure formation, tone production, tonguing, fingering and instrument care as applied to each of the woodwinds: flute, oboe, clarinet, bassoon and saxophone. Methods, studies, solos and ensembles most useful with school players of woodwind instruments. Permission required.

MUED 749 - Techniques and Methods in Brass Instruments  
Credits: 2  
Basic course in embouchure formation, tone, tonguing, fingering, flexibility, accuracy, and range development as applied to the trumpet or baritone horn, French horn, and trombone. Methods, studies, solos, and ensembles most likely to be useful with school players of brass instruments. Permission required.

MUED 751 - Techniques and Methods in Percussion Instruments  
Credits: 2  
Basic performance skills on snare drum, timpani, mallet instruments, and other percussion instruments used in bands and orchestras. Materials and methods of instruction. Permission required.

MUED 755 - Vocal Pedagogy  
Credits: 1 or 2  
A study of vocal anatomy, vocal function, and teaching methods, with an emphasis on application for singers and voice teachers.

MUED 763 - Jazz Music Methods  
Credits: 2  
Organization and delivery of instruction in jazz. Historical development of jazz styles and the role of each instrument/voice in jazz combos and large ensembles. Reading jazz notation and teaching improvisation. Examination of appropriate literature. Prereq: piano proficiency. Permission required.

MUED 765 - Instrumental Music Methods  
Credits: 2  
Organization and delivery of instruction to groups of instrumental music students. Examination of appropriate curricula and materials, application of instrumental and conducting techniques, structure of rehearsals, assessment of student progress. Prereq: junior standing.
MUED 771 - Marching Band Methods  
Credits: 2  
Role of marching band in the school music program. Design and execution of field shows and parade marching. Understanding of marching percussion and auxiliary units. Examination of appropriate music. Prereq: MUSI 454 and MUSI 571.

MUED 790 - Teaching Elementary School Music  
Credits: 3  
Experiential approach toward learning creative strategies for teaching elementary school music. Includes various curricula and methods; philosophy and psychology of music; demonstration of materials and instruments. Observation and teaching in schools. Prereq: piano proficiency.

MUED 791 - Teaching Secondary School Music  
Credits: 2  
Assembling, managing, and teaching junior/senior high school music curriculum. Academic issues of philosophy, curriculum building, application of learning theories, administration, evaluation, motivation, and classroom management combined with field experience in lesson planning and teaching/rehearsal techniques. Prereq: piano proficiency; MUSI 731 and MUSI 732.

MUED 795 - Special Studies  
Credits: 1-4  
Allows upper-level students to explore individually or in groups areas related to their specific professional interests. Prereq: permission.

Natural Resources (NR)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

NR 400 - Professional Perspectives in Natural Resources  
Credits: 1  
Lectures by departmental faculty provide an informal look at the various natural resource disciplines and professions represented by the Department of Natural Resources. These presentations acquaint students with our faculty and inform them of some of the exciting research being undertaken in the department. Students also learn of opportunities for professional involvement. Required for all first-semester Natural Resources majors. Cr/F.

NR 401 - Introduction to Natural Resources  
Credits: 4  
Overview of the history, politics, economics, ethics, and ecology involved with the conservation and management of living and non-living natural resources. Sets the stage for subsequent natural resource courses by introducing the scientific basis for natural resource conservation and management. Labs build confidence in map and compass work and provide hands on field experience within the various natural resource disciplines. Debates and discussions of natural resource related hot topics provide opportunities to practice public speaking, problem solving, and critical thinking skills. Restricted to NR majors or by Permission. Lab. Special fee  
Attributes: Inquiry (Discovery)

NR 403 - Introduction to Environmental Science  
Credits: 4  
A multi-disciplinary introduction to Environmental Sciences, presenting basic concepts and controversies in geology, meteorology/hydrology, global biology and biogeochemistry, integrated through the study of the Earth as system. Intended primarily for declared or perspective majors in Environmental Sciences and related programs. Combines lecture and discussion with discovery and presentation experiences to address the history of ideas, and major questions and controversies, both settled and active.  
Attributes: Inquiry (Discovery)

NR 410 - Insects and Society  
Credits: 4  
Insects have had a major impact on human culture throughout the centuries as source of food, an inspiration in literature and art, and a driving force behind social change. We study basic insect biology and ecology with a focus on their relationships to humans. Special fee. Lab.  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

NR 415 - Natural Resources Field Methods  
Credits: 2  
This course is intended to serve first or second year students in Forestry, Wildlife and Conservation Biology, and Environmental Conservation and Sustainability. After taking this course, students are able to navigate successfully in wild terrain using pacing, map, compass, GPS; can conduct a simple planar survey including cartography; and can sample a forest in order to characterize the abundance and quality of forest resources. Moreover, students know the fundamental principles of navigation, surveying, and field sampling.

NR 417 - Sophomore Seminar: Wildlife and Conservation Biology  
Credits: 2  
This course provides a professional foundation and orientation for second-year Wildlife & Conservation Biology (WCB) students. Through readings, seminars, guest speakers, and conservation, students will explore the range of what it means to be a professional Wildlife & Conservation Biologist. After taking this course, students will be better able to navigate and critique the scientific literature, synthesize and communicate information, and understand and articulate the diverse field of Wildlife & Conservation Biology.

NR 425 - Field Dendrology  
Credits: 4  
Students study forest trees in natural communities and urban settings. Identification and nomenclature of important North American trees and shrubs is emphasized. Environmental factors influencing tree growth, combined with study of disturbance history, provide the context for understanding why tree species grow where they do. Students are introduced to the major forest regions of North America. Restricted to NR majors; others by permission. Special fee.

NR 433 - Wildlife Ecology  
Credits: 4  
Historical, biological, ecological, and sociological factors influencing the wildlife resource and its management. Concepts in populations, communities, habitat, and contemporary wildlife issues. Special fee. Lab.  
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B
NR 435 - Contemporary Conservation Issues and Environmental Awareness
Credits: 4
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.
Attributes: Environment, TechSociety (Discovery); Technology GP 3T

NR 435H - Honors/Contemporary Conservation Issues and Environmental Awareness
Credits: 4
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.
Attributes: Environment, TechSociety (Discovery); Technology GP 3T

NR 437 - Principles of Sustainability
Credits: 4
In this course, we investigate the foundational principles of the concept of sustainability. Our objectives include: understanding the many integrated dimensions of sustainability; examining illustrations of unsustainable human-environment relations; recognizing the complexity of sustainability problems and the challenges to finding solutions; comprehending that human-environment relations are a multi-level, complex and dynamic system, and appreciating that the sustainability of ecosystems is necessarily embedded in social, cultural and historical trends.

NR 439 - Environmental Biology
Credits: 4
Environmental biology focuses on the origins, functions, and interactions of populations, communities, species and ecosystems in relation to dynamic environmental processes. The main course objective is to provide a basic understanding of ecosystem function and the ecological, evolutionary, and genetic principles necessary to understand biological diversity and its distribution. Special fee.

NR 444B - The Real Dirt
Credits: 4
Explores sustainable agriculture, regional and local food supply and systems, land ethics and agrarian thought as a natural resource and environmental conservation issue. Focusing on northern and central New England, the course uses the teaching of Aldo Leopold and includes hands-on study of UNH's new initiatives in sustainable and organic agriculture and the on-campus food system. A visit to University farms is included. Writing intensive.
Attributes: Environment, TechSociety (Discovery); Technology GP 3T; Inquiry (Discovery); Writing Intensive Course

NR 444F - Does Extinction Matter
Credits: 4
This course examines the causes and potential consequences of biodiversity loss. By considering ecological, economic, and ethical perspectives students will be asked to develop an informed personal answer to the question Does extinction matter? Development of critical thinking as well as written and oral communication skills will be stressed through a variety of in-class and outside class activities.
Attributes: Humanities (Discovery); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

NR 458 - The Science of Where
Credits: 4
This online course introduces the principles and practices of spatial thinking through lectures, readings, discussions, and hands-on laboratory exercises. Students learn not only to think spatially, but also how to apply this knowledge in their own fields of study.
Attributes: Discovery Lab Course; Physical Science (Discovery); Physical Science GP 3P

NR 501 - Studio Soils
Credits: 4
An overview of physical, chemical, and biological properties of soil. Sub-disciplines of soil chemistry, soil physics, soil microbiology, soil genesis, and classification. Prereq: CHEM 403 or equivalent. Special fee. Lab.

NR 502 - Forest Ecosystems and Environmental Change
Credits: 4
Forest ecosystems cover a large fraction of the Earth's land surface and account for most of its terrestrial biological productivity. This course introduces forest ecosystems around the world and explores both the natural processes that regulate them and the environmental factors that cause change over time. Topics include tree growth strategies, successional change, nutrient cycling, and human-induced stressors such as air pollution and climate change. Special fee.
Attributes: Environment, TechSociety (Discovery); Technology GP 3T

NR 504 - Freshwater Resources
Credits: 4
Major determinants of freshwater resources including hydrologic cycle and water balance, precipitation, stream-flow measurement, pollution, water supply and sewage treatment, water resource management and regulation. Special fee. Lab/field trips.
Attributes: Discovery Lab Course; Physical Science (Discovery); Physical Science GP 3P

NR 506 - Forest Entomology
Credits: 4
Insects are among the most diverse and abundant organisms on the planet and play a crucial role in forest ecosystems. Insects from the base of the consumer food web in forests and are key drivers of nutrient cycling, pollination, etc. This course surveys common and important insect orders, families, and species found in forest systems and provides the tools for basic identification and biological study of these fascinating creatures. Special fee.
NR 507 - Introduction to our Energy System and Sustainable Energy
Credits: 4
This course introduces students to our domestic energy system and the expanding efforts to develop our use and acceptance of sustainable energy. It provides a historical context of our system that explains where we are today in terms of the grid, technologies, energy use and production and energy markets, primarily for electricity and building use. The course examines how our current impedes and enhances opportunities for innovation in renewable technologies and financing.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

NR 527 - Forest Ecology
Credits: 4
Introduces basic and applied ecology of forests, with emphasis on ecosystem processes, including water, energy, and nutrient cycles; biological interactions, including biodiversity and plant-plant, plant-animal, and plant-microbe relationships; and human impacts, including forest management, land-use/land cover-change, and changes in atmospheric chemistry. Prereq: PBIO 412 or BIOL 411. Restricted to NR majors or by Permission. Special fee. Lab.

NR 542 - Forestland Measurement and Mapping
Credits: 1
Elementary measuring equipment and techniques; preparation of maps; public land survey; court-house deed search. (Forestry and Wildlife majors only.) Special fee.

NR 600 - Work Experience
Credits: 0
As part of their degree program, students are expected to engage in a work experience or internship under professional supervision and approved by natural resources faculty. This experience may occur at any time during their sophomore through senior years. Students are responsible for arranging their own experience in consultation with their advisor and NREN faculty members. Permission. Cr/F.

NR 601 - Environmental Conservation and Sustainable Living Internship
Credits: 4
Practical internship and field experience in a location removed from the University milieu to give the environmental conservation student a dimension and insight into sustainable resource management systems not available in the campus experience. Prereq: permission. Cr/F.

NR 602 - Natural Resources and Environmental Policy
Credits: 4
Contemporary natural resource and environmental policy problems/issues are addressed from a policy sciences perspective with emphasis on domestic policy solutions. Critical assessment of major policy initiatives and their implementation toward sustainable resource use and a healthy environment. Public policies are analyzed to determine the extent to which their implementation strategies have succeeded, and to assess their adequacy within a bioregional or ecosystem approach, and/or capacity to integrate economic and environmental decisions. Cases include national and local policies in their global context. Students apply public policy analysis and decision tools in laboratory sessions. Prereq: junior/senior; Restricted to NR majors or by Permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

NR 603 - Landscape Ecology
Credits: 4
This course focuses on the relationships between scale, spatial patterns and ecological processes. Through lecture, discussion and lab exercises students learn about scale and scaling techniques, the abiotic and biotic processes creating landscape patterns, how landscape patterns are characterized, and the application of landscape ecology theory to contemporary issues in conservation and management. Emphasis placed on landscape perspectives and practices as they relate to understanding and managing populations and communities. Prereq: BIOL 541, NR 527 or permission of instructor.

NR 606 - International Energy Topics
Credits: 4
This course introduces students to international energy topics. Students will be exposed to a historical context and current status of several energy-related issues from an international perspective. Topics range from energy poverty, energy and climate change and global fossil fuel subsidies. Studies of specific technologies will be delivered through the context of international leaders, Iceland and geothermal, the UK and offshore wind and solar in Germany.

NR 615 - Wildlife Habitats
Credits: 4
Introduces animal-habitat associations, including an examination of spatial and temporal features of wildlife habitat, the evolution of habitat selection, and how habitat suitability/productivity is evaluated. Prereq: woody plant identification; limited to wildlife management majors and minors. Permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

NR 620 - Farm to Table: A Case Study in the Northern Beauce Region of France
Credits: 4
Course provides students a unique study abroad experience that blends the study of agroecology with an on-farm stay that allows them to see how food moves from the field to table. Students participate in lectures, fieldtrips, readings, and discussions on topics including agricultural sustainability, agriculture and environmental health (soil/water quality, biodiversity), the influence of agriculture on the local ecology, and the relationship between French agriculture and the current local food movement in the U.S. They also get practical, on-farm experience by assisting with the harvest and transport of vegetables and edible flowers for the Paris market. Permission required. Special fee.

NR 621 - Field Description of Soils
Credits: 3
Description of soils in the field. Application of soils properties to forestry, plant science, and community planning. Strong orientation to fieldwork. Special fee. Lab.

NR 625 - Physiological Ecology
Credits: 4
Course examines the physiological mechanisms and adaptive responses of organisms that facilitate their survival in changing natural environments. Following an introduction to homeostasis and general physiological principles, topics focus on adaptations to the marine and freshwater environments, to estuarine challenges, and the specific requirements of terrestrial and aerial environments. Additional topics center on adaptations to extreme habitats and to parasitic life styles. Furthermore, the physiological bases of migrations, sleep, and mating/life history strategies are also explored. Examples are drawn from invertebrates, vertebrates, and plants. Prereq: one year college level biology.
NR 637 - Practicum in Environmental Conservation  
Credits: 4  
Independent participation in an environmental conservation activity in the area of the student's specialization. Individual or group projects may be developed under the supervision of any faculty member within or outside natural resources or with supervisors in public and private agencies, upon approval of the course instructor. Research projects not acceptable. Prereq: senior standing in the environmental conservation program. Cr/F.

NR 640 - Wildlife Population Ecology  
Credits: 4  
An overview of the mechanisms that influence the characteristics of terrestrial wildlife populations. Lecture covers concepts and theory, with a central focus on population growth, how it is influenced by demographic rates of survival, recruitment, immigration/emigration, with additional consideration given to predation and competition, and how population status is monitored for wildlife, including occupancy, abundance, and viability. Lab provides hands-on exercises, often using computer software, with analysis and interpretation of data from local case studies. Prereq: BIOL 412, BIOL 541 or NR 527.

NR 642 - Introduction to Biogeography  
Credits: 4  
Biogeography is an integrative field of inquiry that unites concepts and information from evolutionary biology, ecology, systematics, geology, and physical geography. Students are introduced to the distribution patterns of wild animals and plants and to the factors that determine these patterns. In this course, the emphasis is on evolutionary aspects of biogeography, biodiversity, and implications for conservation issues.

NR 643 - Economics of Forestry  
Credits: 4  
Intermediate-level analysis of supply and demand for forest-based goods and services, managerial economics, taxation, capital investments. Prereq: EREC 411 or ECON 402.

NR 650 - Principles of Conservation Biology  
Credits: 4  
Examines the major issues relevant to conservation of biodiversity from the genetic to the ecosystem level. In addition to addressing ecological and biological principles, the interdisciplinary nature and challenges of managing for conservation biology, including the role of economic and social factors are examined. Prereq: one semester of biology, botany, or zoology. Special fee.

NR 655 - Vertebrate Biology  
Credits: 4  
Introduces the diversity and evolution of vertebrates. Topics span the morphological, physiological, behavioral, and ecological diversity among the major vertebrate taxa. Labs stress identification of vertebrate taxa based on specimens and morphological structures. Permission. Prereq: BIOL 411 and BIOL 412; or equivalent. Special fee. Lab.

NR 658 - Introduction to Geographic Information Systems  
Credits: 4  
Introduces the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data quality/standards. Hands-on lab using ArcGIS software. Restricted to NR majors or permission. (Also offered as GEOG 658.)

NR 660 - Ecology and Biogeography of New Zealand  
Credits: 5  
Covers the principles of ecology and biogeography, with a distinct focus on New Zealand. Students investigate the processes that have shaped the New Zealand landmass and its biota. Impact of human settlement on New Zealand's ecosystems is explored in-depth. Methods and techniques of scientific research are incorporated in this course. Field exercises focus on topical case studies in a variety of ecosystems and are designed to strengthen students' conceptual knowledge, enable students to apply this knowledge, as well as develop field skills including classification systems, mapping, habitat assessment, field identification, and sampling techniques. Prereq: junior/senior; permission. Coreq: NR 661, NR 662, and NR 663. Special fee.

NR 661 - Restoration Ecology and Ecosystem Management in New Zealand  
Credits: 4  
Current restoration projects and strategies for management of natural resources in New Zealand form the framework for this course. Solving problems related to introduced species, changes in habitat, the preservation of ecological processes and watershed management are the major foci of this course. Management of resources for multiple uses, as well as primary and extractive industries is included. Field exercises focus on topical case studies in a variety of terrestrial and coastal-marine ecosystems and include the identification of habitats and communities, stresses on the environment, and risk analysis. Prereq: junior/senior; permission. Coreq: NR 660, NR 662, and NR 663.

NR 662 - Environmental Policy, Planning and Sustainability in New Zealand  
Credits: 3  
Introduces students to politics in New Zealand. Investigating policy pathways and planning forms part of the curriculum. Students assess scope of legislation, including the Resource Management Act (1991), for the economic and socio-political environment in New Zealand. Government obligations to the Treaty of Waitangi, and customary uses of resources are included as part of this course. Students are exposed to diverse perspectives of local authority planners and policy makers, local iwi (tribes), the Department of Conservation, and community groups. Students examine case studies involving the resource consent process at several levels of decision-making. Case studies provide a comprehensive overview of the interactions between the environment and people and their cultural and socio-economic needs. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 663.

NR 663 - Applied Directed Research in New Zealand  
Credits: 4  
Working closely with faculty, student teams investigate selected ecological, resource management or policy issues. All projects have scientific and societal relevance, and contribute to ongoing/existing projects in the region. Students use the scientific method to design and carry out their projects. Development of rigorous field investigations, experimental design, data analysis, and scientific writing are emphasized. Students prepare a research report and present their findings in a seminar that includes stakeholders and people from the local community. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 662. Writing intensive.

Attributes: Writing Intensive Course
NR 664 - Conservation Genetics
Credits: 4
Conservation genetics is the application of genetics to preserve species as dynamic entities capable of coping with environmental change. Includes genetic management of small populations, resolution of taxonomic uncertainties, defining management units within species, and the use of molecular genetic analyses to forensics and the understanding of the biology of species. Topics include methods of measuring genetic diversity in populations, identification of the units of biodiversity to which conservation efforts are directed, genetics of population fragmentation, genetic management of wild and captive populations, reintroduction of organisms back into the wild, and the role of forensics in enforcement and development of species recovery plans. Recitation. No credit if credit received for GEN 705 or ZOOL 705.

NR 701 - Ecological Sustainability and Values
Credits: 4
Deeper more fundamental philosophical questions, including spiritual values questions, are being asked concerning the ecological/environmental challenge of our time; its causes and resolution. Aspects of this challenge—environmental education, energy, food, agriculture, and natural resources—analyzed with ethics and values approaches. Students develop ways of responding to problem identification and resolution. Writing intensive.
Attributes: Writing Intensive Course

NR 702 - Workshops
Credits: 1-4
Short-term courses (generally a few days to two weeks) offered off campus, covering a broad variety of environmental and natural resource topics. May be repeated. Special fee required depending on topic. Prereq: permission required.

NR 703 - Watershed Water Quality Management
Credits: 4
Principles of land use as they relate to water quality and quantity. Lectures focus on biogeochemical cycles and the watershed approach to land and water resource management. Labs and field trips focus on methods of water sampling and analysis. One year of chemistry is recommended. Prereq: NR 504 or NR 604 or permission. Special fee. Lab/field trips. Writing intensive.
Attributes: Writing Intensive Course

NR 706 - Soil Ecology
Credits: 4
Examines the ecological relationships between soil microorganisms and their biotic and abiotic environment, with emphasis on the role of soil microorganisms in biogeochemical cycling. Specific objectives are to examine the biodiversity present in soil systems, factors controlling microbial community composition and diversity, and linkages between soil microbial communities, soil physical properties, and soil organic matter and nutrient cycling dynamics. Prereq: BIOL 412 or PBIOL 412, CHEM 403, or equivalent, or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

NR 707 - Environmental Modeling
Credits: 4
Environmental Modeling introduces students to a range of key mathematical and computer modeling concepts and the ways they can be used to address important scientific questions. The course is divided into four topical sections: Population and Community Ecology, Hydrology, Biogeochemistry, and Ecosystems. In each section, modeling concepts and skills are presented together with environmental information to emphasize the linkage between quantitative methods and relevant scientific results. Prereq: MATH 425.

NR 710 - Endangered Species Seminar
Credits: 2
Provides students with an interactive class of student presentations and guest lectures by endangered-species biologists. Emphasizes on biological, sociological, economic, and political factors that influence endangered-species policy. Prereq: basic ecology/biology; permission. Special fee.

NR 711 - Wetland Ecology and Management
Credits: 4
Analysis of the natural resources of coastal and inland wetlands and environmental problems caused by human use and misuse of these ecosystems. Groups collect field data to summarize the structure and function of four wetland types within a management context. Special fee. Lab. Prereq: BIOL 541, or NR 703, or permission. Writing intensive.
Attributes: Writing Intensive Course

NR 712 - Mammalogy
Credits: 4
Evolution, ecology, behavior, physiology and diversity of mammals. The focus of the course is on conceptual issues, such as the relation of structure, function, physiology and ecology of species; reproductive physiology and life history strategies; and the evolution of mating systems and social structure. Familiarity of mammalian groups to the family level and identification of local fauna to species will be required. Prereq: BIOL 411 and BIOL 412 or equivalent. Lab. (Not offered every year.)

NR 713 - Quantitative Ecology
Credits: 4
Basic quantitative concepts applied to ecological systems including: population and community dynamics, experimental design, spatial patterns, species abundance and diversity, community organization, metapopulations, and landscapes. Prereq: intro. courses in statistics, and ecology.

NR 716 - Wetland Delineation
Credits: 4
Examines the soils, vegetation, and hydraulic functions of coastal and central New England wetlands. Students are responsible for the collection and identification of aquatic plant species, description of wetland soils, and delineation of wetland boundaries. Lectures and fieldwork. For juniors, seniors, and working professionals. Field trips. Special fee. (Offered summer session only.)

NR 718 - Law of Natural Resources and Environment
Credits: 3
Federal and state environment statutory and administrative law, its application, strengths and weaknesses, and options for future amendment.
NR #719 - Wetlands Restoration and Mitigation
Credits: 3
Assesses the problems of wetlands loss and learning how to repair the damage. Asks what steps can be taken. Does restoration work, can habitat value be replaced, what constitutes equivalent mitigation? Field experience and theoretical background in restoring marine and freshwater environments. First half of course involves field trips to visit and sample mitigation and restoration sites. Second half focuses on student projects using the scientific method to address wetlands issues. Prereq: NR 711 or permission. Special fee. Lab/field trips. (Not offered every year.)

NR 720 - International Environmental Politics and Policies for the 21st Century
Credits: 4
Students examine policies for managing human activities to sustain the health of regional ecosystems and planetary life-support systems. Selected problems of the international commons (oceans, marine resources, atmosphere, migratory species), global and regional carrying capacity (population, resource consumption), internationally shared ecosystems (transboundary watersheds and waterbodies, tropical forests); and the relevant international institutions and politics for policy formation, conflict resolution, and implementation. Using a policy-analytic framework, students develop case studies to assess international policies and institutional arrangements to achieve the objectives of Agenda 21–Earth Summit Strategy to Save the Planet. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

NR 724 - Resolving Environmental Conflicts
Credits: 4
Theories and practices of environmental dispute settlement. Roles of public, non-governmental and governmental organizations. Effectiveness of public participation initiatives in influencing public policy decisions and/or resolving environmental conflicts. Alternative approaches to consensus (policy dialogues, joint problem solving; strategic planning; negotiation, mediation) as well as litigation. Specific cases are critiqued and evaluated; conflict resolution skills are developed. Students observe and/or participate in ongoing local decision processes. Prereq: second-semester juniors, seniors; permission. Lab. Special fee. Writing intensive.
Attributes: Writing Intensive Course

NR 729 - Silviculture
Credits: 4
The science and art of establishing, growing, and tending forests to meet multiple objectives. Basics of forest stand dynamics applied to the problems of timber management, wildlife habitat, water quality, and carbon sequestration. Prereq: NR 425 and NR 527 or permission. Special fee.

NR 730 - Terrestrial Ecosystems
Credits: 4
Processes controlling the energy, water, and nutrient dynamics of terrestrial ecosystems; concepts of study at the ecosystem level, controls on primary production, transpiration, decomposition, herbivory; links to earth-system science, acid deposition, agriculture. Prereq: NR 527 and PBIO 412 or BIOL 411, or permission.

NR 734 - Tropical Ecology
Credits: 4
This course introduces students to the ecology of different tropical ecosystems, and involves students in analyzing and interpreting ecological field data and remotely sensed data. An important emphasis is to understand patterns and processes across scales - from individual plants to ecosystems and landscapes. The course also addresses important global issues in the tropics, including climate change, land use change, diverse ecosystem services, and sustainable resource management.

NR 735 - Land Conservation Principles and Practices
Credits: 4
Students gain practical knowledge, understanding and experience in land conservation planning and implementation of options for land protection based on current practice in New Hampshire. By interacting with practitioners, students learn what it takes to implement successful land conservation projects, and conservation stewardship requirements and practices. Prereq: senior standing in the Department of Natural Resources and permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

NR 736 - Tropical Ecology and Conservation
Credits: 4
This intensive field course in Costa Rica introduces students to the science and practice of tropical ecology and conservation. The course includes visits to major tropical biomes, including cloud forest, rainforest, dry forest, and diverse aroecosystems. A focus in on understanding how ecological information is scaled from trees to ecosystems and landscapes, and the impact of climate change and land management. Students conduct a project on a topic of interest, involving data collection, analysis, and interpretation. Special fee.

NR #738 - Wildlife Policy and Management
Credits: 4
Local, regional, and national issues and strategies in policy and administration. Contemporary issues including land management, commercialization of wildlife, overpopulation, endangered species, wildlife diseases, and professionalism. Prereq: senior wildlife majors or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

NR 740 - Inventory and Monitoring of Ecological Communities
Credits: 4
Provides an introduction to the major concepts associated with monitoring change in ecological communities. Students develop an appreciation for such issues as: identification of appropriate baselines for comparison; use of indicator species; the tools used to inventory common, rare, and secretive species; how trend data are analyzed; and the implications of failing to detect an indicator species. Restricted to senior wildlife majors others by permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
NR 744 - Biogeochemistry  
Credits: 4  
Examines the influence of biological and physical processes on elemental cycling and geochemical transformations from the molecular to the global scale, involving microorganisms, higher plants and animals and whole ecosystems; factors that regulate element cycles including soils, climate, disturbance and human activities; interactions among the biosphere, hydrosphere, lithosphere, and atmosphere; transformations of C, N, S, and trace elements. Prereq: one semester biology and two semesters of chemistry or permission.

NR 745 - Forest Management  
Credits: 4  
Forest land ownership, management objectives, forest inventory regulation and policy, forest administration, professional responsibilities and opportunities. Restricted to Natural Resources majors. Lab. Special fee.  
Attributes: Writing Intensive Course

NR 749 - Forest Inventory and Modeling  
Credits: 4  
Applied sampling and statistical techniques for assessing current forest conditions and predicting future growth, yield, and structure. Topics include plot and point sampling, ecological inventory, and evaluation of site quality and stand density. Prereq: MATH 420 and BIOL 528. Special fee.

NR 750 - Sustaining Biological Diversity  
Credits: 4  
This course examines the approaches to recover and restore declining populations and at-risk communities. Major concepts addressed include: population viability analysis; use of simulation models to explore conservation alternatives; integrating the political, economic, and social realities that affect natural resource management; the adaptive nature of any restoration of rare organisms and communities; and preparing for the challenges associated with invasive organisms and climate change. Prereq: NR 650 and BIOL 528. Only open to Wildlife & Conservation Biology majors.

NR 751 - Aquatic Ecosystems  
Credits: 4  
Energy flow and nutrient cycling in streams, rivers and lakes, with an emphasis on understanding the control of primary productivity, decomposition and community structure by both hydrologic and biotic drivers. Role of aquatic ecosystems in carbon and nitrogen budgets at watershed, regional, and global scales. Impacts of environmental changes such as global climate change and suburbanization on aquatic ecosystems. Prereq: General Ecology. Lab. Special fee.

NR 753 - Critical Issues in Sustainability: Sustainability as an Abundance Paradigm  
Credits: 2  
After 30 years in common parlance, the success of "Sustainability" still seems far from its goal. In part, this is because sustainability is typically applied as another way to manage scarcity, a paradigm informing economic and social policy for well over a century. Underlying this dominant view of sustainability, an increasing number of approaches to sustainability projects, some of longstanding are entering the mainstream as pieces of an identifiable, and distinctly novel, paradigm based on the assumption of abundance, rather than scarcity. These include ideas of the Natural Step and Natural Capital, as well as Cradle to Cradle and Biomicry. The goals of this seminar are (1) to survey and discuss this growing literature and its application to the solution of sustainability problems; and (2) research and analysis towards transforming scarcity-based to abundance-based solutions. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 754 in the Spring semester.

NR 754 - Critical Issues in Sustainability: Sense of Place  
Credits: 2  
Costa Rica is the happiest country on Earth. Bhutan is a living laboratory for education. Bolivia has a Law of Mother Earth in its constitution. Cities and towns in the US create local solutions to problems of resource sustainability while the national dialogue stagnates. What drives some places to lay the foundations for sustainable futures, while others do not? Sense of Place is a powerful lens through which to view the relative achievements of places and organizations toward creating a sustainable future. The goals of this seminar are (1) to survey the Sense of Place literature and to analyze case studies of the role of Sense of Place in the success of sustainability efforts nationally and internationally; and (2) to research the role of Sense of Place in our local community environment and to relate it to stated goals in existing sustainability plans. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 753 in the Fall semester.

NR 757 - Remote Sensing of the Environment  
Credits: 4  
Practical and conceptual presentation of the use of remote sensing and other geospatial technologies for mapping and monitoring the environment. This course begins with the use of aerial photographs (photogrammetry, and photo interpretation) and includes measures of photo scale and area, parallax and stereo viewing, object heights, flight planning, photo geometry, the electromagnetic spectrum, camera systems and vegetation/land cover mapping. The course concludes with an introduction to other geospatial technologies including digital image analysis, global positioning (GPS), and geographic information systems (GIS). Conceptual lectures are augmented with practical homework assignments and hands-on lab exercises. Prereq: algebra. Special fee. Lab. (Also offered as GEOG 757.)

NR 759 - Digital Image Processing for Natural Resources  
Credits: 4  
Introduces digital remote sensing including multispectral scanners (Landsat and SPOT) radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: NR 757 or equivalent and permission. (Also offered as GEOG 759.)
NR 760 - Geographic Information Systems in Natural Resources  
Credits: 4  
Theory, concepts, and applications of geographic information systems (GIS) for use in natural resources and related fields. Discussion of database structures, sources of data, spatial data manipulation/analysis/modeling, data quality standards and assessment, and data display/map production including many examples and practical applications. Hands-on lab exercises using ArcGIS 8.x software. Permission. Lab. (Also offered as GEOG 760.)

NR 761 - Environmental Soil Chemistry  
Credits: 4  
Chemical transformations in soils are the basis for soil fertility and plant productivity in natural and managed ecosystems, and also influence key ecosystem processes including soil organic matter turnover and soil-atmosphere exchange of trace gases. This class will explore soil chemistry processes and transformations related to soil nutrient cycling, plant nutrient acquisition, and other critical environmental services. Prereq: a course in soil science or instructor permission.

NR 765 - Community Ecology  
Credits: 4  
Properties of biotic communities, especially biodiversity. Effects of physical stress, disturbance, competition, predation, positive interactions, and dispersal on community properties. Community dynamics, including succession and stability. Prereq: applied biostatistics and general ecology. Lecture and discussion.

NR 782 - Forest Health in a Changing World  
Credits: 4  
Forests cover over 30% of the land surface of the Earth and are incredibly important ecologically, economically, and to the health of the planet. While forests show great capacity to withstand disturbance, these ecosystems are increasingly threatened worldwide by climate change, native and introduced insects and disease, poor management practices, land clearing, drought, fire, and pollution. This course offers an overview of the dominant threats to forests, their causes and consequences, and options for monitoring, management, and mitigation. Special fee.

NR 783 - Forest Communities of New Hampshire  
Credits: 4  
A hands-on field course designed to introduce students to the diverse forest community types of New Hampshire. Topics include 1) field identification of forest types using different classification systems and keys; 2) identification of characteristic plant and animal species; 3) the roles of climate, geology, soils, natural disturbance, forest management, and biotic factors in determining forest community type; 4) primary and secondary succession, including old-growth. Prereq: one course in ecology or environmental biology or permission. Special fee.

NR 784 - Sustainable Living - Global Perspectives  
Credits: 4  
The pursuit of sustainable solutions to living in our contemporary world is a global endeavor. In this course, the concept of living sustainably is explored from a broad international perspective. Global scale issues impacting sustainable resource use are considered, including population growth, economic globalization and development, social equity, and cultural values. We will expand our awareness of alternatives to those current practices that impede the sustainability of human societies as part of the earth’s natural systems. We will also pursue an understanding of the interrelated socio-economic conditions, combined with social and personal ethics and values necessary to move toward a more sustainable future. And each of us will come to value what sustainable living means for our own lives. Prereq: NR 437 or NR 435.

NR 785 - Systems Thinking for Sustainable Solutions  
Credits: 4  
This course applies systems thinking as a problem-solving approach aimed at exploring possibilities for creating a future based on sustainable relationships between healthy human societies and their natural environments. Types of systems and systems tools are utilized to describe human-environment relationships and to emphasize their resiliency or vulnerability to future unsustainable events and/or practices. We explore how systems may be restructured to create more sustainable outcomes. Pre- or Coreq: NR 437 or NR 435.

NR 786 - Leadership for Sustainability  
Credits: 4  
In this course we review and evaluate current knowledge and practice regarding the attainment of sustainability in social and environmental relations. We particularly focus on the meaning and qualities of leadership for achieving a sustainable future. Along the way, we also reflect on our own leadership styles and qualities. Topics include the role of leaders and leadership practices in government, business, academia etc; concepts and theories for achieving social change; and case studies exemplifying a range of leaders and approaches toward sustainability. Prereq: NR 437 or NR 435. Writing intensive.

Attributes: Writing Intensive Course

NR 787 - Advanced Topics in Sustainable Energy  
Credits: 4  
This course engages students in advanced topics in sustainable energy. Course reviews basic structures of our energy system, energy markets and economics, and the environmental, economic and technological of energy landscape. Focus is on electricity and building use with introductions to the transportation system. Students gain the knowledge to evaluate innovations in technology, policy and financing necessary to implement sustainable energy goals from conservation and efficiency to renewables and energy storage. Special fee.

NR 791 - Project in Environmental Science I  
Credits: 1  
First part of a two-course capstone project sequence for Environmental Science majors. Intended for second semester juniors, this course requires selection of a topic area, and initial library and background research, leading to a statement of the problem to be addressed. To be followed by NR 792. Restricted to Environmental Science majors. Cr/F.

NR 795 - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Special fee on some topics.

NR 795W - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Writing intensive.

Attributes: Writing Intensive Course

NR 797 - Special Topics  
Credits: 1-4  
An experimental course for the purpose of introducing a new course or teaching a special topic for a semester in an area of specialization in natural resources. Permission required. Special fee on some sections.
**Neuroscience and Behavior (NSB)**

- **NSB 400 - Topics Neuroscience & Behavior**
  
  Credits: 1
  
  This seminar type course is designed as an introductory experience for incoming first-year students, although it may be taken by students transferring into the major. Topics covered will include sensory biology, learning and memory, homing and navigation, neuropeptides and stress, reproductive behaviors. The format will rely heavily on discussion, prompted either by assigned readings or presentations by program faculty on their areas of expertise. Credit/fail. 1 cr.

- **NSB 500 - Fundamentals of Neuroscience and Behavior I**
  
  Credits: 3
  
  The course will introduce students to the fundamental neural processes underlying behavior. It will begin with a detailed examination of the properties of individual neurons and then move on to demonstrate how neurons can communicate together to produce complex behaviors. Some of the basic concepts that will be covered will include: the molecular basis of electrical and chemical communication, sensory transduction and processing, neuropharmacology, the neural basis of reflexes and simple behavior, development of the nervous system and the influence of external stimuli on neural processing. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404.

- **NSB 501 - Fundamentals of Neuroscience and Behavior I Laboratory**
  
  Credits: 2
  
  The course is designed to expose students to some of the classic experiments in cellular and molecular Neurobiology. They will record from sensory and motor neurons, stain and view neurons, carry out simple behavior experiments and record from muscles in freely behaving animals. The laboratory exercises will run parallel with the concepts taught in lecture and complement the lecture material in many ways. Students will conduct actual experiments, analyze the results and write lab reports as well. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404. Special fee.

- **NSB 502 - Fundamentals of Neuroscience and Behavior II/Systems Neuroscience**
  
  Credits: 3
  
  This course is an introduction to the questions addressed by scientists who aim to understand the biological basis of behavior and cognition. This semester we will review the major organization of the central nervous system and how these systems interact with each other to produce behavior and cognition. Major topics will include: the development and emergence of behavior; movement; the neural basis of cognition, and language, thought, affect and learning. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404, NSB 500 and NSB 501.

- **NSB 503 - Fundamentals of Neuroscience and Behavior II Laboratory**
  
  Credits: 2
  
  This laboratory class will compliment the material being taught in NSB 502. The laboratory will focus on behavioral and cognitive neuroscience experiments. Students will learn about neuroanatomy and neuroscience research methods, including experimental design, data collection, statistical analysis, data interpretation, and manuscript preparation through conducting actual experiments. Students will write research reports describing their experiments and will receive some basic computer programming and research ethics training. Prereq: NSB 500, NSB 501.

- **NSB 600 - Field Experience**
  
  Credits: 1-4
  
  A supervised experience providing the opportunity to apply academic experience to settings associated with future professional employment or graduate opportunities. Must be approved by supervising faculty. 1-4 credits for a maximum of 8 credits. Cr/F.

- **NSB 727 - Animal Communication**
  
  Credits: 4
  
  This course examines the principles underlying how animals communicate with each other and why they communicate the way they do by using perspectives drawn from a broad range of disciplines including physics, chemistry, ecology, psychology, economics, and behavioral ecology. Students will explore the primary literature, and work in teams to conduct independent research. The course is intended for advanced undergraduate or graduate students interested in neuroscience and behavior, evolution, wildlife and conservation biology, or zoology. Prereq: BIOL 412.

- **NSB 728 - Research Methods in Animal Behavior**
  
  Credits: 4
  
  This course provides hands-on experience with modern methods for studying animal behavior in the field and laboratory, and immersion in the primary literature. Animal behavior research projects will be complemented with a sequence of technical training sessions, the goals of which are to provide students with practical expertise in modern ethological techniques. The course takes a ‘learn by doing’ approach, with student research teams building relevant methodological proficiencies in the context of an investigation of their own design. Special fee. Prereq: BIOL 412 Pre- or Coreq: ZOOL 613.
NSB 796 - Special Investigations
Credits: 1-4
Independent research with any member of the NSB faculty in various areas including, but not limited to, neuroscience, neuroendocrinology, animal behavior. Prereq: Permission of faculty concerned. Credits 1-4. May be repeated for up to 8 credits. 795W is writing intensive.

NSB 798 - Capstone
Credits: 0
This is a 0 credit course to indicate on the transcript that capstone requirement is fulfilled. Permission required.

NSB 799 - NSB Senior Thesis
Credits: 2-4
Working under the direction of a faculty sponsor, the student plans and executes independent research resulting in a written thesis and public presentation. Limited to students entering their senior year. Prereq: permission. A two-semester sequence 2-4 credits each semester, 8 credits maximum. IA (continuous grading) given first semester.

NSB 799H - Honors Senior Thesis
Credits: 2-4
Working under the direction of a faculty sponsor, the student plans and executes independent research resulting in a written thesis and public presentation. Limited to students working toward University Honors or Honors-in-Major. Prereq: permission. A two-semester sequence 2-4 credits each semester, 8 credits maximum. IA (continuous grading) given first semester. Writing intensive.

Nursing (NURS)

NURS 500 - Introduction to Professional Nursing
Credits: 2
The course provides an overview of professional nursing with a focus on reflective thinking. A synthesis of current and projected trends in nursing practice and education, with an introduction to topics on ethical, social, and legislative issues, are explored. This course is divided into five modules: nursing as a career, nursing as a profession, nursing as art and science, nursing as communication, and nursing and relationship-centered care. Prereq: BMS 507-508; majors only. Pre- or Coreq: BMS 501. Special fee.

NURS 504 - Disease and Drugs I
Credits: 4
The two semester course advances knowledge of human physiology and the pathophysiological variations in selected global disease states in adults and children. Students explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: BMS 507 and BMS 508; majors only. Pre- or Coreq: BMS 501.

NURS 505 - Diseases and Drugs II
Credits: 4
The two semester course advances knowledge of human phisiology and the pathopsychological variations in selected global disease states in adults and children. Students explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: NURS 500; majors only.

NURS 506 - Human Development, Interaction and Learning Across the Lifespan
Credits: 4
The course emphasizes human development, interaction and learning across the lifespan as essential to safe, effective relationship-centered care. An exploration of selected theoretical perspectives on human development, education and learning and group development prepares students to engage in professional practice. Prereq: NURS 500; or by permission.

NURS 516 - Health Assessment and Nursing Fundamentals
Credits: 4
Focuses on the acquisiton of psychomotor and assessment skills required for the delivery of safe nursing care. Students begin by learning clinical skills in the simulation setting and then using those skills with supervision in the clinical setting. An additional focus of this course is understanding fundemental nursing concepts as they pertain to providing safe, effective care. Prereq: majors only.

NURS 516C - Health Assessment and Nursing Fundamentals Clinical
Credits: 2
This clinical course is designed to provide experiences to apply the knowledge to the skills required to perform a systematic examination of a healthy adult, to perform basic psychomotor skills and to record findings appropriately. Students implement the nursing process by obtaining health histories, performing physical and psychosocial assessments, establishing a database, and formulating initial nursing plans. Students become familiar with the nursing simulation lab. Prereq: majors only. Special fee.
NURS 517C - Clinical Integration
Credits: 2
This course focuses on continued development of nursing skills necessary for promoting health in adults. Clinical practicum focuses on restorative care by providing supervised professional nursing practice for development of multidimensional assessment skills, decision-making processes, and evidence-based strategies and interventions for patients transitioning across the health care continuum. Application of evidence-based practice may include rehabilitative, end of life and palliative care. Prereq: majors only. Special fee.

NURS 535 - Death and Dying
Credits: 4
Encompasses peoples' responses to death throughout the lifecycle. Theories of death, dying, and grieving discussed. Students explore cultural influences, legal, and ethical dilemmas; the biopsychosocial needs of people facing life threatening situations; resources for care of the dying; death rituals; and surviving a major loss. Writing intensive.
Attributes: Social Science (Discovery), Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

NURS 595 - Women's Health
Credits: 4
Examines women's health and women's health care from historical, political, and social perspectives. Discussion of societal and health-care constraints that hinder women from achieving their full health potential. Also presents information on women's health care practices, including the concept of self-care, and relates this to development of educated consumerism in the health-care system. Writing intensive.
Attributes: Writing Intensive Course

NURS 601 - Function and Wellbeing of Older Adults
Credits: 2
This course focuses on developing knowledge necessary for promoting healthy aging and wellness across the lifespan. Multidimensional assessment skills are utilized to develop appropriate evidence-based interventions to assist individuals and families to maintain wellness and promote healthy lifestyles, and enhance the quality of life for older adults with acute and chronic conditions. Students will explore nursing issues and principles of promoting wellness across the health care continuum including end of life and palliative care. Prereq: majors only.

NURS 611 - Care of the Adult with Acute Illness I
Credits: 4
The first of two courses focused on adult health nursing of clients with commonly occurring disease states in the acute care setting. Course builds on previously learned knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to gastrointestinal, neurological, musculoskeletal systems and clients undergoing surgery. Complex client issues related to oncologic, immunologic and shock states are introduced. The advanced skills and interventions required to care for clients with commonly occurring disease states and those undergoing surgery are included. Prereq: NURS 611; majors only.

NURS 612 - Care of the Adult with Acute Illness II
Credits: 4
This is the second of two courses focused on adult health nursing of clients with commonly occurring disease states in acute care nursing. The course builds on previous knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis is placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to gastrointestinal, neurological, musculoskeletal systems and clients undergoing surgery. Complex client issues related to oncologic, immunologic and shock states are introduced. The advanced skills and interventions required to care for clients with commonly occurring disease states and those undergoing surgery are included. Prereq: NURS 611; majors only.

NURS 612C - Care of the Adult with Acute Illness II Clinical
Credits: 2
Course is designed to provide the student with opportunities to apply the nursing process and clinical judgment within an acute care setting to clients with commonly occurring disease states and those undergoing surgery. The experience focuses on the application of knowledge and skills, evidence-based practice, clinical judgment and relationship-centered care. Prereq: NURS 611; majors only. Special fee.

NURS 616 - Living with Mental Illness
Credits: 2
This course is designed to provide an understanding of the concepts of mental health and major factors affecting human behavior and interaction. Specific theoretical concepts guiding nurse-client interactions are utilized as a vehicle for supporting the person's and family's optimum state of well-being. Prereq: majors only.

NURS 616C - Living with Mental Illness Clinical
Credits: 2
In this psychiatric nursing clinical course the nursing process and a situation-based interpretive approach serve as framework for professional nursing action. A special focus is placed on the integration of personal knowledge, therapeutic use of self and communication skills inherent in nurse-client relationships. Through a variety of clinical experiences, the student applies mental health concepts and principles of therapeutic communication in caring for people and families with alterations in mental health. Prereq: majors only.

NURS 621 - Maternal and Newborn Nursing
Credits: 2
The course allows students an opportunity to develop necessary knowledge, attitudes and skills required for the provision of safe care to child bearing women and their families. Childbirth is viewed as part of the life cycle with emphasis on women and family-centered care, normal physiological childbirth, client advocacy and the provision of therapeutic nursing practice. Prereq: majors only.

NURS 621C - Maternal Newborn Nurs Clin
Credits: 2
This clinical component of NURS 621, a course that has family as the focus for nursing practice, introducing the student to the care of young families throughout pregnancy, birth, and child-rearing periods. The health needs of the young family are discussed in terms of major morbidity/mortality and contemporary issues. This clinical course offers students experiences in various clinical settings in order to provide opportunities for the development of professional practice roles in maternal health. Prereq: majors only. Special fee.
NURS 627 - Clinical Judgment in Nursing  
Credits: 4  
This course is designed to apply and analyze clinical reasoning and judgement in a variety of situations, focusing on the ability to prioritize and individualize evidence-based nursing interventions. Prereq: majors only. Writing intensive.  
Attributes: Writing Intensive Course

NURS 641 - Translating Research for Practice  
Credits: 4  
The course focuses on the translation of current evidence into nursing practice through the identification of practice issues, appraisal and application of evidence, and the evaluation of outcomes. Development of evidence is examined using the research process. Concepts explored include research ethics and legal precepts, clinical judgment in knowledge development and application, and the integration of client values and preferences. Students learn to use reliable evidence to inform practice and make clinical judgments to promote nursing best practice. Prereq: majors only.

NURS 694 - Special Topics  
Credits: 1-4  
Specialized courses covering information not normally presented in regular course offerings. Description of topics will vary. May be repeated but not duplicate areas of content. Prereq: permission. (Not offered every year.)

NURS 695 - Independent Study  
Credits: 2-4  
In-depth study with faculty supervision. Prereq: junior standing and approval of adviser and faculty of the area concerned. May be repeated for different topics.

NURS 696 - Health Policy and Finance  
Credits: 3  
This course provides knowledge and understanding needed to participate in health policy development, analysis and implementation. The impact of policies on the delivery of health care and nursing services will be explored. The relationship of health policies to the financing of health care will be presented. Students will be introduced to health economics with a focus on the elements of financial management including the language and basic concepts of cost, the budgeting process and systems of reimbursement. Global, national, state, and local systems of financing health care will be compared. Prereq: majors only.

NURS 702 - Child Health Nursing  
Credits: 2  
The course considers the child in the context of family as the focus for nursing practice, introducing the student to the care of children using a developmental approach. Commonly occurring health transitions and alterations occurring from infancy through adolescence are examined. A survey of child health explores both professional practice roles of the pediatric nurse in health promotion and illness as well as acute and chronic conditions that impact children at various stages of development. Prereq: majors only.

NURS 702C - Child Health in the Community Clinical  
Credits: 2  
Semester long clinical course focused on the practice of pediatric nursing in the community. Prereq: majors only.

NURS 704 - Public Health Nursing  
Credits: 4  
This course prepares the student for population-focused practice. Emphasis is placed on the synthesis of concepts, theories, knowledge and practice from nursing and public health sciences. Students explore the concepts of: community as client, community assessment, health promotion, health protection, illness prevention and vulnerability from a public health nursing perspective. Prereq: majors only.

NURS 704P - Public Health Nursing Project  
Credits: 2  
Semester long experience working in teams with a community organization to address a current public health issue. Learning focuses on working in teams to develop a strategic understanding of the identified public health issue and to design, implement, and evaluate a targeted intervention project. Prereq: majors only.

NURS 705 - Contemporary Leadership within Health Care Systems  
Credits: 4  
The course explores the dynamic nature of the healthcare system and practice environments that impact nursing. Emphasis is placed on leadership and management to effectively negotiate change, provide safe quality care, and promote professional practice in the delivery of relationship-centered care. Prereq: majors only.

NURS 711 - Clinical Judgment in Complex Illness  
Credits: 2  
This course further develops and refines critical thinking skills by student participation in clinical scenarios and de-briefings. Students prepare for the care of patients with complex illness and engage in health assessment, psychomotor skills, and implementing the nursing process to develop a plan of care. May be waived with special circumstances. Prereq: majors only. Special fee.

NURS 721 - Integrating Professional Nursing Practice  
Credits: 2  
Weekly seminar provides an opportunity for the analysis, synthesis, refinement and integration of nursing knowledge. Standardized testing provides timely feedback to facilitate transition to professional practice. Prereq: majors only.

NURS 721C - Integrating Professional Nursing Practice Clinical  
Credits: 6  
Clinical synthesis experience to refine and integrate previously learned knowledge and skills into professional practice through a cooperatively designed learning experience. Students plan, deliver and manage care under the supervision of a licensed preceptor. Prereq: majors only.

NURS 794 - Special Topics  
Credits: 1-4  
Specialized courses covering information not normally presented in regular course offerings. Description of topics varies. May be repeated but not in duplicate areas of content. Prereq: permission. Special fee on some sections.

NURS 794T - Special Topics/Study Away  
Credits: 1-4  
Study Away course. Special fees. Permission required.
NURS 794W - Special Topics
Credits: 1-4
Specialized courses covering information not normally presented in regular course offerings. Description of topics varies. May be repeated but not in duplicate areas of content. Prereq: permission. Special fee on some sections. Writing intensive.
Attributes: Writing Intensive Course

NURS 797 - Honors Thesis
Credits: 1-4
Honors seminar designed to expand the knowledge and skills presented in previous honors in major courses. Focuses on a project relevant to the discipline of nursing under the direction of a faculty adviser. Open to honors-in-major and senior nursing majors. Students must complete two semesters of work 1 cr. in fall, and 4 cr. in spring.

NURS 797W - Honors Thesis
Credits: 1-4
Honors seminar designed to expand the knowledge and skills presented in previous honors in major courses. Focuses on a project relevant to the discipline of nursing under the direction of a faculty adviser. Open to honors-in-major and senior nursing majors. Students must complete two semesters of work 1 cr. in fall, and 4 cr. in spring. Writing intensive.
Attributes: Writing Intensive Course

Nutrition (NUTR)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

NUTR 400 - Nutrition in Health and Well Being
Credits: 4
Addresses scientific principles of human nutrition to promote health and well-being. Overview of the biological significance of food and nutrition, specific nutrient functions, and how the supply and demand of food impacts physical health and well-being. Emphasis on scientific literacy and an appreciation of the ways in which we gain scientific knowledge and understanding. Special fee. Lab.
Attributes: Biological Science (Discovery); Discovery Lab Course; Biological Science GP 3B

NUTR 400H - Honors/Nutrition in Health and Well Being
Credits: 4
This course is designed to teach the scientific principles of human biology using nutritional concepts to promote personal health and well-being. Special fee. Students cannot earn credit for this course if they have taken ANSC 400 or NUTR 475.
Attributes: Biological Science (Discovery); Discovery Lab Course; Biological Science GP 3B

NUTR 401 - Professional Perspectives on Nutrition
Credits: 1
Examines the many opportunities for dietitians and nutrition science professionals, from farm to fork, to health and nutrition outcomes. Students meet and interact with faculty and explore career paths and nutrition strategies in the food and nutrition science fields. Legal and ethical considerations for these professionals are discussed. Content areas for specialization in nutritional sciences, dietetics, health and wellness are reviewed, as well as the Ecogastronomy dual major. Cr/F. Prereq: freshmen, sophomore standing or permission.

NUTR 405 - Food and Society
Credits: 4
Consideration of the cultural significance of food, emphasizing historical, psychological, social, political, and economic aspects. (Spring semester only.)
Attributes: Social Science (Discovery); Social Science GP 7

NUTR 405W - Food and Society
Credits: 4
Consideration of the cultural significance of food, emphasizing historical, psychological, social, political, and economic aspects. (Spring semester only.) Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

NUTR 476 - Nutritional Assessment
Credits: 4
Designed for the student who plans to enter the health care profession. Introduces the concepts of nutritional assessment and the practical application of these concepts in the nutritional care of clients in clinical, community, and research settings. Prereq: NUTR 400. Special fee.

NUTR 504 - Managerial Skills in Dietetics
Credits: 4
Emphasis on the basic principles of managing clinical, community, and food service operations, including personnel management, in-service and on-the-job training, policy and procedure development, negotiation techniques, facilities, equipment selection, and financial management.

NUTR 505 - ServSafe
Credits: 1
Food safety training and certificate program administered by the National Restaurant Association. ServSafe certification required when working in a variety of food service establishments. Special fee.

NUTR 506 - Nutrition and Wellness
Credits: 4
Course assists students in making informed decisions affecting personal and societal wellness. Emphasis on the dimensions of wellness, including the impact of psychological, emotional and physical health, as well as environmental influences that affect behavior. Prereq: NUTR 400 or equivalent.

NUTR 525 - Food and Culture in Italy
Credits: 4
Students will be introduced to the Italian culture and its traditions, with a special focus on food. Part of the course will involve out-of-class activities and tasting experiences in the city of Ascoli Piceno, Italy. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: World Cultures (Discovery); Foreign Culture GP 5

NUTR 530 - Critical Analysis in Food Studies
Credits: 4
The course aims to investigate concepts and ideas that are essential to food studies. The philosophical aspects of the course are complemented by the experiential components that emphasize the particularity of the Italian environment. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: Humanities (Discovery); Foreign Culture GP 5
NUTR 535 - History of Food in Italy
Credits: 4
Students will examine the history of food in Italy and explore the interconnected sociological, cultural, political and environmental histories. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

NUTR 546 - Nutrition in Exercise and Sports
Credits: 4
Advanced nutritional strategies to optimize health, fitness, and athletic performance. Emphasis is on nutrition before, during, and after exercise for fitness, training, and competitions. Topics include healthy strategies for building muscle and losing body fat, as well as dietary manipulation in an effort to gain a competitive advantage. Prereq: NUTR 400 or equivalent.

NUTR 550 - Food Science: Principle and Practice
Credits: 4
Application of scientific principles associated with the study of foods. Topics include: food composition, food additives and regulations, food safety, food biotechnology, product development and sensory evaluation. Principles of scientific inquiry as food ingredients are manipulated in a kitchen lab environment. Prereq: HMGT 403; NUTR 400; CHEM 411 or CHEM 403 and CHEM 404. Special fee. Lab.

NUTR 560 - Introduction to Research in Nutrition
Credits: 2
Introduction to research methods in nutritional assessment. Students gain both conceptual knowledge and hands-on experience in a collaborative setting while working with the College Health and Nutrition Assessment Project. Prereq: NUTR 400 or equivalent.

NUTR 595 - Mediterranean Diet and Culture
Credits: 4
Is there a diet that allows one to eat, drink, and still be healthy? While Americans struggle with rising rates of obesity and related health conditions, inhabitants of the Mediterranean region enjoy relatively low rates of heart disease, cancer, and obesity. Offers a unique on-site experience in Ascoli Piceno, Italy to investigate the cultural and scientific importance of the Mediterranean Diet. Students review basic nutrition concepts as well as the history and evolution of the Mediterranean diet. Combining lecture, discussion, and experiential activities, NUTR 595 is offered through the UNH Italy Study Abroad Program during the summer session.

NUTR 600 - Field Experience in Nutrition
Credits: 1-4
Supervised field experience in public and private agencies with planned learning objectives related to clinical and community nutrition and food service management. Students are responsible for their own transportation; faculty member coordinates arrangements with fieldwork sites. Prereq: NUTR 400 or equivalent. May be repeated for a maximum of 6 credits. Cr/F.

NUTR 610 - Nutrition Education and Counseling
Credits: 4
The principles, methods and materials needed to provide nutrition education and counseling services. Emphasis on motivational interviewing, behavior change and developing skills needed to be an effective nutrition educator and counselor. Prereq: NUTR 400 and NUTR 476.

NUTR 625 - From Farm to the Italian Table
Credits: 4
Students will gain an appreciation for food production (harvesting, processing), culinary preparation, and tasting. Hands-on experience will be emphasized through field trips and will provide a broad, informed perspective on farming and sustainable agriculture. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.

NUTR 650 - Life Cycle Nutrition
Credits: 4
Comprehensive review of the nutritional issues related to the life cycle. Nutrient requirements of each life cycle stage are analyzed in the context of their metabolic functions. Practical application of theory at each stage of the life cycle through projects and discussion. Prereq: NUTR 400 or equivalent. Recommended BMS 507 and BMS 508.

NUTR 686 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the semester. Open only to students studying abroad in the UNH-in-Italy Program. Permission required. Cr/F. Special fee.

NUTR 699 - Independent Study
Credits: 1-4
Scholarly research project in an area of the nutritional sciences under the guidance of a faculty adviser. May be repeated. Prereq: permission. Cr/F.

NUTR 700 - Career Development in Dietetics
Credits: 1
Preparation for applying to dietetic internship programs and/or graduate school. Topics include writing resumes and personal statements, interviewing, professional skills, and navigating the online internship application.

NUTR 720 - Community Nutrition
Credits: 4
Identification of causes of complex public health nutrient problems (such as food insecurity and escalating obesity rates) and cost-effective community-based interventions required to solve them. Provides skills and tools needed to assess design, and evaluate community nutrition and wellness interventions. Prereq: NUTR 400 or equivalent. Writing intensive. Attributes: Writing Intensive Course

NUTR 730 - From Seed to Sea: Examining Sustainable Food Systems
Credits: 4
Integration of diverse human and natural system interactions in a seminar-based course to understand issues in food system sustainability. Examination of food system structure and function from coupled human and natural systems perspectives. Current and topical issues of food and agriculture include: exploration of using natural resources to meeting growing population demands; conflicting views on meeting food and nutrition requirements; impacts of increased stress on natural resources; inequities and discrimination in the food system; impact on dietary guidelines on the environment. Prereq: NUTR 400 or NUTR 405 or by permission.
NUTR 733 - Inv Diet Supplements & Herbs
Credits: 4
Investigations into the potential benefits to human health of medicinal herbs and other dietary supplements. Students critically evaluate the potential effectiveness of dietary supplements by relying on peer-reviewed nutrition and medical journals. Safety, efficacy, and legality of dietary supplements are critically evaluated, as well as governmental regulations and industry marketing approaches. Several exemplary dietary supplements are examined in detail. Recommended for students in the health sciences (nutrition, nursing, biomedical sciences). Students are expected to attend live sessions of this synchronous online course at the regularly scheduled class times, and all exams will take place in a UNH classroom at the regularly-scheduled class times on the dates indicated in the syllabus. Prereq: NUTR 400. Attributes: Online with some campus visits, EUNH.

NUTR 740 - Nutrition for Children with Special Needs
Credits: 4
Nutritional assessment and care of children with special needs resulting in feeding difficulties requiring medical nutrition therapy. Prereq: NUTR 400.

NUTR 750 - Nutritional Biochemistry
Credits: 4
Digestion, absorption, transport, and utilization of food nutrients. Role of macro- and micro-nutrients as substrates and catalysts for metabolic pathways, and the role of these pathways in maintaining human health at the cellular, organ, and whole body levels. Prereq: BMS 507 and BMS 508 or ANSC 511 and ANSC 512; BMCB 658 or equivalents. Writing intensive. Attributes: Writing Intensive Course

NUTR 751 - Nutritional Biochemistry of Micronutrients
Credits: 4
Investigation of the nutritional and biochemical aspects of micronutrient metabolism. All essential vitamins and minerals, as well as some phytoneutrients and quasi-nutrients, are explored in depth. Nutrients are examined for their molecular, cellular, metabolic and biomedical functions, as well as the biochemical and clinical consequences of their deficiency or excess. Prereq: NUTR 750 or equivalent.

NUTR 755 - Treatment of Adult Obesity
Credits: 3
Overview of the risk factors associated with obesity; evidence-based recommendations for assessment and treatment of obesity. Counseling skills important to successful weight management and non-diet approaches are also explored. Prereq: NUTR 400, 476, and NUTR 610.

NUTR 758 - Practicum in Weight Management
Credits: 2
Assist clients in making lifestyle and dietary changes over a 10-week period and develop skills in marketing, advertising, counseling, and oral communication related to weight management. Prereq: NUTR 400 or equivalent; NUTR 476; and NUTR 610. Special fee.

NUTR 760 - Research Experience Nutrition I
Credits: 2
Review scientific literature, formulation of research questions, testing hypotheses, analysis and interpretation of research data, and formal presentation of findings. Students gain conceptual knowledge and hands-on experience while working with established research projects. NUTR 760 focuses on the review of scientific literature and the development and testing of a research question. Prereq: NUTR 560. Special fee.

NUTR 761 - Research Experience Nutrition II
Credits: 2
Review scientific literature, formulation of research questions, testing hypotheses, analysis and interpretation of research data, and formal presentation of findings. Students gain conceptual knowledge and hands-on experience while working with established research projects. NUTR 761 focuses on understanding and communicating research findings in a collaborative setting. Prereq: NUTR 760. Special fee.

NUTR 765 - Geriatric Nutrition
Credits: 4
Overview of the physiological changes associated with aging and their impact on preparing, consuming, digesting, absorbing, and metabolizing food. Role of routine nutritional assessment in the promotion of health to prevent and manage chronic disease, with a social focus on the influence of polypharmacy on nutritional status. Prereq: NUTR 400 or equivalent; NUTR 650.

NUTR 773 - Clinical Nutrition
Credits: 4
Principles and mechanisms of disease that result in altered nutrient requirements in humans. Prereq: NUTR 400; BMS 507 and BMS 508; BMCB 658.

NUTR 775 - Practical Applications in Medical Nutrition Therapy
Credits: 4
Combination of lecture and supervised practical experience in medical nutrition therapy in a New England hospital. Emphasizes nutritional counseling, assessment, and instruction of patients with nutrition-related disorders. Prereq: NUTR 400; BMS 507 and BMS 508 or ANSC 511 and ANSC 512; BMCB 658. Special fee.

NUTR 780 - Critical Issues in Nutrition
Credits: 4
Critical review and analysis of controversial topics in nutrition; emphasis on developing oral and written communication skills and critical thinking skills. Writing intensive. Prereq: NUTR 773 or permission. Attributes: Writing Intensive Course

NUTR 790 - Undergraduate Teaching Experience
Credits: 1-2
Assist graduate teaching assistants or faculty in preparing, presenting, and executing NUTR courses/laboratories. May be repeated up to a maximum of 4 credits.

NUTR 795 - Investigations
Credits: 1-4
Prereq: permission.

NUTR 795W - Investigations
Credits: 1-4
Prereq: permission. Writing intensive. Attributes: Writing Intensive Course

NUTR 799 - Senior Thesis
Credits: 1-4
A special project conducted under faculty supervision and resulting in a written honors thesis. Students must initiate discussion of the project with an appropriate faculty member. Offered both semesters. Prereq: Junior or Senior major with cum. GPA of 3.20; permission. Writing intensive. Attributes: Writing Intensive Course
NUTR 799H - Honors Senior Thesis
Credits: 1-4
A special project conducted under faculty supervision and resulting in a written honors thesis. Students must initiate discussion of the project with an appropriate faculty member. Prereq: Senior major with cum. GPA of 3.50; permission. Writing intensive.
Attributes: Writing Intensive Course

Occupational Therapy (OT)

OT 444 - Living and Doing with Technology
Credits: 4
This course draws upon the knowledge from emerging product design concepts and principals and advocates for inclusiveness of all consumers regardless of their age, abilities, disabilities, and personal affinities. Students will apply critical thinking and hands-on learning to evaluate day-to-day technologies by use of various design criteria, identify usability problems, and design technology solutions. Course work will include readings, interactive activities, discussions, quizzes, and group projects.
Attributes: Environment, TechSociety (Disc); Technology GP 3T; Inquiry (Discovery)

OT 500 - Behavior and Development of Children
Credits: 4
Introduces the biological, psychosocial, and cultural aspects of human development from birth through adolescence. Emphasizes theories that help explain human behavior; discusses implications of developmental research.

OT 501 - Developmental Tasks of Adulthood
Credits: 4
Includes the biological and psychosocial context of development for adults. Developmental tasks relate to the accomplishment of prior tasks, physiological change, socioeconomic status, and psychosocial development. Prereq: child development course or permission.

OT 510 - Exploring Occupational Therapy and Occupation
Credits: 4
Occupational therapy is introduced as a human service profession through experiential and academic activities, which illustrate the personal and professional skills required to practice in a variety of settings and roles. Basic concepts of human occupation and the therapeutic use of occupation are explored. Comparisons are made to related human service careers. Students are encouraged to do a personal assessment of their interest and potential for further study of occupational therapy.

OT 513 - Stressed Out: The Science and Nature of Human Stress
Credits: 4
The human stress response system, research investigating the sequelae of stress on health, protective strategies for stress, managing personal stress effectively, and strategizing stress modulation as an intervention technique. Course format includes two hours of weekly lecture/discussion followed by one hour of experiential laboratory in which students research and/or apply new information. Special fee.
Attributes: Biological Science (Discovery); Discovery Lab Course; Biological Science GP 3B

OT 595 - Special Topics
Credits: 4
Explores areas related to occupational therapy theory, practice, and/or research. Special fee on topic: College as Transition.

OT 598 - Happy and Healthy at Work/Promoting Wellness, Diversity and Inclusion
Credits: 4
As an improved understanding and ability to effectively manage a diverse and healthy workplace. Addresses key diversity, inclusion and wellness issues in the workplace of a general, technical, and social nature with an emphasis on disability and health promotion. (Also listed as HMST 598.) Special fee.
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

OT 610 - Occupation, Identity, Disability
Credits: 4
Students develop skills and knowledge for analyzing daily existence, patterns of activity and the occupational choices pursued by humans. Students explore how the self-identity of individuals with and without disability is influenced by participation in everyday activities, and contextual factors: Through reading, reflective writing and collecting personal narratives of individuals with disability, students examine the relations among engagement in daily occupations and the orchestration of routines and social participation with self identity and well-being. Majors only. Writing intensive.
Attributes: Writing Intensive Course

OT 685 - Psychosocial Disorders and Everyday Life
Credits: 4
The study of abnormal behavior in the context of its effect on everyday function. Provides background information on adult psychosocial disorders commonly seen by service providers in the mental health system. Students learn to observe and describe behavior in terms of functional impairment, diagnostic criteria, and causative factors. General psychosocial and biological treatments are studied. This course or its equivalent is a prerequisite for entry to the professional masters degree program in occupational therapy. Students are expected to bring to this course a basic knowledge of psychosocial aspects of human development. Prereq: PSYC 401. Majors only.

OT 695 - Independent Study
Credits: 2-4
In-depth study with faculty supervision. Prereq: junior standing in OT major; approval of major adviser and faculty of area concerned. May be repeated for a maximum of 8 credits.

OT 710 - OT Practice and Professional Roles
Credits: 4
Students are introduced to foundation knowledge, values and philosophy of occupational therapy practice. Students learn skills to apply professional behaviors and skills required to be ethical practitioners. They learn about various practice settings and systems within which occupational therapists practice to prepare them to begin to make decisions regarding their fieldwork site selections. They are introduced to models of OT practice. Only open to OT majors. Special fee.
OT 722 - Introduction to Assistive Technology  
Credits: 4  
Hands on course provides participants with an overview of the application of assistive technology in all life settings for individuals affected by physical, sensory, or cognitive limitations. Methods, materials, and resources for obtaining and providing assistive technology services will also be discussed. Special fee.

OT 724 - Assistive Technology and Physical Disabilities  
Credits: 4  
An advanced course that focuses on the specialized assistive technology needs of persons with physical impairments. Topics include seating and positioning needs, prosthetic devices, manual powered mobility devices, ergonomics and computer access. Special fee.

OT 726 - Assistive Technology and Sensory, Communicative, and Cognitive Disabilities  
Credits: 4  
Explores the application of various technologies for individuals with visual, auditory, cognitive and communication impairments. Included are: blind and low vision aides, assistive listening devices, alternative and augmentative communication devices, memory aids, and prompting aides. Special fee.

OT 730 - Assistive Technology for Enhancing Occupational Performance  
Credits: 3  
This course provides instruction on how occupational therapy practitioners use and apply assistive technology in the context of client evaluation and intervention, to improve quality of life and functional capacities. Students learn and apply clinical reasoning skills related to the selection, procurement, modification and training in the use of assistive technology solutions. OT majors only.

OT 730L - Assistive Technology for Enhancing Occupational Performance Lab  
Credits: 2  
Co-Requisite Laboratory for OT 730 and OT 830 Assistive Technology. Students are provided hands-on learning experiences regarding the fabrication, identification, adaptation and training in the use of assistive technology for individuals with functional problems associated with disability or impairment. OT evaluation and interventions related to the application of assistive technology are addressed. OT majors only.

OT 741 - Human Occupation  
Credits: 4  
This course introduces students to the broad concept of occupation by exploring ways people acquire skills for occupational performance. Students develop an understanding of the relations between health and occupation, disability and occupation, and explore how humans find meaning in their lives through occupational engagement. Writing intensive.

Attributes: Writing Intensive Course

OT 744 - Fieldwork and Professionalism - Level 1  
Credits: 1  
This course prepares students to enter level 1 fieldwork with confidence and working knowledge of expectations for a full-time two-week level 1 fieldwork experience. Cr/F.

OT 745 - Administration and Management for Occupational Therapy Practice  
Credits: 4  
This course aims to increase the student's understanding of systems of practice, and to business fundamentals associated with occupational therapy service delivery. Specific topics covered include and analysis of practice settings, reimbursement, supervision of professional and non-professional staff, program evaluation methods, ethics, OT management practices, marketing, health policy including medicare, Human Rights and Education Legislation, and the impact of policy decisions for the delivery of OT services. OT majors only.

OT 751 - Mind Body Systems/Neurologically Based Function and Dysfunction  
Credits: 4  
Students study most significant occupational-related disorders commonly seen by occupational therapists. A self-directed method is used to examine the perceptual, cognitive, biopsychosocial basis of these disorders. A basic overview of human body-mind systems is provided with an emphasis on pathology, the recognition of symptoms, their causes and the occupational implications of the disorders. The course is a prerequisite for courses in specific occupational therapy assessment and intervention. OT majors only.

OT 752 - Human Movement and Environmental Effects on Everyday Occupations  
Credits: 4  
Integrates the student's prerequisite knowledge of occupation. Develops skills required for interpretation of biomechanical analysis for creating successful occupational performance for individuals with varied musculoskeletal, cardiac and respiratory dysfunction. Integration of the occupational therapy clinical reasoning process and the use of occupations as a therapeutic mechanism for change are emphasized. The analysis of environment as it relates to human movement and participation in desired occupations is explored. Special fee.

OT 752L - Human Movement Lab  
Credits: 1  
OT majors only. Cr/F.

OT 757 - Mind Body Systems: Neurologically-based Function and Dysfunction--Adult Conditions  
Credits: 4  
This course is the second course in a two-part course sequence that uses a life span approach, drawing on occupational science perspectives to study conditions typically diagnosed during adulthood (ages 21 and up). The emphasis is on the interaction of the individual (the mind), the body and the psychosocial environment as related to occupational performance. Students will work in pairs to examine selected disorders, and will further develop their presentation skills. This course is a prerequisite for courses in occupational therapy assessment and intervention for adults. Prereq: KIN 706; OT 753/OT 853.

OT 760 - Psychosocial Evaluation and Intervention  
Credits: 4  
Examines the evaluation of psychosocial and psycho-emotional areas of occupational performance and the planning and implementation of occupation-based interventions across domains of practice and client populations. Course addresses developing a client's occupational profile, narrative reasoning and therapeutic use of self, behavioral change, illness representation, and adjustment to chronic disorders. A specific focus of the course is evaluation of and intervention for clients' presenting with mental health disorders. Open to OT majors only.
OT 760L - Psychosocial Evaluation and Intervention Lab
Credits: 1
This is the co-requisite lab for OT 760. Lab provides hands-on experiences regarding the evaluation and intervention of psychological and psycho-emotional areas of occupational performance. Course focuses on the evaluation and intervention for clients presenting with mental health disorders and also addresses narrative reasoning, therapeutic use of self, behavioral change, illness representation and adjustment to chronic disorders. Special fee. OT majors only. Cr/F.

OT 766 - AMPS Training
Credits: 4
The Assessment of Motor and Process Skills (AMPS) provides a client-centered, occupation-based assessment of a person’s ADL ability. The course supports occupation-based intervention. Students learn to reliably administer the AMPS and use it in the context of occupational therapy practice. Cr/F.

OT 771 - Enabling Participation in Community Groups
Credits: 2 or 3
Students will work in an organization, learn about the people served by this organization, and conduct therapeutic groups within the organization. Emphasis of content includes group process, clinical documentation, intervention planning and OT services with adults with cognitive impairments.

OT 771L - Enabling Participation in Community Groups Lab
Credits: 2
Students will work in an organization, learn about the people served by this organization and conduct therapeutic groups. This lab serves as a Level I Fieldwork placement. OT majors only. Special fee.

OT 785 - Research Methods and Application to Practice
Credits: 4
Qualitative, quantitative, and mixed methods types of research are introduced and applied to relevant occupational therapy questions. Students acquire the fundamental skills of conducting research such as formulating research questions and identifying appropriate research designs and/or methods. Students also develop the ability to critically analyze research studies and apply the outcome to evidence-based practice in occupational therapy. OT majors only.

OT 789 - Using iPads to Support Children with Disabilities
Credits: 3
The iPad is changing the way we teach and learn. This technology embraces Universal design principles (UDL) and enables children with significant disabilities to learn in ways never thought possible five years ago. It is a tool for delivering multimedia content and embraces the use of Multi modal learning. This technology finally levels the playing field to support all students including students with disabilities.

OT 791 - Senior Honors Thesis
Credits: 4
Completion of a research proposal based on a topic of relevance to the occupational therapy profession. Development of knowledge and skills in receiving and critiquing research and professional literature; research design and methodology; and the development of a research proposal. Required for graduation with honors in the major. Prereq: Completion of OT 741. Open to OT majors only.

OT 792 - Level I Fieldwork
Credits: 1
Provides occupational therapy students an opportunity to experience occupational therapy in a clinical setting. Students attend a seminar prior to beginning their placement. The Level I placement is scheduled between the fall and spring semesters of the senior year. During fieldwork, students observe an occupational therapist as well as participate in the planning and implementing of the occupational therapy assessment or intervention process for a client. OT majors only. Cr/F.

OT 795 - Special Topics
Credits: 2-4
Explores areas related to occupational therapy theory, practice, and/or research. May repeat to 12 credits but not in duplicate subject areas. Prereq: permission. Special fee on some sections. Cr/F.

Ocean Engineering (OE)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

OE 400 - Ocean Engineering Seminar
Credits: 1
A seminar based course considering contemporary topics involved in ocean exploration. Faculty and guest speakers will describe thematic ocean engineering subareas through weekly presentations. The presentations will provide examples of engineering applications and ocean exploration. Class participation credit can be earned through oral discussions, presentation of contemporary OE topics, or hands on projects.

OE 401 - Ocean Engineering Seminar
Credits: 1
A seminar based course considering contemporary topics involved in ocean exploration. Faculty and guest speakers will describe thematic ocean engineering subareas through weekly presentations. The presentations will provide examples of engineering applications and ocean exploration. Class participation credit can be earned through oral discussions, presentation of contemporary OE topics, or hands on projects.

OE 521 - Power of the Sea: Scientific Discovery in the Ocean
Credits: 4
This course considers the struggle to understand the physics of the sea to help predict when the sea will unleash its fury. The scientific discovery of ocean engineering topics such as tides, waves, and tsunamis are introduced through their historical introduction. The historical significance and preliminary resolution of each physical mechanism provide context for the fundamental formulations and contemporary predictive models. The course also considers the role of ocean disasters and geopolitical conflict in motivating scientific exploration of the oceans.

Attributes: Physical Science(Discovery); Physical Science GP 3P
OE 610 - Ocean Instrumentation Lab
Credits: 4
An investigation of the discrete and integrated electronics typically used in the design and implementation of ocean instruments. Topics include both passive and active analog electronic elements typically used for signal conditioning of common oceanographic sensors (e.g., thermistors, pressure sensors, acoustic transducers); A/D and D/A conversion, sensor sampling criteria and rules, with examples from contemporary ocean instruments; embedded micro-controller/microcomputer modules for autonomous or remote sensing in ocean environments; inter-instrument communications methods typically used in ocean instruments (e.g., serial and network communications). Laboratory time will be used to develop practical experience in specification, design, development and testing of various ocean instrument components based on the material presented. Prereq: MATH 527; MATH 528; ECE 537; IAM 550.

OE 677 - Seamanship and Marine Weather for Ocean Engineers and Scientists
Credits: 2
A survey of basic principles of seamanship and marine weather intended for ocean engineers and ocean scientists. Reviews ship and vessel nomenclature, shipboard safety, techniques for equipment handling and instrument deployment, common shipboard evolutions associated with scientific cruises, navigation principles, and marine weather phenomena and products. Includes field trips and practical applications.

OE 690 - Introduction to Ocean Engineering
Credits: 4
Survey of engineering applications in the ocean environment. Topics vary and include hydrodynamics, waves, tides, underwater sound, instrumentation, marine geomechanics, and naval architecture. Includes guest lectures by faculty members from the Engineering departments. Prereq" PHYS 408 Pre- or Coreq: MATH 527.

OE 710 - Ocean Measurements Lab
Credits: 4
Measurements of fundamental ocean processes and parameters. Emphasizes understanding typical offshore measurements, their applications, and the use of acquired data, in terms of the effects on structures and processes in the ocean.

OE 744 - Corrosion
Credits: 4
Three-part course. First part reviews and develops basic concepts of electrochemistry, kinetics, and measurement methods. Second part covers details of specific corrosion mechanisms and phenomena including passivity, galvanic corrosion, concentration cell corrosion, pitting and crevice corrosion, and environmentally induced cracking. Third part focuses on the effects of metallurgical structure on corrosion, corrosion in selected environments, corrosion prevention methods, and materials selection and design. Prereq: CHEM 404 or 405; ME 561 or permission. Special fee. Lab. (Also listed as CHE 744 and ME 744.)

OE 754 - Ocean Waves and Tides
Credits: 4
Introduces waves: small amplitude, linear wave theory, standing and propagating waves, transformation in shallow water, energy and forces on structures, generation by wind and specification of a random sea, long waves with rotation, and internal waves. Introduces tides: description of tides in ocean tidal generation forces, equilibrium tide, and tidal analysis. Lab/project: field and lab measurements with computer analysis. Prereq: PHYS 407 and PHYS 408; MATH 527/or permission. Lab.

OE 756 - Principles of Naval Architecture and Model Testing
Credits: 4
Fundamentals of naval architecture presented, including hydrosttastics, basics of resistance and propulsion, sea keeping and scaling. Concepts applied in experiments utilizing the tow/wave tank and associated instrumentation. Prereq: ME 608 or equivalent; ME 627 or equivalent.

OE 757 - Coastal Engineering and Processes
Credits: 3
Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduction to mathematical and physical modeling. (Also offered as CIE 757; ME 757.) Prereq: fluid dynamics or permission.

OE 758 - Design of Ocean Structures
Credits: 3
The foundational information necessary for the design of ocean structures. Topics include analysis and design of floating body, fixed body and moored line hydrostatics; wave forces on small and large bodies; dynamic response of floating bodies; and pile and gravity foundation geotechnics. Prereq: ME 526 or CIE 526; ME 608 or CIE 642; ME 627, MATH 527.

OE 759 - Estuarine and Coastal Modeling
Credits: 4
Thory and application of coastal and estuarine numerical models for hydrodynamics and transport/fate of natural and pollutant substances. The course will be organized around the development/addition to a numerical model applied to the Great Bay Estuarine System. Theory and course organization will be covered in the lecture component. The full set of steps required to apply, test, use and document a numerical model will be completed in the laboratory component. Prereq: MATH 527; MATH 528, OE 754 or permission.

OE 765 - Underwater Acoustics
Credits: 3
An introduction to acoustics in the ocean. Fundamental acoustic concepts including the simple harmonic oscillator, waves on strings, and the acoustic wave equation; the sonar equation; sound generation and reception by underwater acoustic transducers and arrays; basics of sound propagation; reflection and scattering from ocean boundaries. Spring semesterl offered every year; satisfies core course requirement in Ocean Engineering. Prereq: PHYS 407/408, MATH 527 or equivalent.

OE 771 - Geodesy and Positioning for Ocean Mapping
Credits: 4
The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as ESCI 771.)
OE 774 - Integrated Seabed Mapping Systems
Credits: 4
Overview of typical applications that involve mapping the sediment-water interface in the ocean and adjacent waters. Emphasis on defining the task-specific resolution and accuracy requirements. Fundamentals of acoustics relevant to seabed mapping. Progression through typical configurations involving single beam, sidescan, phase differencing and multibeam systems. Integration of asynchronous 3D position, orientation and sound speed measurements with sonar-relative acoustic travel time and angles. Analysis of impact of offsets, mis-alignments and latency in all integrated sensors.

OE 795 - Special Topics
Credits: 2-4
New or specialized courses and/or independent study. May be repeated for credit.

OE 797 - Honors Seminar
Credits: 1
Course enrichment and/or additional independent study in subject matter pertaining to 600- or 700-level OE courses.

Paul College Business & Economics (PAUL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PAUL 405 - Freshman Academic Experience I
Credits: 1
This course is an introduction to the nature of academic knowledge, academic standards and academic management skills essential for success in the University and the Paul College. This course, along with PAUL 406 which follows in the spring term, provides academic foundation for the FIRE (First-year Innovation and Research Experience Program). PAUL 405 and 406 are required of all first-year students in Paul College.

PAUL 406 - Freshman Academic Experience II
Credits: 1
This course is the second part of Freshman Academic Experience for all first-year students in Paul College. The second part of the course reviews academic skills and begins to focus on the student's academic career as a student in Paul College including: major choices, opportunities for enrichment, networking, internships and career paths as well as grand challenge research and presentations. This course, along with PAUL 405 which follows the spring term, provides the academic foundation for the FIRE (First-year Innovation and Research Experience Program). PAUL 405 and 406 are required of all first-year students in Paul College.

PAUL 450 - Personal Finance
Credits: 4
This course will provide an overview of the personal financial planning process, including the establishment of goals and objectives, forecasting of lifetime income and expenditures, evaluation of investment options, money management, and understanding of all the many ways a person can achieve their financial goals through various strategies. The course covers the concepts, theories and analytical methods used in professional personal financial planning. Students analyze the effects of inflation, changing interest rates and taxation (high level taxation) on their investment decisions. The course is designed to expose students to all of the directly applicable mathematical formulas involved in the finance world that we utilize on a daily basis.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

PAUL 535A - Professional Culture in the European Union - Case Study: Germany
Credits: 4
This English-language course will provide an introduction to doing business with the countries of the European Union, with an emphasis not only on political and economic issues of Europe, but also on the varied professional values that constitute it. Professional culture will be the primary focus of this course. The second half of the course will take Germany as a case study for an in-depth analysis of professional culture. We will compare German and American business practices, and will investigate various aspects of the German professional world. Of primary importance will be a study of communication with potential German business partners, employers, and customers. Also listed as LLC 535A.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PAUL 535C - Professional Culture in Asia - Case Study: China and Japan
Credits: 4
This course, taught in English, will provide students with an introduction to doing business in Asia, with an emphasis not only on political and economic issues of the region, but also on the varied professional values systems and interactional styles that characterize it. This course will take China and Japan as case studies for an in-depth analysis of professional culture. We will compare Chinese, Japanese, and American business practices, and will investigate various aspects of the Asian professional world. Of primary importance will be a study of communication with potential Asian business partners, employers, and customers. In addition, the growing influence of Asian companies in the U.S. and the so-called Asian Market will be examined.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PAUL 598 - Topics
Credits: 1-4
Special topics course. Cr/F.

PAUL 695 - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of a Paul College faculty member must be obtained followed by approval of Paul advisor and Dean's Office. Special permission required to earn more than 4 credits in one semester. For Paul College Juniors and Seniors with 3.0 or better cumulative GPA.

PAUL 695W - Supervised Student Teaching Experience
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of a Paul College faculty member must be obtained followed by approval of Paul advisor and Dean's Office. Special permission required to earn more than 4 credits in one semester. For Paul College Juniors and Seniors with 3.0 or better cumulative GPA. Writing intensive.
Attributes: Writing Intensive Course

PAUL 696 - Supervised Student Teaching Experience
Credits: 2-4
Participants are expected to perform such functions as leading discussion groups, assisting faculty in undergraduate courses that they have successfully completed or serving as peer advisors through the Undergraduate Programs Office. For Paul College juniors and seniors with 3.0 or better cumulative GPA. No more than four credits may be earned as a teaching assistant in any one course. May be repeated for a maximum of 16 credits. Prereq: permission of instructor, department chair, undergraduate programs office or dean's office.
PHIL 401 - Introduction to Philosophy
Credits: 4
This course gives a basic grounding in Philosophy. We explore enduring questions that we have all grappled with: Does God exist? Do we have free will? How can we lead fulfilling lives? No background in philosophy is needed, only an open and inquiring mind.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

PHIL 401H - Honors/Introduction to Philosophy
Credits: 4
This course gives a basic grounding in Philosophy. We explore enduring questions that we have all grappled with: Does God exist? Do we have free will? How can we lead fulfilling lives? No background in philosophy is needed, only an open and inquiring mind.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

PHIL 410 - Happiness, Well-Being, and a Good Life
Credits: 4
A sustained exploration of happiness, well-being, and a good life. Are they the same? If not, do any include the others, and can they conflict? What sorts of things might contribute to or detract from happiness, well-being, and having a good life? Comparing work on these topics in philosophy and psychology will be a key theme in the course.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

PHIL 412 - Beginning Logic
Credits: 4
Principles of reasoning and development of symbolic techniques for evaluating arguments.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

PHIL 412H - Honors/Beginning Logic
Credits: 4
Principles of reasoning and development of symbolic techniques for evaluating arguments.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

PHIL 417 - God, Religion, and the Meaning of Life
Credits: 4
An introductory philosophical exploration of the relationship between reason and religious experience, particularly as this relationship has developed in and in response to, the great world religions.
Attributes: Literature, Phil, Ideas GP 8

PHIL 421 - Philosophy and the Arts
Credits: 4
Contemporary philosophic concerns and perspectives as reflected in one or more of the arts (literature, theatre, film, music, plastic art). Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course

PHIL 421H - Honors/Philosophy and the Arts
Credits: 4
Contemporary philosophic concerns and perspectives as reflected in one or more of the arts (literature, theatre, film, music, plastic art). Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course
PHIL 424 - Science, Technology, and Society
Credits: 4
Consideration of the scientific endeavor and its social import from a philosophical perspective.
Attributes: Environment, TechSociety(Disc); Literature, Phil, Ideas GP 8

PHIL 424H - Honors/Science, Technology and Society
Credits: 4
Consideration of the scientific endeavor and its social import from a philosophical perspective.
Attributes: Environment, TechSociety(Disc); Literature, Phil, Ideas GP 8

PHIL 430 - Ethics and Society
Credits: 4
Critical study of principles and arguments advanced in discussion of current moral and social issues. Possible topics: violence, rules of warfare, sexual morality, human rights, punishment, abortion.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 430W - Ethics and Society
Credits: 4
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

PHIL 430H - Honors/Ethics and Society
Credits: 4
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 435 - Human Nature and Evolution
Credits: 4
Philosophy of biology and the evolutionary process. Readings of scientists and philosophers' commentary on scientists. Examination of the differences between scientific debate and philosophic debate. Philosophical study of scientific theory stressing humans' place in the natural world and the ethical implication of humans as natural beings in the evolutionary process.
Attributes: Environment, TechSociety(Disc); Literature, Phil, Ideas GP 8

PHIL 435H - Honors/Human Nature and Evolution
Credits: 4
Philosophy of biology and the evolutionary process. Readings of scientists and philosophers' commentary on scientists. Examination of the differences between scientific debate and philosophic debate. Philosophical study of scientific theory stressing humans' place in the natural world and the ethical implication of humans as natural beings in the evolutionary process.
Attributes: Environment, TechSociety(Disc)

PHIL 436 - Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable?.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

PHIL 436H - Honors/Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable?.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

PHIL 436W - Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable?.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

PHIL #437 - Social and Political Philosophy
Credits: 4
This course is the same as PHIL 436 Social and Political Philosophy but without the Inquiry designation. Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable?.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8
PHIL 440 - Just Business: The Ethics of Markets and Money  
Credits: 4  
Critical study of business ethics and scandals. Questions may include: Is ethics irrelevant in the cutthroat world of money making? How can one be a good person - for example honest, loyal, and caring - while attempting to maximize profits? Must employers treat workers with dignity? Does anything have more value than money? Is money closer to the "root of all evil" or the "root of all good"? Should everything be for sale? To what extent are unregulated markets fair? How should we punish corporate wrongdoers?.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 440A - Honors/Who Are You? Personal Identity and Humanity  
Credits: 4  
What makes you you? Are you the same person over time? What does it mean to be a person? How is being a person related to being a human being? This course is part of an Honors Symposium on the nature of personhood and humanity. We will explore a number of philosophical questions related to personal identity over time, the social construction of the self, and the relationship between being a member of homo sapiens and being a person.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 440B - Honors/Humanism and Dehumanization  
Credits: 4  
When we call someone human or a person, what do we mean, and what are we trying to do? How has the concept of personhood expanded or contracted to include more or fewer beings and why? Are fetuses persons? Are corporations persons? Are chimps persons? Who counts as a person now, and who will count as a person in the future? How and why are human persons subject to dehumanization? Readings and texts will draw from historical sources and contemporary philosophy. No credit if credit earned for PHIL 780.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 444 - Remaking Nature/The Ethics and Politics of Genetic Engineering  
Credits: 4  
Examines the biological, ethical, social, and political issues raised by genetic engineering and by human enhancement techniques. Issues may include: cloning humans, selection of embryos on the basis of lack of genetic defects, genetic modification of plants and animals for food, gene therapy on humans, cognitive and athletic enhancement. Depending on instructor other topics may include human modification of the environment and engineering responses to global warming. Writing intensive.  
Attributes: Environment,TechSociety(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

PHIL 444A - Who Am I? Concepts of Self  
Credits: 4  
An inquiry into the nature of the self and into the conditions under which it may best flourish. Is the self fundamentally biological, spiritual, or social?. Draws on a variety of perspectives in an attempt to answer these questions, including East Asian as well as Western philosophical ideas, feminist theory, Existentialism, and others. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

PHIL 447 - Artificial Intelligence, Robots, and People  
Credits: 4  
The historical origins of the science of computation. The implications of the nature of information-processing for understanding the mind-body relation. Examines the possible social, economic, and educational consequences of the computer revolution.  
Attributes: Environment,TechSociety(Disc); Technology GP 3T

PHIL 447H - Honors/Artificial Intelligence, Robots, and People  
Credits: 4  
The historical origins of the science of computation. The implications of the nature of information-processing for understanding the mind-body relation. Examines the possible social, economic, and educational consequences of the computer revolution.  
Attributes: Environment,TechSociety(Disc); Technology GP 3T

PHIL 450 - Environmental Ethics  
Credits: 4  
Thoughtful people cannot help escape considering hard questions about our relationship to the natural world and what it means for the future of life on earth. In this course we think philosophically about these crucial concerns. We try to answer questions about our responsibilities to the environment and to future generations.  
Attributes: Environment,TechSociety(Disc); Technology GP 3T

PHIL 450H - Honors/Environmental Ethics  
Credits: 4  
Thoughtful people cannot help escape considering hard questions about our relationship to the natural world and what it means for the future of life on earth. In this course we think philosophically about these crucial concerns. We try to answer questions about our responsibilities to the environment and to future generations.  
Attributes: Environment,TechSociety(Disc); Technology GP 3T

PHIL 495 - Tutorial Reading  
Credits: 1-4  
Basic introductory reading under faculty direction on topics of philosophical importance. Books offered for tutorial reading may be in any area the instructor chooses or on independent study basis. May be repeated, but total credits of repetition cannot exceed 8 credits. Prereq: permission.  

PHIL 496 - Topics  
Credits: 4  
Introductory-level seminar in specific topics or problems considered from a philosophic point of view.

PHIL 500 - Workshop  
Credits: 4  
Introduces methods of studying philosophical texts. Emphasizes reading philosophical texts and arguments for comprehension, and on writing philosophically with accuracy and clarity. Open to PHIL majors (PHIL minors may enroll if they receive permission). Writing intensive.  
Attributes: Writing Intensive Course

PHIL 510 - Philosophy and Feminism  
Credits: 4  
Focuses on philosophical issues in feminism primarily through the work of historical and contemporary philosophers. Topics include the question of the nature of women, feminism as an ethical and political theory, feminism as an exploration and transformation of the self, feminism as a philosophical methodology, and the institutions of marriage and motherhood. Writing intensive.  
Attributes: Writing Intensive Course
PHIL 520 - Introduction to Eastern Philosophy
Credits: 4
Major Eastern traditions of philosophy. Concentration on Indian, Chinese, and Japanese systems may vary from semester to semester.
Attributes: World Cultures(Discovery); Literature, Phil, Ideas GP 8

PHIL 525 - Existentialism
Credits: 4
Readings from existential philosophy and literature. Selections may be drawn from the works of Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, de Beauvoir, Buber, Bultman, Merleau-Ponty, Tillich, Kafka, and others.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

PHIL 525H - Honors/Existentialism
Credits: 4
Readings from existential philosophy and literature. Selections may be drawn from the works of Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, de Beauvoir, Buber, Bultman, Merleau-Ponty, Tillich, Kafka, and others.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery)

PHIL 530 - Ethics
Credits: 4
Critical examination of the development of philosophical thinking regarding human values, rights, and duties.
Attributes: Writing Intensive Course

PHIL 560 - Philosophy Through Fiction
Credits: 4
Philosophical implications of representative literary works, read in tandem with philosophical literature. The content will vary. The literary works explored may be drawn from ancient times through modern times. For examples, the classic Greek tragedy "Antigone" might be explored for its implications regarding moral, political, and feminist philosophy, or the philosophical implications of an anti-utopian contemporary work like "Brave New World" might be explored, or short stories drawn from science fiction and other speculative fiction might be used to explore the possibility of time travel or of machines with mental lives. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

PHIL 565 - Philosophy Through Film
Credits: 4
Philosophical exploration of film as a medium for developing philosophical ideas and for stimulating philosophical thinking about various issues reflected in film, from traditional philosophical issues to the pressing social and cultural issues of our time. The content will vary. Philosophical texts are read in tandem with screenings of a range of movies from Hollywood blockbusters and art house films to films made for TV. Philosophical issues such as the nature of consciousness, appearance and reality, God and evil, the good life, and time and memory might be explored. Film might also be used to examine representations of race and gender or violence in society; and the power of movies to influence society might be explored through documentaries and propaganda films. Required evening film screenings in addition to regular class meetings. Writing intensive.
Attributes: Writing Intensive Course

PHIL 570 - Ancient Philosophy
Credits: 4
Development of Western philosophy from its beginnings in Greece to the Roman period, with particular emphasis on the thought of Plato and Aristotle. Attention is paid to the historical context and the development of ideas in culture.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

PHIL 570H - Honors/Ancient Philosophy
Credits: 4
Development of Western philosophy from its beginnings in Greece to the Roman period, with particular emphasis on the thought of Plato and Aristotle.
Attributes: Literature, Phil, Ideas GP 8

PHIL 580 - Modern Philosophy from Descartes to Kant
Credits: 4
The birth and development of distinctively modern philosophy in the thought of such creative minds as Galileo, Descartes, Hobbes, Leibniz, Spinoza, Locke, Berkeley, Hume, Rousseau, Reid, Kant, and others. Prereq: PHIL 570 or permission.

PHIL 610 - Topics in History of Philosophy
Credits: 4
In-depth examination of a major figure or philosophical movement in the history of philosophy. Content will vary. Consult the Time and Room Schedule for topics. Prereq: one course in history of philosophy or permission. Writing intensive.
Attributes: Writing Intensive Course

PHIL 620 - 20th Century European Philosophy
Credits: 4
Major figures or philosophical movements such as phenomenology, existentialism, critical social theory, and post-modernism. Content will vary. Consult Time and Room Schedule for topics. Writing intensive.
Attributes: Writing Intensive Course

PHIL 630 - Neuroscience and Philosophy
Credits: 4
This course has a double focus. It investigates theories concerning the nature of the mind/brain relation, especially in light of recent work in the neurosciences. It also considers the particular presuppositions of and methodological challenges endemic to the neurosciences, along with the relations neuroscience bears to neighboring disciplines. Prereq: Sophomore standing or better.

PHIL 631 - Topics in the Philosophy of Science
Credits: 4
Philosophical problems raised by the physical, biological, and social sciences. Content will vary. Topics may include the nature of scientific explanation, the role of mathematics in science, the relations of science to common sense, the relation of theory to observation, the nature of historical changes in scientific world view, claim to objectivity in the natural and social sciences, the role of values in scientific research, the relation of the logic of science to the philosophy and history of science. Prereq: Sophomore standing or better or permission. Writing intensive.
Attributes: Writing Intensive Course
PHIL 635 - Philosophy of Law
Credits: 4
Systematic study of salient features of legal systems. Possible topics: nature of law; concept of legal validity; law and morality; individual liberty and the law; legal punishment; legal responsibility and related concepts (for example, legal cause, harm, mens rea, negligence, strict liability, legal insanity). Writing intensive.
Attributes: Writing Intensive Course

PHIL 660 - Law, Medicine, and Ethics
Credits: 4
Critical examination of the diverse legal and moral issues facing the profession of health care. Variable topics may include: duty to provide care; nature of informed consent to treatment; problems of allocating limited health-care resources (e.g., withdrawal of life-support systems, quality-of-life decisions, etc.); patient's right to confidentiality. Problems relating to involuntary preventive care (e.g., involuntary sterilization, psycho-surgery, etc.). Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

PHIL 701 - Topics in Value Theory
Credits: 4
Philosophical inquiry into the nature of value. Topics may include the grounds of right and wrong, various conceptions of morality, the nature of good and evil, theories about the meaning of life, the nature of the beautiful. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the chair of the department) so long as the topic is different. May not be repeated to improve grade without approval from the department chair. Prereq: PHIL 500 one course in history of philosophy, or permission. Writing intensive. Repeatable with permission.
Attributes: Writing Intensive Course

PHIL 702 - Topics in Metaphysics and Epistemology
Credits: 4
Advanced study in one or more of the following topics: nature of reality, relationship of thought and reality, nature of knowledge and perception, theories of truth. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the chair of the department) so long as the topic is different. May not be repeated to improve grade without approval of the chair of the department. Prereq: PHIL 500 and one course in history of philosophy, or permission. Writing intensive. Repeatable with permission.
Attributes: Writing Intensive Course

PHIL 740 - Advanced Topics in the Philosophy of Law
Credits: 4
Content variable. In-depth examination of special topics (constitutional law, crime and punishment, international human rights and gender, sexual orientation, race and class in the law) or a major figure in the philosophy of law (Dworkin, Habermas and Rawls). Prereq: PHIL 635 or permission. Writing intensive. Repeatable with permission.
Attributes: Writing Intensive Course

PHIL 780 - Special Topics
Credits: 4
Advanced study of special topics: a problem, figure, or movement in the history of philosophy, or selected issues, thinkers, or developments in contemporary philosophy. Prereq: PHIL 500 and one course in the history of philosophy, or permission. Writing intensive. Repeatable with permission.
Attributes: Writing Intensive Course

PHIL 795 - Independent Study
Credits: 1-8
For students who are adequately prepared to do independent, advanced philosophical work; extensive reading and writing. Before registering, students must formulate a project and secure the consent of a department member who will supervise the work. Conferences and/or written work as required by the supervisor. Prereq: permission. May be repeated to a total of 8 credits. Writing intensive.
Attributes: Writing Intensive Course

PHIL 798 - Senior Thesis
Credits: 4
Two-course sequence (798, then 799) open only to senior philosophy majors in the University Honors Program, the philosophy department honors-in-major program, or by special permission from the department. All senior thesis candidates must have a proposal approved in the spring of their junior year and a thesis adviser assigned by the chair of the department before registering for 798. Students must orally defend their theses before the department. (See department guidelines for further details.) Prereq: PHIL 500. Writing intensive.
Attributes: Writing Intensive Course

PHIL 799 - Senior Thesis
Credits: 4
Two-course sequence (798, then 799) open only to senior philosophy majors in the University Honors Program, the philosophy department honors-in-major program, or by special permission from the department. All senior thesis candidates must have a proposal approved in the spring of their junior year and a thesis adviser assigned by the chair of the department before registering for 799. Students must orally defend their theses before the department. (See department guidelines for further details.) Prereq: B- or above in PHIL 798. Writing intensive.
Attributes: Writing Intensive Course

Physics (PHYS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PHYS 400 - Freshman Seminar
Credits: 1
An informal reading and discussion course to introduce students to the general culture of physics, including career possibilities, historical and philosophical aspects of physics, current research at UNH and elsewhere, and physics in the news. Topics vary based on interests of the class. Students in their first year as physics majors (either as freshmen or transfers) are strongly encouraged to take this class. May be repeated once for a total of 2 credits. Cr/F.

PHYS 401 - Introduction to Physics I
Credits: 4
Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P
PHYS 402 - Introduction to Physics II
Credits: 4
Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential. Prereq: PHYS 401 or the equivalent. Special fee. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 405 - Intro to Modern Astronomy
Credits: 4
Starting with a survey of the night sky and the daily motions of the stars and planets, this course surveys our current understanding of the Universe. It traces the development of the tools of the modern astronomer and how those tools have led to out theories of the solar system, the life cycle of stars, the formation of elements, the formation of galaxies and the evolution of the universe. Students explore in depth an astronomical topic of their choice through a term paper. The course includes direct experience with astronomical techniques and concepts through the use of the UNH Observatory and Small Radio Telescope, and a visit to a planetarium. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 406, except for the substitution of a term paper instead of a lab. Cannot be taken for credit if credit received for PHYS 406. Special fee. Attributes: Physical Science(Discovery); Technology GP 3T

PHYS 406 - Introduction to Modern Astronomy
Credits: 4
Descriptive coverage of contemporary astronomical and astrophysical techniques with a review of current knowledge and theories concerning the solar system, galaxies, and the universe. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 405, except for the substitution of a lab instead of a term paper. Cannot be taken for credit if credit received for PHYS 405. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 406H - Introduction to Modern Astronomy/Honors
Credits: 4
Descriptive coverage of contemporary astronomical and astrophysical techniques with a review of current knowledge and theories concerning the solar system, galaxies, and the universe. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 405, except for the substitution of a lab instead of a term paper. Cannot be taken for credit if credit received for PHYS 405. Special fee. Lab. Permission required. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 407 - General Physics I
Credits: 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. This version is the traditional format with three lectures, one recitation (problem solving section), and one lab each week. Students in this version must also register for a particular recitation and lab. Prereq: thorough knowledge of algebra, geometry, and trigonometry; May not receive credit for both PHYS 401 and PHYS 407. Pre- or Coreq: MATH 425. Special fee. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 407H - Honors/General Physics I
Credits: 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. The honors version covers the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in the Honors section must be co-enrolled in MATH 425H so that strong connections can be made between math and physics. 407H students work in groups in every class meeting. Students in this version do not register for a recitation or lab, since these activities are integrated into the regular class meetings. Prereq: thorough knowledge of algebra, geometry, and trigonometry; May not receive credit for both PHYS 401 and PHYS 407. Pre- or Coreq: MATH 425. Special fee. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 407S - General Physics I Studio
Credits: 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. The Studio version covers the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in this version do not register for a recitation or lab since these activities are integrated into the regular class meetings. Prereq: thorough knowledge of algebra, geometry, and trigonometry; May not receive credit for both PHYS 401 and PHYS 407. Pre- or coreq: MATH 425. Special fee. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 408 - General Physics II
Credits: 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. This version is the traditional format with three lectures, one recitation (problem solving section), and one lab each week. Students in this version must also register for a particular recitation and lab. Prereq: PHYS 407. May not receive credit for both PHYS 402 and PHYS 408. Pre- or Coreq: MATH 426. Special fee. Lab. Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P
PHYS 408H - Honors/General Physics II
Credits: 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. The honors version is the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in the Honors section must be co-enrolled in MATH 426H so that strong connections can be made between math and physics. 408H students work in groups in every class meeting. Students in this version do not register for a recitation or lab since these activities are integrated into the regular class meetings. Prereq: PHYS 407H, MATH 425H. May not receive credit for both PHYS 402 and PHYS 408. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 408S - General Physics II Studio
Credits: 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. The Studio version covers the same materials as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in this version do not register for a recitation or lab since these activities are integrated into the regular class meetings. Prereq: PHYS 407. May not receive credit for both PHYS 402 and PHYS 408. Pre- or coreq: MATH 426. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P

PHYS 409 - Investigating Physics
Credits: 4
Elementary physics course where students develop a conceptual understanding of topics such as the solar system, phases of the moon, seasons, electrical circuits, electromagnets, light and color, sound and simple machines. The course is based on hands-on-activities, small groups, and discussions. This course is intended for students with little or no previous experience in physics who do not intend to take any other physics course. Cannot be taken for credit if credit received for PHYS 401, 402, 407 or 408. Not open to Physics majors.
Attributes: Discovery Lab Course; Physical Science(Discovery); Physical Science GP 3P; Inquiry (Discovery)

PHYS 444 - Myths and Misconceptions about Nuclear Science
Credits: 4
The discoveries of nuclear physics have spawned the nuclear power plant and bomb, but also many far reaching, though less recognized applications of nuclear science in medicine, research, and our everyday lives. This course examines the underlying physics of nuclear science, the resulting technological applications and dangers, and some of the implications for public policy. In the process, we dispel many of the popular myths and misconceptions that surround nuclear science and radiation in the public’s mind and the media. You may be surprised! Topics are wide ranging and inherently interdisciplinary. They include nuclear stability and radioactivity, natural sources of radioactivity, the effects of radiation on living things, particularly people, nuclear medicine, nuclear science in fields such as biology, archeology, geology and engineering, nuclear chain reactions, nuclear reactors and energy, nuclear accidents, radioactive waste, nuclear weapons and proliferation, nuclear energy in stars, and the origin of the elements. Be prepared to actively participate.
Attributes: Environment, Tech, Society (Disc); Technology GP 3T; Inquiry (Discovery); Writing Intensive Course

PHYS 501 - Peer-Led Team Learning in Physics
Credits: 1
This course provides students with their initial experience as a peer instruction leader. In this course peer leaders will deepen their knowledge of introductory physics, be introduced to pedagogical theories. Pedagogical topics covered include questioning techniques, learning theory, cooperative learning, student epistemologies, and the nature of science. Students in this course are asked to reflect on their work as peer leaders through the lens of the required readings. Prereq: PHYS 401/PHYS 402 or PHYS 402/PHYS 408. Special fee. Cr/F.

PHYS 502 - Advanced Peer-Led Team Leadership in Physics
Credits: 1
This course provides students with their second experience as a peer instruction leader. In this course peer leaders read more deeply about issues in teaching and learning science in general, and physics in particular. Topics include naive conceptions in physics, cooperative learning strategies, theories of cognition, and classroom assessment. Prereq: PHYS 501. Permission required. Cr/F.

PHYS 505 - General Physics III
Credits: 3
Electromagnetic waves, geometrical and physical optics, relativity, atomic physics, elementary quantum mechanics, molecular physics, and nuclear physics. Prereq: PHYS 408.

PHYS 506 - General Physics III Laboratory
Credits: 1

PHYS 508 - Thermodynamics and Statistical Mechanics
Credits: 4
Classical and statistical approach to thermodynamics, kinetic theory. Pre- or Coreq: PHYS 505. MATH 525 or MATH 527.

PHYS 605 - Experimental Physics I
Credits: 5
Circuit design with passive and active elements including transistors and operational amplifiers; electrical measurements for experimental physics; digital electronics, microprocessors, and interfacing techniques. Prereq: PHYS 408. MATH 525 or 527. Lab. Special fee.
PHYS 615 - Classical Mechanics and Mathematical Physics I  
Credits: 4  
Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 407. Pre- or Coreq: MATH 527.

PHYS 616 - Classical Mechanics and Mathematical Physics II  
Credits: 4  
Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies, at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 615.

PHYS 701 - Quantum Mechanics I  
Credits: 4  
Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure. Prereq: PHYS 505, PHYS 615, PHYS 616.

PHYS 702 - Quantum Mechanics II  
Credits: 4  
Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure. Prereq: PHYS 505, PHYS 615, PHYS 616.

PHYS 703 - Electricity and Magnetism I  
Credits: 4  
Foundation of electromagnetic theory; electrostatics, dielectric theory, electromagnetism, magnetic properties of matter, alternating currents, Maxwell's field theory. Prereq: PHYS 408, PHYS 615, PHYS 616.

PHYS 704 - Electricity and Magnetism II  
Credits: 4  
Foundation of electromagnetic theory; electrostatics, dielectric theory, electromagnetism, magnetic properties of matter, alternating currents, Maxwell's field theory. Prereq: PHYS 408, PHYS 615, PHYS 616.

PHYS 705 - Experimental Physics II  
Credits: 4  
Modern physics experiments and special project problems assigned to individual students. Prereq: PHYS 605; senior standing in physics. Lab. Writing intensive. 

Attributes: Writing Intensive Course

PHYS 706 - Experimental Physics I  
Credits: 4  
Operation of semiconducting and superconducting devices and lasers. Review of special relativity, and the motivation for considering gravity in terms of curvature of space time. Introduction to Riemannian geometry, general relativity and Einstein's equations. Application of general relativity in the study of black holes, gravitational waves, cosmology, as well as recent results on inflation and quantum gravity. (Alternate years only.)

PHYS 707 - Quantum Mechanics  
Credits: 4  
Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure. Prereq: PHYS 505, PHYS 615, PHYS 616.

PHYS 708 - Optics  
Credits: 4  

PHYS 710 - Modern Astrophysics  
Credits: 4  
Reviews the sun, stars, Milky Way, external galaxies, and expansion of the universe. Recent discoveries of radio galaxies, quasi-stellar objects, cosmic black-body radiation, x rays, and gamma rays precede a discussion of Newtonian and general relativistic cosmological models, steady-state/big-bang theories, and matter-antimatter models. Prereq: PHYS 505, PHYS 615, PHYS 616.

PHYS 712 - Space Plasma Physics  
Credits: 4  
Introduces space plasma physics, including solar physics, heliospheric physics, magnetospheric physics, and ionospheric physics. An overview of the basic phenomena and processes (e.g., particle acceleration and transport, shock formation, magnetic structures and reconnection, wave propagation, wave-particle interactions, instabilities), theoretical techniques (e.g., single-particle orbits, kinetic and fluid descriptions), and experimental techniques. (Alternate years only.)

PHYS 718 - Condensed Matter Physics  
Credits: 4  

PHYS 720 - Nuclear Physics  
Credits: 4  
Nuclear phenomenology, reactions, models, radiation, interaction of radiation with matter; accelerators; properties and interactions of elementary particles; symmetries and symmetry breaking; standard model. Prereq: PHYS 702, PHYS 704.

PHYS 764 - General Relativity and Cosmology  
Credits: 4  
Review of special relativity, and the motivation for considering gravity in terms of curvature of space time. Introduction to Riemannian geometry, general relativity and Einstein's equations. Application of general relativity in the study of black holes, gravitational waves, cosmology, as well as recent results on inflation and quantum gravity. (Alternate years only.)

PHYS 791 - Special Topics  
Credits: 4  
Any selected topics not covered sufficiently in a general course may be studied. May be repeated to a maximum of 8 credits.

PHYS 795 - Independent Study  
Credits: 1-8  
Individual project under direction of a faculty adviser. Prereq: department permission.

PHYS 798 - Senior Project  
Credits: 2-4  
Students complete an independent project and submit a written report. Students can choose from a range of projects, including (but not limited to) a research or numerical project, and extensive literature review on an advanced physics topic, building an apparatus, or developing a new or existing experiment in Physics 705. A student intending to take Physics 798 must arrange to have a faculty advisor for the project and should work with this advisor to develop a one-page project proposal. The student must submit this proposal to the Physics Undergraduate Curriculum Committee by the tenth week of the semester preceding the semester in which the student takes Physics 798. This course satisfies the capstone requirement in Physics.

PHYS 799 - Thesis  
Credits: 4  
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Restricted to seniors. Prereq: permission; Physics majors only. May be repeated to 8 credits. Writing intensive. 

Attributes: Writing Intensive Course
Political Science (POLT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**POLT 401 - Politics and Society**
Credits: 4
Introduces the nature of politics and political institutions. Emphasizes political behavior and continuing issues of modern politics, such as power, authority, legitimacy, freedom, and order.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

**POLT 401H - Honors/Politics and Society**
Credits: 4
Introduces the nature of politics and political institutions. Emphasizes political behavior and continuing issues of modern politics, such as power, authority, legitimacy, freedom, and order.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

**POLT 402 - American Politics and Government**
Credits: 4
Foundational course to help students understand the institutions and actors of American politics and government, the decision-making process of government, and the political considerations that drive American government.
Attributes: Social Science (Discovery); Social Science GP 7

**POLT 402H - Honors/American Politics and Government**
Credits: 4
Foundational course to help students understand the institutions and actors of American politics and government, the decision-making process of government, and the political considerations that drive American government.
Attributes: Social Science (Discovery); Social Science GP 7

**POLT 402W - American Politics and Government**
Credits: 4
Foundational course to help students understand the institutions and actors of American politics and government, the decision-making process of government, and the political considerations that drive American government. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

**POLT 403 - United States in World Affairs**
Credits: 4
Introduces students to key concepts, actors, and events in U.S. foreign policy. After examining the early foundations of American foreign policy, this course concentrates on the United States’ international engagement from the Cold War to the present. Students develop the analytical skills they need to form their own opinions on contemporary issues in U.S. foreign policy, and defend these opinions articulately based on a solid knowledge of historic and current events. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

**POLT 403W - United States in World Affairs**
Credits: 4
Introduces students to key concepts, actors, and events in U.S. foreign policy. After examining the early foundations of American foreign policy, this course concentrates on the United States’ international engagement from the Cold War to the present. Students develop the analytical skills they need to form their own opinions on contemporary issues in U.S. foreign policy, and defend these opinions articulately based on a solid knowledge of historic and current events. Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

**POLT 407 - Law and Society**
Credits: 4
Introduces the ways in which law operates in modern society: its forms, functions, underlying values, and the consequences of its application in particular regimes. Topics include the psychological bases for legal obligation, the evolution of particular legal doctrines, the philosophical underpinnings of legal responsibility, the relationship of law to social structures, the relationship of law to morality, the nature of legal reasoning, and critiques of law.
Attributes: Literature, Phil, Ideas GP 8

**POLT 407H - Honors/Law and Society**
Credits: 4
Introduces the ways in which law operates in modern society: its forms, functions, underlying values, and the consequences of its application in particular regimes. Topics include the psychological bases for legal obligation, the evolution of particular legal doctrines, the philosophical underpinnings of legal responsibility, the relationship of law to social structures, the relationship of law to morality, the nature of legal reasoning, and critiques of law.
Attributes: Literature, Phil, Ideas GP 8

**POLT 440A - Honors/GLOBAL JUSTICE**
Credits: 4
The course exposes students to different understandings of global justice and the institutions and approaches used to address genocide and mass human suffering. Students explore several modern conflicts and different cultural understandings of these conflicts and views on justice. The class also examines the political dynamics of international and domestic institutions, power politics, and international activism. Students also examine the globalization of accountability and post-conflict transitions from violence to peace.
Attributes: World Cultures(Discovery); Foreign Culture GP 5
POLT 444 - Politics and Policy in a Warming World  
Credits: 4  
Uses the issue of climate change to explore the relationships between scientific and technical research and debate, policymaking at the international and domestic (U.S.) levels, and public understanding and interpretation of complex technical issues. The course is interdisciplinary. Writing intensive. 
Attributes: Environment, TechSociety (Disc); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course  

POLT 444A - Democracy: Its Character and Its Characters  
Credits: 4  
An examination of the spirit of a modern democracy and its influence on the thoughts and actions of those who live within it. Includes selections from Tocqueville’s Democracy in America and an examination of characters in the works of major and contemporary authors. Writing intensive. 
Attributes: Humanities (Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course  

POLT 444B - Cruel and Unusual in a Federal System  
Credits: 4  
This course is an exploration of the US/state constitutional language of ‘cruel and unusual’ as an important limitation on governmental power. Students study its historical origins, interpretations, and applications across time periods and types of regimes. Particular attention will be paid to its association with the death penalty in the contemporary United States. Writing intensive. 
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course  

POLT 500 - American Public Policy  
Credits: 4  
Foundational public policy course examining policy choices and conflicts, how policy decisions are made, how policies are assessed, the development of potential policy solutions, and the politics of policy making. Students engage in a task force project that simulates public policy processes and culminates in a policy recommendation at the end of the semester. Writing intensive. 
Attributes: Writing Intensive Course  

POLT 502 - State and Local Government  
Credits: 4  
Examines power, policies, political culture, and constitutional settings of state and local governments in the United States. Students study how state legislatures, governors, courts, political parties, and interest groups interact to shape political outcomes at the state and local levels.  

POLT 504 - American Presidency  
Credits: 4  
The President as administrator, policy maker, and political leader. The relationship between the President and the public, the media, and other governmental institutions. Historical and constitutional background of the Presidency, role, and powers of the President in domestic and foreign affairs.  
Attributes: Social Science GP 7  

POLT 505 - American Congress  
Credits: 4  
Role and powers of Congress as national lawmaker and check on the executive branch: committee structure, concepts of representation, legislative oversight and party cleavage, federal budget control, and foreign policy involvement.  
Attributes: Social Science GP 7  

POLT 506 - Parties, Interest Groups, and Voters  
Credits: 4  
Role of political parties as organizers and managers of social conflict. Role of voters in controlling parties and government. Influence of interest groups in the electoral process and in governmental decision making.  

POLT 507 - Politics of Crime and Justice  
Credits: 4  
Criminal justice in theory and practice: contemporary role of police, prosecutors, judges, juries, counsel, and interest groups in the administration of criminal justice. Writing intensive. 
Attributes: Writing Intensive Course  

POLT 508 - Supreme Court and the Constitution  
Credits: 4  
Supreme Court treated as a political institution whose historic mission is to decide all controversies arising under the Constitution between the nation and the states, the President and Congress; the role of the judiciary in defining its own powers, rights, and duties. Writing intensive. 
Attributes: Historical Perspectives GP 4; Writing Intensive Course  

POLT 509 - Managing Bureaucracy in America  
Credits: 4  
Growth and development of the bureaucratic state. Roles and powers of administrative officials, decision making in bureaucratic settings, citizen participation, and the influence of interest groups on bureaucratic policymaking.  

POLT 510 - Media and Politics  
Credits: 4  
Contemporary review of media in politics; major roles of media today in providing news, setting public agenda, influencing public opinion; government regulations vs. media responsibility; future developments and consequences for American democracy.  

POLT 512 - Public Opinion in American Politics  
Credits: 4  
Relationship of mass and elite opinion within the context of American political culture. Impact of public opinion on American governmental policies, especially with respect to major issues facing the President and Congress. Appraisal of responsiveness to influence and responsibility to lead. 
Attributes: Social Science (Discovery); Social Science GP 7  

POLT 513 - Civil Rights and Liberties  
Credits: 4  
Analysis of four major areas of constitutional rights and liberties, political freedom, equal protection of the laws, and due process with particular attention to their impact on such problems as political protest, discrimination, school segregation, students’ rights and the relationship between government and religion.
POLT 520 - Politics, Justice, and Morality  
Credits: 4  
Origin of the idea of justice; relationship between politics, justice, and morality; selections from Plato, Aristotie, Roman, Islamic, and Christian political philosophers.  
Attributes: Literature, Phil, Ideas GP 8

POLT 521 - Rights and the Political Community  
Credits: 4  
Human rights and the quality of communities as expressed in Hobbes, Locke, Mandeville, Rousseau, and others.  
Attributes: Literature, Phil, Ideas GP 8

POLT 522 - Dissent and the Political Community  
Credits: 4  
Current political ideologies and controversies in America and abroad; liberal democracy and its critics since the 19th century.  
Attributes: Literature, Phil, Ideas GP 8

POLT 523 - American Political Thought  
Credits: 4  
Introduces the student to the key questions about politics and government asked and answered by American thinkers and actors, as well as the ways in which those “answers” have shaped our institutions and political processes. Emphasizes the idea of property. Writing intensive.  
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

POLT 524 - Politics and Literature  
Credits: 4  
This course examines classical and contemporary works of literature to explore perennial issues in the study of politics, such as: exceptionalism, individualism, justice, and equality.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

POLT 524W - Politics and Literature  
Credits: 4  
This course examines classical and contemporary works of literature to explore perennial issues in the study of politics, such as: exceptionalism, individualism, justice, and equality. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Writing Intensive Course

POLT 525 - Multicultural Theory  
Credits: 4  
Issues of concern generated from an attention to and appreciation of our diverse cultural identities. As a theory course in political framework, we approach multiculturalism as a new attempt to respond to the challenges that difference poses in democratic theory.

POLT #543 - The Politics of Costa Rica  
Credits: 4  
While the rest of the Central American region has struggled to overcome authoritarian legacies, Costa Rica has been a trailblazer on the path to democracy. The successful establishment of democratic political institutions and political culture have been coupled with other innovations including the abolition of the military, investments in human capital, and eco-friendly economic development. This course is designed to explore the many facets of Costa Rican exceptionalism onsite in Costa Rica during the J term. Special fee.  
Attributes: World Cultures(Discovery)

POLT 544 - Of Dictators and Democrats  
Credits: 4  
Why are some countries democratic, while others are ruled by dictators? This course answers this question by examining leading theories of democratization, then testing these theories empirically through case studies of ancient Greece, the United States, Germany, Chile, and South Africa. The course concludes with an overview of contemporary political change in the Middle East, and the potential for popular protest to culminate into democratic practices. Writing intensive.  
Attributes: Writing Intensive Course

POLT 545 - People and Politics in Asia  
Credits: 4  
This course is an introduction to Northeast Asia, with special emphasis on the politics of the region’s major actors. Will China be the next global hegemon? Is Japan moribund? Is Taiwan an independent country? Is Hong Kong a democratic bastion? Why does Kim Jong-un keep threatening to attack the United States? It’s a mid-level, writing intensive course that will prepare students for more advanced courses on the nations and issues of the Asia-Pacific rim. Writing intensive.  
Attributes: Writing Intensive Course

POLT 546 - Wealth and Politics in Asia  
Credits: 4  
Different paths to modernization, industrialization, and development in nations of the Asia-Pacific Rim. In-depth examinations of the challenges faced by Japan, China, Hong Kong/Macao, Taiwan, and the Koreas in their search for the correct path to economic growth and prosperity, with special emphasis on each nation’s distinct society and history. Companion course to POLT 545, but either may be taken separately. Writing intensive.  
Attributes: Writing Intensive Course

POLT 547 - Race and Justice in the Americas: Insights from Film, Literature, and Politics  
Credits: 4  
Throughout the Americas many democracies have been built on foundations of racial and ethnic inequality, yet have managed to transcend these imperfect foundations. To understand how democracy has thrived despite the challenges of racial and ethnic inequality, this course examines how the justice system has addressed inequality in select cases throughout the Americas. Through comparative analysis of film, literature, and politics, students improve their knowledge and understanding of other cultures while exploring the evolution of similar issues in the United States.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

POLT 548 - Drug Wars  
Credits: 4  
The Americas have hosted several wars against drugs, but these militarized campaigns have not curtailed the global consumption of opiates, cocaine, and cannabis. Perhaps even more sobering, the drug wars have coincided with spiraling rates of violent crime. Given this track record, policymakers have begun to reevaluate drug policies in the US and abroad. This course evaluates these contemporary changes, particularly in light of the successes and failures of past drug control policies.
POLT 550 - Comparative Government and Society  
Credits: 4  
Introduces students to key concepts and themes in comparative politics through the study of revolutions, ideologies, institutions, and/or social movements. This course compares interactions between citizens and their governments in various types of democracies as well as authoritarian regimes, and spans industrialized and developing countries.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

POLT 552 - Contemporary European Politics  
Credits: 4  
Analyzes politics, governments, and societies in contemporary Europe; focuses on basic characteristics of political life in different countries as well as pressing economic, political, and social issues. Writing intensive.  
Attributes: Writing Intensive Course

POLT 554 - Revolution and Protest in Latin America  
Credits: 4  
Throughout Latin American history, economic and political models have been heavily contested. Advocates of state intervention in the economy have clashed with free market forces, and these clashes have often spilled into the political arena where they have been further complicated by divisions between dictators and democrats. This course examines these twin processes in Latin American politics, tracing economic and political development from the time of independence to the present. Writing intensive.  
Attributes: Writing Intensive Course

POLT 555W - Politics in Russia  
Credits: 4  
Russia provides an ideal case study for learning comparative political concepts - a developed state that continues to undergo a political and economic revolution, if not yet a social revolution. Additionally, it remains a major force in international relations. Beginning with a survey of its history and geography, the course provides a basis for understanding the behavior of the Russian Federation domestically and in international affairs. Writing intensive.  
Attributes: Foreign Culture GP 5; Writing Intensive Course

POLT 556 - Politics in China  
Credits: 4  
Dynamics of China’s domestic political and economic policy processes - from massive starvation of the Great Leap Forward and the ideological upheavals of the Great Proletarian Cultural Revolution to the “Opening of China to the Outside World.” Writing intensive.  
Attributes: Foreign Culture GP 5; Writing Intensive Course

POLT 558 - Government and Politics of Canada  
Credits: 4  
This course examines the political culture, partisan dynamics, political institutions and processes of modern Canada. Selected policy issues as well as U.S. - Canadian relations are also discussed. Writing intensive.  
Attributes: Writing Intensive Course

POLT 559 - Comparative Politics of the Middle East  
Credits: 4  
Examines the dynamics of political and economic change in states and societies of the Middle East. Covers state formation, nationalism and colonialism, authoritarianism and opposition movements, and the origins of the Israeli-Palestinian conflict.

POLT 560 - World Politics  
Credits: 4  
The course explores the primary issues of world politics with a focus on conflict, cooperation and development. Students are introduced to the principal theories and concepts in the analysis of world politics and encouraged to apply these theories and concepts to contemporary global issues. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

POLT 561 - Introduction to International Political Economy  
Credits: 4  
Designed for students with little or no knowledge of economics; the course develops the relationships between political and economic policy and behavior in international affairs. A major focus is on the conflict between the primary values of the international economic system (efficiency and growth) and other societal and political values. Among the topics are: international trade and finance, economic and non-economic globalization, growth and human development, illicit trade, and economic governance.  
Attributes: Writing Intensive Course

POLT 562 - Strategy and National Security Policy  
Credits: 4  
This course develops an understanding of: 1) strategy and its relationship to national security policy and 2) American national security issues and the process of creating and implementing American national security policies. A primary theoretical and practical consideration is the relationship between the use of force and diplomacy. Among the specific issues are: the nuclear world, the U.S. defense posture, military interventions, and the broadening definition of security.  
Attributes: Writing Intensive Course

POLT 563 - The Global Information Grid's Disruptive Impact on Government, Politics, and Society  
Credits: 4  
Disruptive networking technologies, collectively called the Global Information Grid or GIG, are facilitating revolutionary changes in government, politics, and society. The course is designed to provide students with a framework for understanding and addressing issues that spring from the application of technology.  

POLT 565 - United States Policy in Latin America  
Credits: 4  
Frequently U.S. policymakers portray the United States as a benevolent neighbor, seeking to help the countries in their “backyard”. Many Latin Americans disagree with this view, and think more critically about the motivations and legacies of U.S. intervention in the Western Hemisphere. To understand these disagreements, this course apploes theories of international relations to analyze pivotal events in the history of U.S. - Latin American relations from the time of independence to the present, including Spanish-American War, creation of Panama Canal, Cuban Missile Crisis, Iran Contra Affair, War Against Drugs, Washington Consensus.  
Attributes: Social Science GP 7
POL 566 - Asian Challenge to Global Order  
Credits: 4  
Asian international relations continue to challenge global power structures. As the world's most vital region, Asia is characterized by explosive economic growth, diverse political systems, modernizing militaries, and advanced technologies. This course explores the regional political and economic dilemmas, starting with the breakdown of the old imperialist order, Japan's expansion, the Asian Cold War, Korean and Chinese unification, China's post-1978 emergence, North Korea nuclear weapons, and the growing conflict over the Pacific Ocean's marginal seas. Writing intensive.  
Attributes: Social Science GP 7; Writing Intensive Course

POL 567 - Politics of Global Resources  
Credits: 4  
International politics from the perspective of the exhaustibility of global resources and the expansion of global demand. Concentrates on issues including population, food, energy, the environment, security, and human rights. Global interdependence and the appearance of new institutional frameworks of global public policymaking. Writing intensive.  
Attributes: Social Science GP 7; Writing Intensive Course

POL 568 - Introduction to Intelligence  
Credits: 4  
The purpose and practice of intelligence in the national security process. Concentration on the role of intelligence in the United States involving the C.I.A., military intelligence agencies, and the practice of intelligence in other countries.  
Attributes: Writing Intensive Course

POL 568W - Introduction to Intelligence  
Credits: 4  
The purpose and practice of intelligence in the national security process. Concentration on the role of intelligence in the United States involving the C.I.A., military intelligence agencies, and the practice of intelligence in other countries. Writing intensive.  
Attributes: Writing Intensive Course

POL 569 - The Rise of China  
Credits: 4  
Analysis of China's struggle for political and economic power in Asia and the world. Examines the legacy of China's historical encounters with the outside world, interactions with the international system since 1949, domestic determinants of foreign political and economic policies, and theories of decision making. Writing intensive.  
Attributes: Writing Intensive Course

POL 570 - Counterterrorism: Nation states' responses to terrorist activity  
Credits: 4  
This course explores nation states' responses to terrorism or "counterterrorism." Students learn to define terrorism and use models to understand responses. Case studies are used to highlight the challenges and successes resulting from different response strategies. Students analyze questions facing government counterterrorist decision makers. For example, what is the risk of a terrorist organization acquiring and detonating a nuclear weapon and what response could governments deliver following such an event?.

POL 580 - Selected Topics Am Politics  
Credits: 4  
Special topics such as politics and public affairs in New Hampshire, women in politics, and civil liberties. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr.  
Attributes: Writing Intensive Course

POL 584 - Selected Topics in Political Thought  
Credits: 4  
Special issues in political theory, such as liberalism and conservatism, radical political thought, the American character, and others. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr.  
Attributes: Writing Intensive Course

POL 588 - Selected Topics in Comparative Politics  
Credits: 4  
Concentration on the role of intelligence in the United States involving the C.I.A., military intelligence agencies, and the practice of intelligence in other countries. Writing intensive.

POL 592 - Selected Topics in International Politics  
Credits: 4  
Examines specialized issues in international politics. Topics may include ethnic conflict, non-proliferations and global security, economic and political globalization, etc. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 crs.  
Attributes: Writing Intensive Course

POL 595 - Smart Politics  
Credits: 4  
An introduction to empirical research methods in political science, both qualitative and quantitative. Students study all aspects of the research process, including hypothesis-building, concepts and variables, measurement, research design, sampling, and empirical observations. Special attention paid to the use of statistical software. Writing intensive.  
Attributes: Inquiry (Discovery); Writing Intensive Course

POL 602A - Internship  
Credits: 4  
Field experience in a governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least a 3.2 GPA. Permission of the undergraduate curriculum committee of the department is required prior to the internship.  
Attributes: In-class

POL 602B - Washington Center Internship  
Credits: 4  
A four-credit independent study designed to work in conjunction with the University's Washington Center Internship Program. Requirements: major in political science. Junior or senior research component to be discussed with faculty sponsor. For details on the Washington Center Internship, please contact Paula DiNardo, Coordinator National Student Exchange and Washington Center Internships, 114 Hood House, 603-862-3485 (V/TTY 862-2607), email: paula.dinardo@unh.edu. Prereq: POLT 402.

POL 602C - Concord Internship Program  
Credits: 12  
Provides students with field experience in state government in Concord (State Senate, House of Representatives, Office of the Governor, etc.). Students will spend three days weekly in Concord and attend a weekly practicum in Durham. Open to juniors and seniors with a 3.2 or better GPA. Applications accepted in the fall semester and can be found on department's website. Permission required. Students may sign up any four (4) credit course along with 602C for a total of 16 credits. Cr/F.
POL 602D - Internship  
**Credits:** 2-12  
Field experience in governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least 3.2 GPA. Permission from the undergraduate curriculum committee of the department is required. From 2 to 12 credits maybe taken. Cr/F.

POL 695 - Independent Study  
**Credits:** 2-4  
Designed to meet special interests of students and instructors in exploring issues in political science. Upon satisfying eligibility requirements set forth by departmental guidelines (in departmental office and online), students must have the approval of a faculty sponsor. Students submit the form and all supporting evidence by mid-semester prior to the planned semester of independent study for departmental approval. Does not meet the major’s four field-course requirement; maximum of eight (8) credits can be counted toward the non-field major requirements. Prereq: at least one upper-level course in field of independent study. Majors only.

POL 696 - Independent Study  
**Credits:** 2-4  
Designed to meet special interests of students and instructors in exploring issues in political science. Upon satisfying eligibility requirements set forth by departmental guidelines (in departmental office and online), students must have the approval of a faculty sponsor. Students submit the form and all supporting evidence by mid-semester prior to the planned semester of independent study for departmental approval. Does not meet the major’s four field-course requirement; maximum of eight (8) credits can be counted toward the non-field major requirements. Prereq: at least one upper-level course in field of independent study. Only open to Political Science majors.

POL 701 - Courts and Public Policy  
**Credits:** 4  
Impact of judicial decisions on public policy and influences on judicial decision making at the federal, state, and local levels. Writing intensive.  
**Attributes:** Writing Intensive Course

POL #706 - State and Local Government  
**Credits:** 4  
Advanced study of powers, politics, political cultures, and constitutional settings of American state and local government. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 711 - Public Opinion and Survey Research  
**Credits:** 4  
Examines the role of public opinion in democracy. Research, design, implementation, and analysis of a public opinion survey.

POL 721 - Feminist Political Theory  
**Credits:** 4  
Explores various strands of feminist political theory; taking a specifically political view of the challenges of feminist activism and philosophy. Addresses issues of the public space, power, social transformation, and democracy. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 725 - Politics and Literature  
**Credits:** 4  
Seminar: Advanced work in exploring classical and contemporary works of literature to illustrate perennial issues in political philosophy. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 740 - States and Societies in the Middle East  
**Credits:** 4  
Exploration of changing relationships between states and societies in the Middle East and North Africa from WWI to the present. Analyzes the creation of states and markets, the origins of authoritarian and democratic rule, the politics of environment and development, and the evolution of Islamist movements. Country and case studies vary. Previous coursework in comparative politics (POLT 540-559) or history strongly recommended. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 748 - Food and Wine Politics  
**Credits:** 4  
Food and wine politics provides a lens through which to analyze contrasting perspectives on production organization, market structures, quality constructs, consumer preferences, and health and safety regulation. This course draws upon texts from economic history, political economy, economic sociology, and public policy to shed light on comparative political and market organization across Europe, the United States, and emerging market economies. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 750 - Politics of Poverty  
**Credits:** 4  
Why are some countries rich while others are so poor? This course answers this question by examining several theories of economic development: political culture, modernization, dependency, regime types, urban bias, rent-seeking institutions, and international aid. The immediate goal of this course is for students to understand the causes of international inequality in the distribution of wealth. Students also improve their ability to evaluate theoretical arguments and empirical evidence critically, and develop reading and writing skills. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 751 - Comparative Environmental Politics and Policy  
**Credits:** 4  
Environmental politics and policy across national boundaries and at different levels of governance. Comparison of the U.S. and European Union environmental policies to build a foundation for comparisons across national boundaries and sub-national authorities. Students improve their understanding of how and why comparative methods are used to gain insight into politics and policymaking. Central concepts and debates addressed include the roles of expertise, sustainability, precautionary principle, the use of market mechanisms in policy, environmental justice, policy devolution and flexibility, environmental performance assessment, NGO roles, activism, and social movements. Using a range of theoretical approaches and historical and contemporary events and case studies, evaluating the claims and explanatory power of various concepts and theories. Includes ethical issues emerging from the theory and practice of environmental politics. Writing intensive.  
**Attributes:** Writing Intensive Course
POLT 760 - Theories of International Relations
Credits: 4
Theoretical approaches of international politics, international organization, and international political economy with particular emphasis on systems theories, domestic determinants of foreign policy and theories of decision making. Writing intensive.
Attributes: Writing Intensive Course

POLT 762 - International Political Economy
Credits: 4
This course has been designed to introduce advanced undergraduates and graduate students to the current theoretical discussions in international political economy. The course analyzes the development of current international economic regimes, as well as looks at systemic theories (interdependence, hegemonic stability), domestic determinants (bureaucratic, interest group), and decision-making theories (rational choice). By monitoring current economic and political news, students are challenged to apply these ideas to explain the current problems in political economy. Writing intensive.
Attributes: Writing Intensive Course

POLT 765 - Security Intelligence Study
Credits: 4
The goal of the Security Intelligence Study course is to provide an opportunity for students to apply research and analysis models used by intelligence professionals to a real world problem. Using unclassified public sources, students research and present an analytical product to help limit risk for a government decision maker. Participants learn about and use publicly available data and intelligence analysis models. Writing intensive.
Attributes: Writing Intensive Course

POLT 776 - International Organization
Credits: 4
This course is about cooperation at the international level. With a focus on international organizations, we examine what roles international institutions (both IGOS and NGOS) play in global governance and their effects in various issue areas. We examine their historical origins, functions, and the international and domestic political forces that impact their effectiveness. The course also considers the role of international organizations on world order including conflict resolution, peacekeeping, development, and human rights. Writing intensive.
Attributes: Writing Intensive Course

POLT 780 - International Environmental Politics, Policy, and Law
Credits: 4
Explores international/global environmental politics and policymaking, multilateral negotiations, the role of science and technology in policymaking, state capacity, the making of international law, implementation, and compliance. Other issues include climate change, marine pollution, long-range air pollution, United States leadership in the global political arena, North-South divisions in global politics, environmental justice, sustainable development, and the role of the United Nations and other international organizations. Writing intensive.
Attributes: Writing Intensive Course

POLT 795 - Advanced Study
Credits: 4
Senior POLT majors, with a cumulative average of 3.20 or greater, may undertake advanced study (political science), in an area of their choice, in consultation with member(s) of the faculty. Normally, the result of the project is a significant written product of a quality comparable to that done at the 700 course level. Student must initiate the project discussion and obtain approval of the undergraduate curriculum committee of the department before undertaking the project. Writing intensive.
Attributes: Writing Intensive Course

POLT 796 - Advanced Study
Credits: 4
Senior POLT majors, with a cumulative average of 3.20 or greater, may undertake advanced study (political science), in an area of their choice, in consultation with member(s) of the faculty. Normally, the result of the project is a significant written product of a quality comparable to that done at the 700 course level. Student must initiate the project discussion and obtain approval of the undergraduate curriculum committee of the department before undertaking the project. Writing intensive.
Attributes: Writing Intensive Course

POLT 797B - Seminar in American Politics
Credits: 4
Advanced analysis and individual research. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT 797C - Seminar in Comparative Politics
Credits: 4
Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include: constitutional structures, political parties and interest groups, legislatures, bureaucracy, and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, and political leadership. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT 797D - Seminar in International Politics
Credits: 4
Advanced analysis focusing on problems of theory and contemporary issues in international politics. Areas of interest may include: democratic norms in international relations, NATO expansion and European security, the peace process in the Middle East, etc. See department listings for semester offerings. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT 797F - Seminar in Public Administration
Credits: 4
Advanced analysis and individual research, including opportunities for direct observation of governmental administration. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT 797I - Seminar in Political Thought
Credits: 4
Advanced treatment and individual research. Prereq: senior or graduate standing. Writing intensive.
Attributes: Writing Intensive Course
POLT 799 - Honors Thesis  
Credits: 4  
Advanced analysis and individual research. Prereq: senior standing. Writing intensive.  
Attributes: Writing Intensive Course

POLT 798B - Seminar in American Politics  
Credits: 4  
Advanced analysis and individual research. Prereq: senior standing. Writing intensive.  
Attributes: Writing Intensive Course

POLT 798C - Seminar in Comparative Politics  
Credits: 4  
Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include constitutional structures, political parties and interest groups, legislatures, bureaucracy, and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, and political leadership. Prereq: senior standing. Writing intensive.  
Attributes: Writing Intensive Course

POLT 798E - Seminar in International Politics  
Credits: 4  
Advanced analysis focusing on problems of theory and contemporary issues in international politics. Areas of interest may include democratic norms in international relations, NATO and European security, the peace process in the Middle East, etc. See department listings for semester offerings. Prereq: senior standing. Writing intensive.  
Attributes: Writing Intensive Course

POLT 798F - Seminar in Public Administration  
Credits: 4  
Advanced analysis and individual research, including opportunities for direct observation of governmental administration. Prereq: senior standing. Writing intensive.  
Attributes: Writing Intensive Course

POLT 798I - Seminar in Political Thought  
Credits: 4  
Advanced treatment and individual research. Prereq: senior or graduate standing. Writing intensive.  
Attributes: Writing Intensive Course

PS 407 - Politics, Law and Contemporary Society  
Credits: 4  
This course examines the foundation and structure of the American legal system and the complex relationship between law, politics, and contemporary social structures, including the philosophical and historical origins of law and the concept of sovereignty. Using case studies and United States Supreme Court decisions, the course considers the philosophical, historical, economic, environmental, and sociological underpinnings of contemporary legal and politics issues.  
Attributes: Social Science (Discovery); Social Science GP 7

PS 501 - Social and Political-Economic Theory  
Credits: 4  
Classics of sociological and political economic theory, as well as contemporary thinking in conservative, classical liberal, modern liberal, and radical political economy. Emphasis on the historical context in which these ideas emerge, and the links among them. Readings and discussions include such thinkers as Comte, Spencer, Weber, Durkheim, Locke, Marx, Smith, Riccardo, J.S. Mill, Shumpeter, Keynes, Hayek.  
Attributes: Historical Perspectives(Disc); Social Science GP 7

PS 502 - Political Psychology  
Credits: 4  
Political opinion, identity, and belief-formation and reinforcement. The roles of cognition and emotion in how political identities, opinions and beliefs form, change and resist change. The implications of idea-framing in the acceptance and rejection of political concepts and ideologies. The role of social contexts and the media in creating conceptual boundaries in contemporary politics. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

PS 503 - Political Theory and Historical and Social Context  
Credits: 4  
Course analyzes and evaluates the roles of political philosophy and historical circumstances in politics through the readings of selected works by political philosophers and political leaders whose writings combine political philosophy with historical analysis. Special attention given to the nature of argument, choice, and leadership in political behavior. Authors studied include Machiavelli, Madison, Marx, and Lincoln. Writing intensive.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

PS #504 - Empire, Democracy and War  
Credits: 4  
The United States, the worlds oldest and most prominent constitutional democracy, is frequently characterized as an American empire, and empire maintained not only by its political ideals and its economic strength, but also by war. Through the reading of selected ancient and modern works by major political philosophers, historians, and political leaders, this course examines empire, democracy, and war as recurrent political concerns and as the actual experience of different regimes throughout history, including the United States. Works by, among others, Aristotle, Thucydides, Machiavelli, Hobbes, Kant, Clausewitz, and Lincoln are supplemented by selected historical studies and by analyses of American policy since World War II.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

Politics and Society (PS)  
#  Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
PS 505 - Political Violence and Terrorism
Credits: 4
This course provides an interdisciplinary approach to the study of political violence and terrorism. It covers the psychological and sociological roots of terrorism, the organizational patterns of cells, groups and networks, and the role of ideology and identity in shaping goals, targets, and tactics. No credit for students who have previously taken PS 651 Special Topics: Political Violence and Terrorism.
Attributes: Social Science (Discovery); Social Science GP 7

PS 506 - Civil Society and Public Policy
Credits: 4
Explores how grassroots advocacy organizations and social movements mobilize human and material resources in order to shape public policy and what tactics and organizational and communication strategies lead to success. Provides students with hand-on learning through service learning project at a local organization. Policy areas may include immigration, environmental conservation, women's issues and more. Instructor permission required.

PS 507 - Justice Law and Politics
Credits: 4
This course examines the relationships among law, politics, and social structures and how much relationships shape our conceptions of justice. We explore philosophical and historical origins of US law and such concepts as due process and sovereignty. We examine the foundations and economic, environmental, and sociological underpinnings of contemporary legal and political issues.
Attributes: Social Science (Discovery); Social Science GP 7

PS 508 - Supreme Court in US Society
Credits: 4
This course examines Supreme Court legal holdings from the creation of the American Republic to the present, with attention to the social and historical contexts in which holdings have been made. We examine Constitutional issues, the process by which the Court examines such issues, the ways in which political and social context has framed and influenced Court decisions, as well as how the Court has influenced politics and the broader society.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

PS 509 - Political and Social Change in Developing Countries
Credits: 4
Overview of the pressing social, political, and economic issues in the developing world. Analysis includes: political development, including different forms of authoritarianism and democracy; international political economy and models of macro-economic development; international and national aid programs aimed at reducing poverty. Case studies include China, India, Iraq and more.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PS 510 - Politics of Food
Credits: 4
This course examines the politics of how food is produced, marketed and distributed in the United States, with attention to how the American food system has changed since World War II. The ethics and nutritional and public health implications of current agricultural policies and practices are looked at carefully, as are the environmental impacts of current practices. The impact on international food prices and markets and world hunger are also examined.
Attributes: Environment, TechSociety(Disc); Technology GP 3T

PS 511 - Women and War
Credits: 4
Explores impact of war on women as both victims (i.e. refugees, rape victims) and participants (i.e. warriors). Covers issues such as women in combat as soldiers and terrorists, women's rights, sexual violence and rape during warfare, women's roles during peace-building etc. Case studies include Bosnia, Liberia, Afghanistan, USA, Colombia, and more.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PS 512 - People on the Move: Immigration and Refugee Policy in Global Perspective
Credits: 4
Migration affects nearly every country in the world. It is an important dimension of globalization and compels us to reflect on notions of state sovereignty, nationhood, citizenship, human rights, tolerance and international relations. This course offers a multi-disciplinary, comparative overview of current issues in the field of international migration, including refugee policy. It aims to help students develop the knowledge and analytical tools to participate in today's often contentious debates about people on the move.

PS 514 - Model United Nations
Credits: 4
The highlight of this experiential learning course is a trip to participate in a Model United Nations conference. Students will develop solutions to contemporary global problems (including human rights, terrorism, climate change, etc.), and will learn the art of debate and compromise. The class will serve as a particular country’s delegation during a simulation of the United Nations, where it will promote the UN, the issues before the UN, and the assigned country’s role in global affairs. Open to students of all majors. Instructor permission required. Contact Prof. Negron-Gonzales, melinda.negron@unh.edu. Special fee.

PS 515 - New Hampshire Politics in Action
Credits: 4
A hands-on course on New Hampshire politics and policymaking, in which students will identify a Bill currently active in the NH General Court and develop and execute a step-by-step plan for helping get it enacted or defeated. Periodic travel to the State Capitol in Concord will be required.

PS 520 - Globalization: Politics, Economics and Culture
Credits: 4
Globalization is a complex web of interwoven processes that affect virtually all facets of our daily lives, from pop culture to economics to politics and everything in between. But what exactly is globalization, anyway? And does increased interconnectedness and interdependence do more harm than good? What are the effects of globalization on our society and on others around the world? How can we solve problems, such as climate change, that transcend national boundaries? This course covers different dimensions of globalization, exploring everything from free trade and global supply chains in business to the global hip-hop phenomenon to the problem of international terrorism, and many other issues.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PS 651 - Selected Topics Politics and Society
Credits: 4
Interdisciplinary treatment of selected topics in politics and society. Topics may include democracy, empire and war, gender roles in electoral process, the sociology and psychology of terrorism, the political economy of hunger and poverty, the social origins of dictatorship and democracy, and others. May repeated for a maximum of 8 credits. Topic: Empire, Democracy, and War is Writing intensive.
PS 651W - Selected Topics Politics and Society
Credits: 4
Interdisciplinary treatment of selected topics in politics and society. Topics may include democracy, empire and war, gender roles in electoral process, the sociology and psychology of terrorism, the political economy of hunger and poverty, the social origins of dictatorship and democracy, and others. May be repeated for a maximum of 8 credits. Topic: Empire, Democracy, and War is Writing intensive. Writing intensive.
Attributes: Writing Intensive Course

PS 695 - Politics and Society Independent Study
Credits: 1-4
Independent study on specific topics in Politics ans Society. Project must be approved by the project supervisor Politics and Society Program.

PS 701 - Senior Project and Interdisciplinary Seminar in Politics and Society
Credits: 4
Students undertake internships or other approved field projects with organizations such as political campaigns, media organizations, government offices, business or community groups. The seminar component enables students to share and analyze these experiences, employing readings, discussions, collective behavior games, and speakers. Permission required. Writing intensive.
Attributes: Writing Intensive Course

PS 702 - International Relations: Interdisciplinary Approach
Credits: 4
This course explores International Relations Theory as developed by political scientists, subjected to critical insights from other disciplines, including psychology, anthropology, political economy and history. Course first surveys the historical development of International Relations Theory, beginning with Thucydides and Macchiavelli, and proceeding through 20th and 21st century realist, liberal, Marxist and constructivist theories. Theses theories are then examined critically in the light of insights from psychology, anthropology and political economy. Pre or Coreq: PS 501 or PS 401 or permission of instructor. Special fee.
Attributes: Writing Intensive Course

PS 703 - Dictatorship and Democracy
Credits: 4
This course examines the theoretical debates in comparative politics and political sociology regarding the social and economic bases of dictatorship and democracy, as well as the transition from authoritarianism to democracy. The course considers different conceptualizations of democracy, as well as competing theoretical arguments regarding the causes of democratization. Readings draw on case studies from different regions, including Europe, Latin America, Africa, and Asia.

Portuguese (PORT)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PORT 401 - Elementary Portuguese I
Credits: 4
Conducted in Portuguese. For students without previous knowledge of Portuguese. Aural-oral practice; fundamental speech patterns; reading and writing to achieve a firm basis for an active command of the language. Labs. No credit toward a major. (No credit for students who have had two or more years of Portuguese in secondary school; however, any such students whose studies of Portuguese have been interrupted for a significant period of time should consult the chairperson about possibly receiving credit.) Special fee.

PORT 402 - Elementary Portuguese II
Credits: 4
Conducted in Portuguese. Aural-oral practice; fundamental speech patterns; reading and writing to achieve a firm basis for an active command of the language. Labs. No credit toward a major. (No credit for students who have had two or more years of Portuguese in secondary school; however, any such students whose studies of Portuguese have been interrupted for a significant period of time should consult the chairperson about possibly receiving credit.) Special fee. Prereq: PORT 401. (PORT 401 and PORT 402 together satisfies the foreign language requirement.)
Attributes: Foreign Language Requirement

PORT 500 - Selected Topics in World Literature
Credits: 4
Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, RUSS 500, SPAN 500.) May be repeated for credit. Cr/F. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8, Writing Intensive Course

PORT 503 - Intermediate Portuguese I
Credits: 4
Conducted in Portuguese. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Portuguese on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

PORT 504 - Intermediate Portuguese
Credits: 4
Conducted in Portuguese. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Portuguese on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.
Attributes: Foreign Culture GP 5

PORT 526 - Luso-Brazilian Culture and Civilization
Credits: 4
This course provides a general overview of Brazil's culture and history from the arrival of the first Europeans, through its independence and consolidation as a nation-state in nineteenth-century, up to its present. Students will learn about the development of Brazilian cultural and intellectual life through literature, cinema, music, painting, architecture, and photography. No prior knowledge of the Portuguese language is required. The course will be taught in English. Special fee.
PORT 595 - Portuguese Practicum
Credits: 2
Practical use of Portuguese language or cultural skills outside the classroom through special projects. Prereq: PORT 401 and PORT 402 and permission. May be repeated up to 4 credits.

Psychology (PSYC)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PSYC 401 - Introduction to Psychology
Credits: 4
Psychology as a behavioral science; its theoretical and applied aspects. Includes research methods, behavioral neuroscience, sensation and perception, cognition, learning, development, personality, psychopathology, and social psychology. To experience actively the nature of psychological research students have an opportunity to participate in a variety of studies as part of a laboratory experience.
Attributes: Social Science (Discovery); Social Science GP 7

PSYC 401H - Honors/Introduction to Psychology
Credits: 4
Psychology as a behavioral science; its theoretical and applied aspects. Includes research methods, behavioral neuroscience, sensation and perception, cognition, learning, development, personality, psychopathology, and social psychology. To experience actively the nature of psychological research students have an opportunity to participate in a variety of studies as part of a laboratory experience.
Attributes: Social Science (Discovery); Social Science GP 7

PSYC 402 - Statistics in Psychology
Credits: 4
Design, statistical analysis, and decision making in psychological research. Probability, hypothesis-testing, and confidence intervals. Conceptualization, computation, interpretation, and typical applications for exploratory data analysis (including measures of central tendency, variability), t-tests, correlations, bivariate regression, one-way analysis of variance, and chi square. Introduction to computer methods of computation. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; SOC 502. Special fee.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

PSYC 402H - Honors/Statistics in Psychology
Credits: 4
Design, statistical analysis, and decision making in psychological research. Probability, hypothesis-testing, and confidence intervals. Conceptualization, computation, interpretation, and typical applications for exploratory data analysis (including measures of central tendency, variability), t-tests, correlations, bivariate regression, one-way analysis of variance, and chi square. Introduction to computer methods of computation. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; EREC 525; HHS #540; MATH 439; MATH 539; MATH 644; SOC 502. Special fee.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

PSYC 440A - Honors/Understanding the Human Brain
Credits: 4
First, we will examine the evolution of the brains of hominids to understand what are characteristics are uniquely human and what are conserved across species. We then explore selected topics in neuroscience that alter neural functioning, for example, the impact of neuro-prosthetics, cognitive enhancement, racial discrimination. Finally, we will discuss the benefit and limitations of using animal models to understand human neural functioning.
Attributes: Biological Science(Discovery); Biological Science GP 3B

PSYC 502 - Research Methods in Psychology
Credits: 4
Research design, including experimental and correlation design; internal versus external validity; measurement; writing a research report; graphic and statistical methods for summarizing data; sampling; and special problems such as experimenter effects, reactivity of measurement, and others. The use of hypothesis testing and data analysis in research. Prereq: PSYC 401 and PSYC 402. Special fee. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

PSYC 511 - Sensation and Perception
Credits: 4
The study of how humans (and some other animals) sense and perceive their environment. Topics include seeing (vision), hearing (audition), tasting (gustation), smelling (olfaction), feeling (somatosensation), and the variety of state-of-the-art methods used by psychologists to study these senses. Illusions and other sensory and perceptual phenomena are treated. Prereq: PSYC 401.

PSYC 512 - Psychology of Primates
Credits: 4
A comparative analysis of primate cognitive, linguistic, and social processes. The origins of human behavior are explored from the perspectives of history, evolution, and contemporary work in neuropsychology, linguistic, sociobiology, and related fields. Prereq: PSYC 401.

PSYC 513 - Cognitive Psychology
Credits: 4
The study of human cognition, its basic concepts, methods, and major findings. Human knowledge acquisition and use. Attention, perception, memory, imagery, language, reading, problem solving, and decision making. Prereq: PSYC 401.

PSYC 521 - Behavior Analysis
Credits: 4

PSYC 522 - Behaviorism
Credits: 4
Introduction to behaviorism as a philosophy of science. Some historical background, but concentration on modern behaviorism as exemplified in the works of B. F. Skinner. No credit for students who have completed PSYC 722. Offered only in Manchester. Prereq: PSYC 401.
PSYC 531 - Psychobiology
Credits: 4
Introduces the behavioral neurosciences. Surveys research conducted by psychologists to learn about the biological basis of behavior: development, sensation, perception, movement, sleep, feeding, drinking, hormones, reproduction, stress, emotions, emotional disorders, learning, and memory. Prereq: PSYC 401.

PSYC 552 - Social Psychology
Credits: 4
Behavior of individuals as affected by other individuals, groups, and society. Topics include attitude change and social influence, conformity, social interaction, interpersonal attraction, impression formation, research. Prereq: PSYC 401.

PSYC 553 - Personality
Credits: 4

PSYC 561 - Abnormal Behavior
Credits: 4
Causes, diagnosis, and treatment of abnormal behavior. Implications of varying theoretical viewpoints. Prereq: PSYC 401.

PSYC 571 - Pioneers of Psychology
Credits: 4
An introduction to the development and evolution of psychology as an academic discipline and applied science. The lives and works of innovators in psychology are placed in socio-political context.

Attributes: Historical Perspectives(Disc); Literature, Phil, Ideas GP 8

PSYC 571H - Honors/Pioneers of Psychology
Credits: 4
An introduction to the development and evolution of psychology as an academic discipline and applied science. The lives and works of innovators in psychology are placed in socio-political context.

Attributes: Historical Perspectives(Disc); Literature, Phil, Ideas GP 8

PSYC 581 - Child Development
Credits: 4
The developing child in the context of his/her society. Current problems in, and influences on, development of the child. Personality and cognitive development; exceptional children. Prereq: PSYC 401.

PSYC 582 - Adult Development and Aging
Credits: 4
A life-span developmental framework for the study of growth, decline, and stability on adult development. Developmental methods in adult development research; biological basis for aging; patterns of change and stability in diverse domains of psychological functioning, e.g., perception, cognition, intellectual performance, and personality organization. Prereq: PSYC 401. (Offered only in Manchester.)

PSYC 591 - Special Topics
Credits: 4
New or specialized courses are presented under this listing. Staff present material not normally covered in regular course offerings. May repeat but not duplicate content. Prereq: PSYC 401.

PSYC 595 - Applications of Psychology
Credits: 1-4
Arranged by the student or offered by psychology faculty for supervised field, academic, or research experience related to psychology. A) Field experience: supervised internship at a business or human services setting. B) Academic experience: specialized classroom experience or supervised teaching assistance, C) Research experience: supervised research experience or laboratory work. Psychology instructors sponsor academic credit for appropriate experience combined with a relevant academic component. Requires a signed learning agreement prior to registration. Prereq: permission. May be taken for 1-4 credits in a semester and repeated to a maximum of 8 credits total. Cr/F.

PSYC 702 - Advanced Statistics and Research Methodology
Credits: 4
A review of basic statistics from Psychology 402 and 502. Covers partial correlation, factorial ANOVA, and other analyses that include multiple predictor variables. Appropriate for students who plan to apply to research-oriented graduate programs, those who use statistics in honors thesis research, and those who plan to work in areas such as marketing or survey research. Topics covered are appropriate for use in psychology, sociology, education, medicine, and other research areas. Prereq: PSYC 402; PSYC 502, or permission. (Not offered every year.)

Writing intensive.
Attributes: Writing Intensive}

PSYC 705 - Tests and Measurement
Credits: 4
Testing intelligence, creativity, achievement, interests, and personality. Test construction; evaluation; relation to psychological theory, research, and practice. Prereq: PSYC 402, PSYC 502, or permission.

PSYC 705H - Honors/Tests and Measurements
Credits: 4
Testing intelligence, creativity, achievement, interests, and personality. Test construction; evaluation; relation to psychological theory, research, and practice. Prereq: PSYC 402, PSYC 502, or permission.

PSYC 710 - Visual Perception
Credits: 4
The study of how humans (and some other animals) see. Topics include color vision, depth perception, form and pattern vision, visual learning and development, eye movements, diseases of the visual system, illusions, and other visual phenomena. Prereq: PSYC 402, PSYC 502, PSYC 511, or PSYC 531; or permission. Special fee. Writing intensive.

Attributes: Writing Intensive Course

PSYC 712 - Psychology of Language
Credits: 4
Theories of language structure, functions of human language, meaning, relationship of language to other mental processes, language acquisition, indices of language development, speech perception, reading. Prereq: PSYC 402, PSYC 502, PSYC 512; or PSYC 513; or permission. Special fee.

PSYC 712W - Psychology of Language
Credits: 4
Theories of language structure, functions of human language, meaning, relationship of language to other mental processes, language acquisition, indices of language development, speech perception, reading. Prereq: PSYC 402; PSYC 502; PSYC 512; or PSYC 513; or permission. Special fee.

Attributes: Writing Intensive Course
PSYC 731 - Brain and Behavior
Credits: 4
Neuropsychology, the study of brain/behavior relationships including clinical topics related to the analysis of neurological diseases in humans and more basic experimental topics related to integrative functions of the brain. The main focus is on cerebral cortex and functions related to perception, movement, attention, memory, and language. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

PSYC 733 - Drugs and Behavior
Credits: 4
Introduces the principles of psychopharmacology and the effects of psychoactive substances on behavior. Focuses on the therapeutic and recreational use of drugs and the mechanisms of drug action, that is how the drugs affect the brain. Neuropsychiatric function and dysfunction are discussed as they relate to the use or abuse of particular drugs. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission. Writing intensive.
Attributes: Writing Intensive Course

PSYC 735 - Neurobiology of Mood Disorders
Credits: 4
Neurobiological and neurochemical substrates underlying various psychopathologies, using both animal models and human data. Study of disorders from the field of biological psychiatry including aggression, anxiety, panic disorder, obsessive-compulsive disorder, unipolar depression, bipolar affective disorder, schizophrenia, and post-traumatic stress disorder. The effectiveness of current behavioral and pharmacological therapy. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission. Writing intensive.
Attributes: Writing Intensive Course

PSYC 736 - Attention Disorders
Credits: 4
Attention encompasses several cognitive functions including, but not limited to, the ability to select relevant from irrelevant stimuli, to maintain goal-directed behavior over time, and to process multiple streams of information at once. This course explores how the normal brain "attends", and the consequences of dysfunction in neuronal systems hypothesized to mediate these abilities including dementia, attention-deficit hyperactivity disorder (ADHD) and schizophrenia. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission.
Attributes: Writing Intensive Course

PSYC 737 - Behavioral Medicine
Credits: 4
Behavioral, physiological, and neurochemical alterations, associated with health-promoting behaviors (low-fat diet, exercise) as well as health-imparing behaviors (eating disorders, smoking, excessive alcohol consumption). Topics include stress, coping, type-A behavior, hypertension, and the interface of brain, behavior, and immunity (psychoimmunology, cancer, AIDS). Treatment/therapy are discussed from behavioral and pharmacological perspectives. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission. Writing intensive.
Attributes: Writing Intensive Course
PSYC 741 - Advanced Topics
Credits: 4
Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics under this listing may be used to fulfill a major requirement in category Cl. A) Psychology as a Natural Science, B) Cognition, C) Behavior Analysis, D) Biological/Sensory. Prereq: PSYC 402; PSYC 502; plus other prerequisites when offered; or permission.

PSYC 741W - Advanced Topics
Credits: 4
Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics include: Behavioral Neuroscience. Prereq: PSYC 402; PSYC 502; plus other prerequisites when offered; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 755 - Psychology and Law
Credits: 4
Applications of psychology to the study of the law, including theories of legal and moral judgment, participants in the legal system (judges, police, victims, witnesses), the trial process, and plea bargaining. Special focus on the death penalty, the insanity plea, and child witnesses. Prereq: PSYC 402; PSYC 502; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 756 - Psychology of Crime and Justice
Credits: 4
Examines the psychological aspects of crime and justice, including the following origins and causes of crime: developmental, biological, biopsychological, learning, and mental disorder. Focuses on issues related to homicide, profiling, and serial killers. Examines aggression and violence as well as causes and consequences of criminal homicides. Discussion of the future of crime. Prereq: PSYC 402; PSYC 502; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 757 - Psychology of Happiness
Credits: 4
Overview of empirical research in Positive Psychology. We will discuss factors that may influence happiness and subjective well-being; and effects that well-being may have on other life outcomes such as physical health. Learning involves reading and writing about evidence from research and also experimental exercises (such as foing an act of kindness). Prereq: PSYC 402, PSYC 502 or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 758 - Health Psychology
Credits: 4
Survey of current topics in health psychology, including social stress and the etiology of disease, Type A and other personality factors related to health, modification of risk factors, the practitioner-patient relationship, chronic pain, and the emotional impact of life-threatening illness. Prereq: PSYC 402; PSYC 502; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 762 - Counseling
Credits: 4
Theories of counseling, ethical considerations, professional and paraprofessional activities in a variety of work settings. Prereq: PSYC 402; PSYC 502; PSYC 553; or PSYC 561; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 763 - Community Psychology
Credits: 4
Examines the sub-field of community psychology, which grew out of clinical psychology but is different from it. Theoretical and research perspectives on prevention, diversity, empowerment, resilience, community intervention, and ecological understandings of behavior. Causes of and interventions in social issues such as interpersonal and community violence and homelessness. Prereq: PSYC 401; PSYC 402; PSYC 502; PSYC 552, PSYC 553, or PSYC 561; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 775 - Madness in America
Credits: 4
Examines how popular and professional concepts of mental illness are shaped by historical events as well as scientific and medical research. Writings of former psychiatric patients, therapists, researchers, social critics, and historians of psychology and psychiatry. Cultural values, public attitudes, and popular views of mental health and illness as expressed through motion pictures, documentaries, novels, autobiographies, and biographies. The impact of WWI and WWII on how people thought about madness and how it was treated. The 1973 removal of homosexuality from the diagnostic manual of the American Psychological Association; the rise and fall of the lobotomy; feminist criticisms of psychiatry and psychology. Prereq: PSYC 402; PSYC 502; PSYC 561; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 780 - Prenatal Development and Infancy
Credits: 4
Psychological development of infants from conception through second year of life. Factors and potential influences on reproductive health and prenatal physical and behavioral development. Transition to parenthood, infant temperament and parent-infant relationships. Developmental patterns of specific capabilities. Prereq: PSYC 402; PSYC 502; PSYC 581 or FS 525; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 783 - Cognitive Development
Credits: 4
Theories of cognitive development. Comparison among major theorists on how knowledge, thought, and development are defined and studied. Current research, including cognitive development; memory; perceptual processes; language. Prereq: PSYC 402; PSYC 502; PSYC 581; or permission. Writing intensive. Attributes: Writing Intensive Course

PSYC 785 - Social Development
Credits: 4
Examines development of social interactions. Emphasizes important social relationships for the child (e.g., attachment to parents and friendships with peers). Considers other topics of relevance to social developmentalists, such as temperament, aggression, social cognition, and sex roles. Prereq: PSYC 402; PSYC 502; PSYC 581; or permission. Writing intensive. Attributes: Writing Intensive Course
PSYC 791 - Advanced Topics  
Credits: 4  
Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics under this listing may be used to fulfill a major requirement in category CII. A) Psychology as a Social Science, B) Social Psychology, C) Personality, D) Abnormal/Counseling, E) History of Psychology, F) Child Development, G) Adult Development. Prereq: PSYC 402; PSYC 502; plus other prerequisites when offered, or permission. Special fee with some topics.

PSYC 791W - Advanced Topics  
Credits: 4  
Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics include: Close Relationships. Prereq: PSYC 402; PSYC 502; plus other prerequisites when offered, or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 793 - Internship  
Credits: 4-8  
Supervised practicum in one of several cooperating New Hampshire mental health/rehabilitation facilities. Coursework knowledge applied to meaningful work and team experience. Commitment includes a negotiated number of weekly work hours and weekly seminars. Supervision by institution personnel and the instructor. A maximum of 4 credits may be applied to the Psychology major. Course applications accepted beginning in March for fall term and October for spring term. Prereq: permission; PSYC major; PSYC 402; 502; 561 Pre- or coreq: PSYC 792.

PSYC 794 - Advanced Internship  
Credits: 1-8  
Supervised advanced practicum experience in co-operating New Hampshire mental health/rehabilitation facilities. Expands and builds on experiences and skills acquired in PSYC 793. Commitment includes a negotiated number of hours of work per week and participation in weekly seminars. Supervision done by institution personnel and instructor. Prereq: PSYC 793; permission. 1 to 8 credits.

PSYC 795 - Independent Study  
Credits: 1-4  

PSYC 797 - Senior Honors Tutorial  
Credits: 4  
For senior psychology honors students. Students propose honors theses under the supervision of psychology faculty. Theses proposed and begun in this course are completed in PSYC 799. Prereq: admission to psychology honors program. (Typically offered in fall.)

PSYC 798 - Capstone  
Credits: 0  
This is a zero credit course to indicate on the transcript that the capstone requirement is fulfilled. PSYC majors only.

PSYC 799 - Senior Honors Thesis  
Credits: 4  
Under supervision of psychology department faculty members, students complete the honors projects proposed and begun in PSYC 797. The honors project, which should be empirical in nature, culminates in an oral presentation at the end of the semester. Prereq: admission to psychology honors program; PSYC 797. Special fee. (Typically offered in spring.)

Race & Ethnic Studies (RES)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RES 795 - Independent Study  
Credits: 1-8  
Open to qualified sophomores, juniors, and seniors. May include research project or fieldwork. To be elected only with permission of the coordinator and with qualified supervision.

Recreation Management & Policy (RMP)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RMP 400 - Recreation Management and Policy Continuing Enrollment  
Credits: 0  
This course enables BS students to maintain continuous enrollment in RMP as part of their matriculation plan until after their degree is formally awarded. Students registering for RMP 400 will pay a continuous enrollment fee. No credit. Special fee. RMP majors only.

RMP 444 - Building a Culture of Peace  
Credits: 4  
Peace is more than just the absence of war. A culture of peace incorporates respect and dignity for all persons, stewardship of natural resources, a striving toward justice and equality, the non-violent resolution of conflicts, non-hierarchical decision-making and participatory community life. Students in this course explore the origins and concepts of peace culture. Students experience the elements of a culture of peace as they are empowered to create a peace culture within the classroom and as they share peace culture with a broader community through service learning projects.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

RMP 444A - Taking the "Dis" out of Disability  
Credits: 4  
In contrast to the traditional view of disability as a defect, students learn how disability provides a unique vantage point on our world and can be perceived as an ordinary part of the twists and turns of life. Examines the history of social responses to disability, with an emphasis on the present day concepts of inclusion and self-determination. Students explore expressions of the disability experience through print and visual media. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course
RMP 490 - Recreation and Leisure in Society
Credits: 4
Examines the historical and philosophical foundation of recreation and leisure. Emphasizes concepts, theories, and the interrelationships between factors (social, economic, political, and environmental), which influence people’s leisure attitudes and behavior. Explores implications of leisure for holistic and balanced living. Classes not allowed in section: Senior.
Attributes: Social Science (Discovery); Social Science GP 7

RMP 500 - Therapeutic Recreation Methods in Physical Rehabilitation Settings
Credits: 1
This course introduces students to a variety of assistive techniques, devices and equipment used in Therapeutic Recreation settings that allow individuals with illnesses and disabilities achieve maximum independence and functional capacity to maintain optimal health and leisure functioning. Students learn and apply skills in anatomical orientation and positioning, universal precautions, assistive technology and adapted equipment for recreation including manual, power, sports, and all-terrain wheelchairs, wheelchair mobility skills, proper body mechanics, transfer and lifting techniques, ambulation assists, and sighted guide techniques. Prereq: RMP 490, 501, 502, permission.

RMP 501 - Recreation Services for Individuals with Disabilities
Credits: 4
Presents and discusses issues that concern the delivery of quality leisure services to individuals with disabilities in community settings. Classroom activities provide opportunities for practical experience.

RMP 502 - Foundations of Therapeutic Recreation
Credits: 4
History and professional concepts of therapeutic recreation and the roles and functions of the therapeutic recreation specialist.

RMP 503 - Therapeutic Recreation Rehabilitation Principles & Interventions
Credits: 4
Introduces the rehabilitation principles and recreational therapy interventions used by therapeutic recreation specialists to improve functioning for people with physical and cognitive impairments. Students learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life. A lab provides students with the opportunity to use a variety of assistive techniques, adaptive devices, and equipment to support individuals and achieve maximum independence and promote a healthy leisure lifestyle. Special fee. Prereq: RMP 490, RMP 501, RMP 502.

RMP 504 - Therapeutic Recreation Mental Health Principles and Interventions
Credits: 4
Introduces mental health principles and recreational therapy interventions to improve functioning for people with emotional, social, and behavioral impairments. Students will learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life for persons with emotional, social, and behavioral impairments. Restricted to RMP majors.

RMP 511 - Issues of Wilderness and Nature in American Society
Credits: 4
Provides students with an overview of the evolving relationship between wilderness/nature and American society. Examines the philosophy, ethics, and societal values in American society and its relationship to our natural wilderness. Recent issues are used as case studies in order for students to articulate, defend, and critique the ethical issues presented. Students are responsible for understanding and applying philosophical approaches developed by philosophers, writers, and activists associated with the wilderness, sustainability, biodiversity, hunting, suburban sprawl, environmental activism, endangered species, organic foods, and genetic engineering.
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

RMP 515 - History of Outdoor Pursuits in North America
Credits: 4
Voluntary pursuits in the outdoors have defined American culture since the early 17th century. Over the past 400 years, activities in outdoor recreation an education have reflected Americans’ spiritual aspirations, imperial ambitions, social concerns, and demographic changes. This course will give students the opportunity to learn how Americans’ experiences in the outdoors have influenced and been influenced by major historical developments of the 17th, 18th, 19th and 20th, and early 21st centuries. This course is cross-listed with KIN 515.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

RMP 557 - Program and Event Design
Credits: 4
This course introduces students to a range of approaches to recreation program and event design, and focuses on providing leisure experiences for all populations. Course topics include foundations of programming, program theories, needs assessment techniques, vision, mission, goals, and objectives, processes of group planning, public relations, program promotion, and program evaluation. Students will design and deliver a recreation program using a team approach. Prereq: RMP 490. Permission required.

RMP 559 - Program and Event Marketing
Credits: 4
This course prepares students to apply marketing principles and strategies to recreation programs and events, including procedures for developing marketing plans for recreation and event organizations. Course content includes planning the marketing mix, with a focus on the recreation or event product, price, place, and promotion. The course covers the application of marketing and communication strategies delivered through social and audio-visual media. The culminating project consists of a marketing and communication plan for a recreation/leisure service agency. Prereq: RMP 490. Permission required. RMP Majors Only.

RMP 560 - Recreational Sport Management
Credits: 4
Explores and examines the theoretical foundations and basic skill methods, and techniques necessary for the effective and efficient delivery of recreational sport programs within a variety of collegiate, public, quasi-public, and private settings, agencies and/or organizations.
RMP 563 - Recreation Management and Policy Practicum  
Credits: 2  
Designed to provide first and second year RMP majors the opportunity to observe and practice leadership skills in clinical and community-based settings. Students complete a 40-45 hour practicum at an approved site. Successful completion of a practicum is prerequisite to the professional internship, RMP 664. Students are responsible for transportation and housing. Prereq: RMP 490. Permission required. May be repeated for a total of 4 credits. Cr/F.

RMP 565 - Introduction to Child Life  
Credits: 4  
When facing acute, chronic or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field. Permission required. (Also listed as HDFS 565).

RMP 593 - Special Topics  
Credits: 2-4  

RMP 593W - Special Topics  
Credits: 2-4  
Attributes: Writing Intensive Course

RMP 612 - Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation  
Credits: 4  
Addresses specific clinical knowledge and skills essential to therapeutic recreation service delivery including clinical interviewing, group process, leisure education, treatment approaches, and intervention techniques. Prereq: RMP 490. Permission required.

RMP 613 - Interventions and Documentation in Therapeutic Recreation  
Credits: 3  
This course emphasizes theory and concepts in clinical intervention within therapeutic recreation settings. Students learn to identify and select appropriate facilitation techniques for a variety of client needs. Students also learn to write and interpret practice-based documentation. Students are afforded the opportunity to practice and apply concepts learned. Prereq: RMP 490. Permission required. Only open to RMP Therapeutic Recreation majors.

RMP 614 - Assessment and Treatment Planning in Therapeutic Recreation  
Credits: 4  
Addresses the principles of activity analysis, client assessment, documentation, individualized program planning, selection of interventions, and collaboration with a treatment team. Prereq: RMP 612/RMP 613. Permission required.

RMP 615 - Clinical Lab in Therapeutic Recreation  
Credits: 2  
A clinical lab that provides students with the opportunity to apply principles central to the effective delivery of therapeutic recreation individualized treatment planning, client assessment, documentation, and activity analysis with members of one of two community sites located in the Seacoast region. Students are required to participate in weekly sessions (five to six hours per week) for a total of 15 weeks. Prereq: RMP 612/RMP 613. Permission required. Cr/F.

RMP 654 - Professional Development and Ethics  
Credits: 2  
Focuses on preparing students for the internship experience through the identification of career goals and the selection of an approved internship site. A portfolio emphasizing process skills in resume construction, interviewing techniques, establishing internship goals and objectives, and self-assessment is developed. Majors only. Prereq: permission. Letter Grade/IA (continuous grading).

RMP 661 - Recreation and Event Leadership  
Credits: 4  
This course is designed to expose students to fundamental principles of leadership; communication, group facilitation, motivation, employee management, conflict resolution, and development of professional ethics. Students will develop techniques for the exercise of leadership in group and organizational settings associated with recreational programs and events. Students are expected to apply the leadership principles, theories, and techniques to small group exercises and activity leadership requirements. Prereq: RMP 490, RMP Majors only; permission required.

RMP 663 - Recreation and Event Management  
Credits: 4  
This course introduces students to various management processes. These processes include fiscal and budget development and management; policy development and implementation; recreational facility design, operation, and functions. Students gain insight into key areas of management through visitation to recreation and event venues and facilities. RMP Majors Only. Prereq: RMP 490 permission required. Special fee.

RMP 664 - Internship  
Credits: 14-16  
A full-time 14-16 week internship in Therapeutic Recreation or Program Administration. Supervised work experience in an approved professional-related agency. An IA (continuous grading) grade (yearlong course) may be assigned at the end of the semester or summer session. Prereq: majors only; permission. Cr/F.
RMP 668 - Youth Culture and Programs  
Credits: 4  
Emphasizes the identification of community and personal issues youth face in growing up as well as institutional and programmatic support available to assist youth. The course also examines the leadership, administrative, financial, and marketing tools necessary to develop successful youth programs and services. Service learning fieldwork and the completion of a background check are required. Prereq: RMP, RMPPA or RMPTR Majors Only or by permission of the instructor. Writing intensive.  
Attributes: Writing Intensive Course

RMP 680 - Festival and Event Planning  
Credits: 4  
Introduces the planning, marketing, management, and evaluation of festivals and special events. Explores the theories and practices relevant to successful event planning for host community residents and visitors. Prereq: RMP 557 (majors); or by instructor permission (non-majors). Sophomores, Juniors, and Seniors only.

RMP 700H - Senior Honors Project  
Credits: 4-6  
Under the direction of an RMP faculty member, students complete either a supervised research or applied field study project that builds on their honors coursework. Students submit a written proposal for approval and present the results at the completion of their project. Applied studies address a specific need or problem of a local agency or organization. Prereq: permission required.

RMP 705 - Management and Policy in Therapeutic Recreation  
Credits: 4  
Addresses National Council for Therapeutic Recreation Certification knowledge areas concerning management competency. Students acquire knowledge of current principles and procedures for assuming an administrative role in the therapeutic recreation profession. Issues and practices related to budgeting, reimbursement, quality improvement programs, and comprehensive program planning. Prereq: RMP 612, RMP 613.RMPTTR majors only.

RMP 711 - Recreation Resource Management  
Credits: 4  
Examines the supply and demand of natural resources for outdoor recreation uses, with emphasis on relationships between public and private roles and responsibilities. Social, environmental, and economic impacts of outdoor recreation use are discussed. Current principles and techniques of recreation resource planning and management are outlined. Prereq: seniors or permission.

RMP 720 - Adaptive Sports and Recreation Facilitation  
Credits: 4  
This course takes a strengths-based approach to examining adaptive sports and recreation, with a focus on best practices and risk management in community-based settings. This is an experiential learning course, whereby students will learn how to design, plan, and facilitate a variety of adaptive sports for people with disabilities. Students will learn and apply processes for selecting, fitting, and adjusting adaptive sports and recreation equipment for individuals with disabilities. A special course fee will apply.

RMP 724 - Grantsmanship, Evaluation, and Research  
Credits: 4  
Emphasizes understanding and application of grantsmanship, research techniques, and research writing. Addresses the process of program planning and grant proposal development. Examines research methodologies and the evaluation processes as applied to recreation and allied health settings. Critical assessment of uses and limitations of research for recreation. Prereq: RMP 557, and junior or senior RMP major or permission. Writing intensive.  
Attributes: Writing Intensive Course

RMP 730 - Camp Administration and Leadership  
Credits: 4  
Provides students with an understanding of administrative and organizational practices in structured camp settings. Students are exposed to the theory, practice, and challenges of program planning for youth and adult development within the recreation context of camping. Explores current sociological, environmental, economical, and legislative trends influencing contemporary camp management. Permission required.

RMP 750 - Aging, Advocacy, and Active Learning  
Credits: 4  
This course explores the impact of advocacy and social action programs for the aging adult. Course content is explored through the lens of active living emphasizing how leisure and recreation contribute to optimal experiences in later adulthood. Course content includes facilitating the learners' understanding of later life issues within the broader context of health and well-being at the local, state, and national levels. There is an applied action component to this course using a service learning framework.

RMP #768 - Theories and Philosophies of Youth Development  
Credits: 4  
This course provides students with a foundation in the theories and philosophies associated with the field of youth development. In this course, students critically analyze the strengths, limitations, and potential applications of various theories, philosophies, and ideas. Examples include: Developmental Systems Theory, Ecological Systems Theory, protective factors, and developmental assets. Students work or volunteer with a youth program for the duration of the semester in order to facilitate application of course concepts.

RMP 770 - Management and Design of Recreation and Park Facilities  
Credits: 4  
Provides students with an orientation to the theories, design, operation, and functions of recreational facilities. Topics include facility development, operational considerations, and auxiliary functions that impact the manager's role. Students gain insight into key areas of facility management through visitations to actual facilities. Special fee.

RMP 772 - Law and Public Policy in Leisure Services  
Credits: 4  
Topics including the law of torts, contracts, property, civil rights, risk management, and legal research are addressed in the context of leisure services and recreation resources. Public policy and professional advocacy implications are examined in relation to legislative and judicial systems. Prereq: RMP 557, RMP 663, and senior RMP major or permission. Writing intensive.  
Attributes: Writing Intensive Course
RMP 775 - Entrepreneurial and Commercial Recreation  
Credits: 4  
Principles of business planning and development as applied to the private sector leisure services industry. Emphasizes knowledge of key commercial leisure services profiles and their interaction with allied professions such as hospitality and tourism. Course topics include entrepreneurship, business planning, needs assessment, product development, selling, financing, legal designations, and business operations leading to the development of a business plan for a new entrepreneurial recreation enterprise.

RMP 793 - Advanced Topics  
Credits: 2-4  
A) Area and Site Planning, B) Concepts and Trends in Therapeutic Recreation, and C) Conference Planning. Topics presented by instructors with specialized knowledge gained through professional practice, research, and study. Descriptions of topics available in department office during preregistration. May be repeated but not in duplicate areas. 2 to.

RMP 796 - Independent Study  
Credits: 1-4  
Individual study and/or research relating to leisure-oriented topics. Prereq: permission.

RMP 796W - Independent Study  
Credits: 1-4  
Individual study and/or research relating to leisure-oriented topics. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course

Religious Studies (RS)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RS 483W - History of World Religions  
Credits: 4  
Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. (Also offered as HIST 483.) Writing intensive.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Writing Intensive Course

RS 600 - Special Topics  
Credits: 4  
Studies of particular religious traditions, or periods within those traditions, or special topics and issues of concern within religious studies such as mythology, ritual, mysticism, etc. May be repeated up to a maximum of 12 credits.

RS 601 - Seminar in Religious Texts  
Credits: 4  
Close study of sacred text(s) from a particular religious tradition (Islam, Christianity, Buddhism, Judaism, etc.) or a thematic selection of texts across religions. (Also offered as HIST 601.)

RS 699 - Seminar in Religious Studies  
Credits: 4  
Advanced discussion of a particular theme in religious studies, meant both to give students a solid foundation in classic theories of religion and to explore new authors and ideas. Past topics have included ritual, possession, magic, and apocalypticism. Classes are in seminar format and culminate in a final research paper. (Priority to minors in Religious Studies.) Prereq: permission.

RS 795 - Independent Study  
Credits: 2 or 4  
Independent study of traditions, topics, or figures within the scope of religious studies. Before registration, student must formulate a project and secure consent of a cooperating program/faculty member who will supervise the independent study.

RS 796 - Independent Study  
Credits: 2 or 4  
Independent study of traditions, topics, or figures within the scope of Religious Studies. Before registration, student must formulate a project and secure consent of a cooperating program/faculty member who will supervise the independent study.

Russian (RUSS)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RUSS 401 - Elementary Russian I  
Credits: 4  
For students without previous training in Russian. An introduction to contemporary standard Russian. Includes a cultural component. Topics include those which enable students to function in Russian in everyday situations (i.e. food, leisure activities, literature, transportation, music, sports, daily life.) Special fee.

RUSS 402 - Elementary Russian II  
Credits: 4  
See description for RUSS 401.
Attributes: Foreign Language Requirement

RUSS 425 - Introduction to Russia: Contemporary Society and Culture  
Credits: 4  
Introduction to contemporary Russian society and culture in English. Examines the "Russian mind" (as it was before 1917), the "Soviet mind," and how the two have clashed. A closer examination of how the Russians are adapting to the changes that have taken place in their country since the collapse of communism. Readings, films, realia. Themes to be discussed include leadership; authority and power; the Russian soul; family, women, youth, education, holidays and celebrations; and the new Russians. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

RUSS 425M - Topics in Russian Culture and Society in Moscow  
Credits: 4  
Introduction to contemporary Russian society and culture in English. Examines the "Russian mind" (as it was before 1917), the "Soviet mind" and how the two have clashed. A closer examination of how the Russians are adapting to the changes that have taken place in their country since the collapse of communism. Readings, film, realia. Themes to be discussed include leadership; authority and power; the Russian soul; family; women, youth, education, holidays and celebrations; and the new Russians. Through pre-departure readings and on location, each culture and historical topic is taught on site during field trips and after field trip discussions, lectures, and round tables. A focus topic is explored on location with pre- and post program research. Special fee. Permission required.
Attributes: World Cultures(Discovery); Foreign Culture GP 5
RUSS 500 - Selected Topics in World Literature  
Credits: 4  
Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, PORT 500, SPAN 500.) May be repeated for credit. Special fee.  
Attributes: Literature, Phil, Ideas GP 8

RUSS 500W - Topics in World Literature  
Credits: 4  
Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, PORT 500, SPAN 500.) May be repeated for credit. Special fee. Writing intensive.  
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

RUSS 503 - Intermediate Russian I  
Credits: 4  
Continued work in grammar, and writing with cultural components.  
A review of the fundamentals of grammar and syntax. Readings and cultural material included. Topics include: university life, travel, cultural activities, cooking, politics. Special fee.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

RUSS 504 - Intermediate Russian II  
Credits: 4  
Continued work in grammar, and writing with cultural components.  
A review of the fundamentals of grammar and syntax. Readings and cultural material included. Topics include: university life, travel, cultural activities, cooking, politics. Special fee.  
Attributes: World Cultures(Discovery); Foreign Culture GP 5

RUSS 521 - Devils, Deities, and Madness in Russian Literature  
Credits: 4  
Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on the themes of devils, deities, and madness. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites. Special fee.  
Attributes: Literature, Phil, Ideas GP 8; Inquiry (Discovery)

RUSS 521W - Devils, Deities, and Madness in Russian Literature  
Credits: 4  
Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on the themes of devils, deities, and madness. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites. Special fee. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

RUSS 522W - Morality, Sex and Revolution in Russian Literature  
Credits: 4  
Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on themes of morality, sex, and revolution. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites. Special fee. Writing intensive.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8; Inquiry (Discovery); Writing Intensive Course

RUSS 525 - Russia: Mythology and Propaganda  
Credits: 4  
Exploration of the relationship between mythology and culture as a part of the cultural identity of the Russian people, before the 1917 Revolution, during the Communist period, and since the fall of the Soviet Union. Focus on pre 1917 Slavic pagan, Christian, and folk mythology vis-a-vis Western mythology, on 20C propaganda and control of the "public mind" designed to reshape national identity and on the current deconstruction, reform, and rebirth of the old mythology. Special fee.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

RUSS 525M - Russia: Mythology and Propaganda in Moscow  
Credits: 4  
Exploration of the relationship between mythology and culture as a part of the cultural identity of the Russian people, before the 1917 Revolution, during the Communist period, and since the fall of the Soviet Union. Focus on pre 1917 Slavic pagan, Christian, and folk mythology vis-a-vis Western mythology, on 20C propaganda and control of the "public mind" designed to reshape national identity and on the current deconstruction, reform, and rebirth of the old mythology. Course conducted on location in Russia and on line. Special fee.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

RUSS 531 - Russian Language for Heritage Speakers  
Credits: 4  
Intensive 5 week on-line course for Russian heritage speakers. Learn cursive Cyrillic; spelling rules, language structure. Build vocabulary to achieve a higher level of language expression. Grammar topics based on culture related text. Course is fully on line (quizzes, tests, video, supporting materials, on line meetings.) For students who can speak Russian, but who have not formally learned Russian. Special fee.

RUSS #593 - Myths, Visions and Issues in Russian Literature and Society  
Credits: 4  
Discussion and analysis of topics and authors in Russian literature, film, and culture. A variety of different topics or authors is covered each semester: (A) the Giants of Russian Literature: Dostoevsky and Tolstoy, (B) Dostoevsky, (C) Tolstoy, (D) Jewish Voices in the Russian Empire, (E) The Devil in Russian Literature, (F) the Myth of St. Petersburg, (G) Death and Revolution, (H) Russian Fairy Tales, (I) Drama, (J) Women's Voices, etc. Lectures, readings, and films with English subtitles, and discussions in English. Open to all students. Special fee.  
Attributes: Literature, Phil, Ideas GP 8

RUSS 595 - Russian Practicum  
Credits: 2  
Participants earn credit for approved, uncompensated, pre-professional activities and special projects, including K12 outreach, assisting in undergraduate courses, work with professional organizations, businesses, social services, non-profits, NGOs or educational organizations in a Russian context and with on-site supervision. Writing assignments are required and vary depending upon the project. Enrollment limited to sophomores, juniors and seniors who are Russian majors and have a B or above average in Russian language courses. Cr/F.

RUSS 601 - Russian Conversation and Phonetics  
Credits: 4  
Practical application of fundamental phonetic theory of spoken Russian. Designed to increase fluency and accuracy in conversation. Prereq: RUSS 504 with a grade of C or better; permission. Special fee.
RUSS 631 - Advanced Russian Conversation and Composition
Credits: 4
Advanced spoken and written Russian designed to include all four language skills (speaking, reading, writing, listening.) Readings on contemporary cultural topics and vocabulary building. Composition and conversation based on Russian-language media and literature. Special fee.

RUSS 632 - Advanced Russian Conversation and Composition
Credits: 4
Advanced spoken and written Russian designed to include all four language skills (speaking, reading, writing, listening.) Readings on contemporary cultural topics and vocabulary building. Composition and conversation based on Russian-language media and literature. Special fee.

RUSS 685 - Study Abroad
Credits: 16
Studies at a Russian institution of higher learning. Interested students should consult with a Russian advisor. Prereq: primarily for juniors and seniors who have completed RUSS 632 or equivalent with a grade of B (3.00) or better. Special fee. Cr/F. (IA grade will be assigned until official transcript is received from the foreign institution.)

RUSS 686 - Study Abroad
Credits: 4-16
Studies at a Russian institution of higher learning. Interested students should consult with a Russian advisor. Prereq: primarily for juniors and seniors who have completed RUSS 632 or equivalent with a grade of B (3.00) or better. Special fee. Cr/F. (IA grade will be assigned until official transcript is received from the foreign institution.)

RUSS 691 - Readings in Russian Literature
Credits: 1-4
Linguistic and stylistic characteristics of works of important authors of the 19th and 20th centuries. Readings, lectures, and papers entirely in Russian. Special fee. Writing intensive.
Attributes: Writing Intensive Course

RUSS #693 - Myths, Visions and Issues in Russian Literature and Society
Credits: 4
Same as RUSS #593, except that in addition majors are required to do selected readings in Russian and/or conduct research assignments in English on a specified topic. Final project required. Writing intensive option. Special fee.

RUSS 721 - Topics in Contemporary Russian Literature: From Chekhov to Post-Modernism
Credits: 4
Reading, discussion, and close analysis of works of prose fiction and/or poetry from post-19th-century Russian literature within various contexts (literary-historical, socio-political, cultural, artistic, etc.) of the given period. All readings, written assignments, and class discussion in Russian. Prereq: RUSS 691 or equivalent or by permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

RUSS 725 - Topics in Russian Culture and Society
Credits: 4
Historical, geographical, social, political, intellectual and artistic developments in Russia that have influenced contemporary Russian society and culture. Readings, class discussions, and films. Conducted entirely in Russian. Special fee. Writing intensive.
Attributes: Writing Intensive Course

RUSS 725M - Topics in Russian Culture and Society in Moscow
Credits: 4
Historical, social, political, intellectual and artistic developments in Russia that have influenced contemporary Russian society and culture. Designed to give a deeper introspection into Modern Russian and its society, and a firsthand dialogue with the most significant sites in Russian civilization. Through pre-departure readings and on location, each cultural and historical topic is taught on site during fieldtrips and after field trip discussions. Readings, class discussions and films. Conducted entirely in Russian. A focus topic is explored on location with pre and post program research. Special fee. Prereq: RUSS 504 or equivalent.

RUSS 733 - History of Slavic Languages and Culture
Credits: 4
A survey of the history of the Russian language in a historical and cultural context. Overview of the changes in sounds, structure and vocabulary from Proto-Indo-European through Old Church Slavic, Old Russian to contemporary Russian. Readings and discussions of historical events, culture and civilization parallel the chronology of the studied linguistic period. Special fee.

RUSS 790 - Advanced Language and Style
Credits: 4
For students who have a strong, active control of grammar. The most difficult problems of Russian grammar and syntax in poetry and prose. Develops confidence in expression both in everyday situations and in abstract concepts (emphasis on the latter). Prereq: grade of C or better in last Russian language course taken. Special fee. Barring duplication of material, may be repeated for a maximum of 8 credits. Writing intensive.
Attributes: Writing Intensive Course

RUSS 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the Russian program coordinator and the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

RUSS 796 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the Russian program coordinator and the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

RUSS 797 - Special Studies in Russian Language, Literature, and Culture
Credits: 2 or 4
Selected topics in language, literature, and culture. Barring duplication of subject, may be repeated for credit. Special fee. Writing intensive.
Attributes: Writing Intensive Course

RUSS 798 - Special Studies in Russian Language, Literature, and Culture
Credits: 2 or 4
Selected topics in language, literature, and culture. Barring duplication of subject, may be repeated for credit. Special fee. Writing intensive.
Attributes: Writing Intensive Course

Sign Language Interpreting (INTR)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Attributes</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTR 430</td>
<td>Introduction to Interpretation</td>
<td>4</td>
<td>A survey of traditional and contemporary perspectives on interpretation and interpreters; introduces the cognitive processes involved in interpretation and factors that influence those processes. Several models of interpretation explored. Particular attention given to interpretation as an intercultural, as well as inter-lingual, process. Students engage in a research project related to course content.</td>
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<tr>
<td>INTR 438</td>
<td>A Socio-cultural Perspective on the Deaf Community</td>
<td>4</td>
<td>Introduction to the deaf community and deaf culture. Discussion of similarities to, and differences from, mainstream hearing culture. Supplemental videotapes focus on aspects of culture including deaf education, autobiographical sketches, deaf norms and values, and deaf literature and folklore. Theoretical issues of culture and linguistics applied to deaf culture, American Sign Language, and the variety of cultural perspectives of the deaf community. Students engage in a research project related to course content. Prereq: INTR 430. Writing intensive.</td>
<td>Social Science (Discovery); Foreign Culture GP 5; Writing Intensive Course</td>
<td></td>
</tr>
<tr>
<td>INTR 439</td>
<td>Ethics and Professional Standards for Interpreters</td>
<td>4</td>
<td>Seminar course using readings, theory, and discussion of hypothetical situations and role plays to explore ethical standards and dilemmas in ASL-English interpretation. Covers personal and professional values, ethics, and morality; professional principles; power; responsibility, and group dynamics; the interpreter’s role; cross-cultural issues; and the decision-making process. Students engage in a research project related to course content. Prereq: INTR 430. Writing intensive.</td>
<td>-</td>
<td>Prereq: ENGL 401</td>
</tr>
<tr>
<td>INTR 532</td>
<td>Simultaneous Interpretation</td>
<td>4</td>
<td>Theorizes and introduces simultaneous interpretation. The focus of this course is on interactive discourse (dialogues). Particular attention is given to processes involved in the transition from consecutive to simultaneous interpreting, and determining when to use each mode of interpretation. The advantages and limitations of both types of interpreting are compared. Students apply theoretical information to the process of simultaneous interpreting. Students also engage in a research project related to course content. Prereq: INTR 630. Lab.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>INTR 599</td>
<td>Special Topics</td>
<td>1-4</td>
<td>Occasional offerings dependent on availability and interest of faculty. Barring duplication of subject, may be repeated up to a maximum of 8 credits.</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Social Work (SW)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
SW 424 - Introduction to Social Work  
**Credits:** 4  
Introduces the learner to the field of social work with emphasis on the “person-in-environment” and attention to a range of practice approaches to understanding and assisting of the human condition. An overview of the history, values, and ethics of the profession. Includes various fields of practice in which social workers are employed. Special fee.

**Attributes:** Social Science (Discovery); Social Science GP 7

SW 440A - Honors/Healthy Communities: Personal Accountability and Social Change  
**Credits:** 4  
This course utilizes theory and concepts from biology, sociology, psychology, political science, history, urban planning as well as social work to examine and promote healthy communities. Students will develop an interdisciplinary knowledge of community health and a value-based understanding of social advocacy in the community context. Important course topics include: social-economic-environmental justice, sustainable communities, community organization, community capital, and empowerment. Prereq: permission.

**Attributes:** Social Science (Discovery); Social Science GP 7

SW 444 - You've Got Your Troubles, I've Got Mine  
**Credits:** 4  
A seminar for traditional first- or second-year students. Examines the many personal losses typical for students leaving home for the first time. Guest speakers from various disciplines (e.g., social work, therapeutic recreation, nursing, family studies). The various ways one may find and give informal support to others dealing with loss are explored. In addition, the personal responses allowing one to better cope with adversity and ways of expressing grief are explored. Group work brings the class together as an informal support network. Students exchange ideas in techniques used to deal with personal loss and develop an informal support network to use after the course has ended.

**Attributes:** Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

**Credits:** 4  
An overview of the history and current status of social welfare policy in the United States. Considers the origins, development, and analysis of significant policies, values, attitudes and other issues related to the social welfare system and the delivery of service. Focuses on policy analysis from a social and economic justice perspective.

**Attributes:** Historical Perspectives(Disc); Social Science GP 7

SW 550 - Human Behavior and Social Environment I  
**Credits:** 4  
Introduces human behavior and development as it influences and is influenced by multiple factors in the social environment, including individual genetic and biological composition, race, gender, age, socioeconomic status, ethnicity, geographic location, physical appearance, and ability. How these factors operate throughout the life cycle. Provides a knowledge base and perspective to understand a client’s behavior, attitude, and values in relation to the attitudes and values of the social work professional and the larger society.

**Attributes:** Social Science (Discovery); Social Science GP 7

SW 551 - Human Behavior and Social Environment II  
**Credits:** 4  
Agents of socialization that most significantly affect family, group, and organizational development and behavior within an ecosystems framework. Particular attention is paid to the influence of class, gender, race, ethnicity, religion, age, sexual orientation and other aspects of diversity on development and behavior of larger systems.

**Attributes:** Social Science (Discovery); Social Science GP 7

SW 601 - Research Methods in Social Work  
**Credits:** 4  
Introduces students to practitioner-researcher role in social work. Critical evaluation of, and introduction to research including project design, survey and evaluative methodologies. Introduction to statistics used in research process. Each student completes an individual research project. Cannot be taken for credit after SOC 601 or PSYC 502. Prereq: SW 424 and junior or senior standing or permission. Writing intensive.

**Attributes:** Writing Intensive Course

SW 622 - Social Work Practice: Interventions with Individuals and Families  
**Credits:** 4  
Introduces methods and practice. Basic principles, values, and ethics, interviewing skills, problem assessment, and contracting of social work practice with individuals and families are studied. Skills training in lab sessions. Prereq: SW 424 or permission of instructor. Must have junior or senior status. Writing intensive.

**Attributes:** Writing Intensive Course

SW 623 - Social Work Practice: Interventions with Groups, Organizations and Communities  
**Credits:** 4  
Continuation of SW 622. Delineation and study of intervention and change strategies differentiated with individuals, groups, and communities. Prereq: SW 622. Writing intensive.

**Attributes:** Writing Intensive Course

SW 625 - Social Welfare Policy in a Global Context  
**Credits:** 4  
Builds on the curricular content covered in Introduction to Social Welfare Policy (SW 525). Both courses view social welfare policy as the framework from which social work services are developed and delivered. This course examines the macroeconomic context for policy analysis and advocacy and integrates policy and practice through student research and analysis of specific social problems. Policymaking is analyzed in legislative, community, organizational, and global environments emphasizing advocacy in the pursuit of social and economic justice. Prereq: SW 424, SW 525. Special fee.

SW 640 - Social Work Field Experience I  
**Credits:** 5  
Majors are placed in a social welfare setting for a minimum of 225 hours; individual arrangements with faculty coordinator. Prereq: SW 622. Special fee. (No credit toward a minor.) Cr/F.
SW 640A - Social Work Field Experience I: Seminar
Credits: 3
This weekly seminar, held concurrently with Social Welfare Experience I, integrates the field experience with social work theory and concepts learned throughout the curriculum by class discussion, exercises, readings and written assignments. Seminar I provides an opportunity for orientation to field, an overview of field requirements, review of the Code of Ethics, and use of small group discussion for problem solving. Students learn to use supervision effectively, to participate in the helping process, and to manage their own stress. Students learn to assess the impact of policy on the client system, agency and worker and to use research to inform practice. Prereq: SW 622.

SW 641 - Social Work Field Experience II
Credits: 5
A continuation of SW 640 with a minimum of 225 hours. Prereq: SW 640. (No credit toward a minor.) Cr/F.

SW 641A - Social Work Field Experience II: Seminar
Credits: 3
This is a continuation of Social Welfare Field Experience I: SW 640A and builds upon the concepts presented in the student's first field practice seminar. This seminar meets weekly for one and a half hours and is held concurrently with the field placement. It is designed to integrate the field experience with social work concepts through class discussion, reading and written assignments. Topics include but are not limited to, understanding and using agency structure to enhance client interactions, preparing client assessment and other documents, enhancing the client-worker therapeutic interaction, effective use of supervision, effective use of self in practice, prevention of burn-out, termination with clients and with agency staff, and values and ethics. Prereq: SW 640/SW 640A.

SW 650 - Exploring Social Justice and Cultural Competency Using an Experimental Learning Approach
Credits: 4
This course explores the use of experiential activities to address social justice issues and cultural competency. Students will experience an interactive activity-based approach to build self-awareness and techniques for working with specific client groups. The course focuses on methods and activities using metaphorical development and facilitation to promote dialogue and reflection. (Can be used to satisfy SW Distribution Requirement).

SW 697 - Special Topics in Social Welfare
Credits: 4
Seminar for advanced majors. Topics may include: Alcohol and Alcoholism, Drugs and Chemical Dependency, Income Maintenance, Health Care, Child Welfare, Aging, Mental Health, or Developmental Disabilities. or study travel experiences. May be repeated for different topics. Prereq: permission. Special fee for course trip.

SW 701 - Women and Aging
Credits: 4
Analysis of the major theories about social conditioning of aging women and its effects in contemporary society. Human service response. psychosocial, biological, legal, and economic implications. Prereq: junior, senior status or permission.

SW 705 - Child and Adolescent Risks and Resiliency: Program, Policy and Practice
Credits: 4
Examination of the major policy and program questions of child welfare with a focus on child care and protection, adoption and foster care, juvenile delinquency, service delivery, and concepts of treatment in public and private programs. Prereq: junior, senior status or permission.

SW 706 - Social Action in the Dominican Republic
Credits: 4
This course examines issues of culture, poverty, social development and social justice in the Dominican Republic through both service learning work and through preparatory and reflective class sessions and discussions. Students will examine social and economic development issues within a global framework and will explore efforts to improve conditions on this island nation. The service learning component includes working on a designated construction project and volunteering in a local elementary school. Students will also collaborate with community leaders to learn more about social, cultural and historical issues and will engage in a variety of cross-cultural activities. Students will engage with the local Haitian immigrant community, tour local schools and orphanages, and visit historical areas including the Zona Colonial of Santo Domingo. The primary part of the class will take place during March spring break. Special fee.

SW 711 - Understanding Mental Illness
Credits: 4
An overview of the public mental health system focusing on people affected by severe and persistent mental illness. Reviews the current service system and its history; major mental illness, psychosocial rehabilitation, and treatment; and community support systems. Prereq: junior, senior status or permission.

SW 712 - Understanding Developmental Disabilities
Credits: 4
Analysis of the complex social contexts of people with developmental disabilities. Explores and questions traditional approaches and the current system. Examines family and community services and resources. Prereq: junior, senior status or permission.

SW 713 - School Social Work
Credits: 4
The course examines the school as a social institution that serves to educate and socialize children into US society and the role of the social worker in the school setting. Readings, activities, and discussions provide practical skills and theory for school social work practice. The course content addresses the history of school social work integrating social work values into a school setting, systemic needs within school settings, the importance of networking and professional collaboration, and working with diverse and at-risk youth and their families. Students also examine the role of school social workers in helping students, schools and families adjust to and cope with trauma, special education needs, and related topics.

SW 714 - Drugs and Alcohol: Use, Misuse and Addiction
Credits: 4
This course examines a) historical, cultural, social aspects of alcohol, b) impact of alcohol on body and behavior, c) progression of drinking and the treatment and prevention of alcoholism, d) impact of addiction on families. Prereq: junior, senior status or permission.

SW 715 - Practice with Gay, Lesbian, Bisexual, and Transgender People
Credits: 4
Sexual minorities constitute the minority group social workers most consistently encounter wherever they work. Addresses practice with gay, lesbian, and bisexual people on both professional and personal levels for the social worker. The readings include theoretical, experimental, clinical, counseling, and personal perspectives, as well as providing an introduction to the gay/lesbian/bisexual subculture. A unit on gender minorities is included. Students are also required to explore and examine their own attitudes and assumptions about gays, lesbians, bisexuals, and gender minorities. Prereq: junior, senior status or permission. (Also offered as SW 815.)
SW 785 - Study Abroad: Comparative Social Welfare Systems
Credits: 4
Students examine the historical development of social welfare in another country including an analysis of the underlying values and attitudes that dictate practice and policy decisions. Includes agency site visits, lectures, themed readings, and visits to important cultural sites. Prereq: SW 424 and SW 525; junior, senior status or permission. Special fee.

SW 795 - Independent Study in Social Service
Credits: 1-6
Independent work under department faculty guidance. Enrollment by permission only through arrangement with specific faculty. May be repeated with a different focus to maximum of 8 credits. Prereq: 12 hours social service coursework; permission. Cr/F. Special fee.

SW 796 - Independent Study: Teaching Assistantship
Credits: 1-6
Participating students provide leadership and supervision for small groups of social work majors in social work practice simulations. Student teaching assistants work closely with, and under the direction of, department faculty. May be repeated to a maximum of 8 credits. Prereq: senior status; 16 hours in social work; and permission. Cr/F.

SW 797 - Special Topics in Social Welfare
Credits: 4
Seminar for advanced majors cross-listed with SW 897. Topics may include: alcohol and alcoholism, drugs and chemical dependency, income maintenance, health care, child welfare, aging, mental health, or developmental disabilities or study travel experiences. May be repeated for different topics. Prereq permission.

SW 797H - Honors Thesis
Credits: 2-4
Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq for 797H: admission to the SW honors program; senior status, 16 hours in social work and permission.

SW 798H - Honors Thesis
Credits: 2-4
Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq: satisfactory completion of 797H; senior status, 16 hours in social work and permission. 6 credit maximum for both semesters.

Sociology (SOC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SOC 400 - Introductory Sociology
Credits: 4
Overview of sociology as the scientific study of human social and cultural relationships. Social theory, methods and techniques of research, and current research findings on a wide range of social issues. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7

SOC 400H - Honors/Introductory Sociology
Credits: 4
Overview of sociology as the scientific study of human social and cultural relationships. Social theory, methods and techniques of research, and current research findings on a wide range of social issues. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

SOC 400W - Introductory Sociology
Credits: 4
Overview of sociology as the scientific study of human social and cultural relationships. Social theory, methods and techniques of research, and current research findings on a wide range of social issues. Writing intensive.
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

SOC 440A - Honors/Drug Addiction in American Society
Credits: 4
This course will introduce students to interdisciplinary topics in the study of drug addiction, drug panics, and the U.S. war on drugs. It will draw on scholarly and journalistic research to consider sociological theories, methods, and data gathering techniques in the study of addiction, and it will explore ways in which individuals create, interact with, and are shaped by social groups and institutions, including those associated with politics, health, economics, family, and the legal system.
Attributes: Social Science (Discovery); Social Science GP 7

SOC 444A - Society in the Arctic
Credits: 4
Introduction to societies of the far North today, from Alaska and Canada through Greenland, Iceland, northern Scandinavia and Russia. Reviews interconnected issues of social change, environment, sustainable development, local control, and modernization vs. traditions. Arctic dilemmas highlight some basic questions facing all societies in the 21st century. Writing intensive.
Attributes: Environment, TechSociety(Disc); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

SOC 502 - Statistics
Credits: 4
Elementary applied statistical techniques; tables, graphs, cross-clarifications; central tendency and dispersion; correlation and linear regression; confidence intervals and hypothesis testing. Other statistical classes including ADM 430, BIOL 528, ADMN 420, EREC 525, HHS #540, MATH 439, MATH 539, OHIL 412, MATH 644, PSYC 402 cannot be used to satisfy the major requirement. This is, all majors must take SOC 502 even if they have taken an introductory statistics course in another department. A student can, however, petition to receive eight credits for two introductory statistics courses, if and only if, SOC 502 is taken after the student became a sociology major and took their first statistics course prior to declaring SOC as their major. Majors cannot receive credit for statistics courses taken after they have declared SOC.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2
SOC 502H - Honors/Statistics
Credits: 4
Elementary applied statistical techniques; tables, graphs, cross-classifications; central tendency and dispersion; correlation and linear regression; confidence intervals and hypothesis testing. No credit for students who have completed ADM 430, BIOL 528, ADMN 420, EREC 525, HHS #540, MATH 439, MATH 539, MATH 644, PSYC 402, but petitions for acceptance of such courses to fulfill the sociology major requirement in statistics will be entertained.
Attributes: Quantitative Reasoning(Disc); Quantitative Reasoning GP 2

SOC 515 - Introductory Criminology
Credits: 4
Introduces the scientific study of crime. Reviews the different forms of criminal behavior, theories of crime, and strategies of crime control.

SOC 520 - Family
Credits: 4
Sociological study of marriage and the family in American society. Following a life-cycle approach, topics include gender roles, communication and conflict, dating and mate selection, work and family economics, the transition to parenthood, middle- and late-life family, divorce, and remarriage.
Attributes: Social Science GP 7

SOC 525 - Juvenile Crime and Delinquency
Credits: 4
Crime, violence, and the criminal justice system as it affects children and youth in the role of both perpetrators and victims.

SOC 535 - Homicide
Credits: 4
Introduces to theory and research in homicide studies, including a review of the origins of and social responses to homicide.

SOC 540 - Contemporary Social Problems
Credits: 4
This course introduces students to the study of major social problems in contemporary society, including poverty, discrimination, inequality, crime, violence, and environmental degradation. Explores how and why people come to view certain social conditions as problematic. Also explores the consequences of and possible solutions to contemporary social problems. This course fulfills the requirement in the Social Science category of UNH's Discovery Program.
Attributes: Social Science (Discovery); Social Science GP 7

SOC 545 - Sexualized Violence
Credits: 4
Students examine the spectrum of sexualized violence in contemporary society. Topics include theoretical and methodological issues inherent in researching gender-based violence in the U.S. and in Europe. Students study sexualized violence in historical context, with particular attention to war, conflict, and military settings as well as examples of the impact of sexualized violence in everyday life. Finally, we explore how the pornography industry normalizes sexualized violence.

SOC 555 - Environment and Society
Credits: 4
Environmental and Society focuses on the complex interactions between human communities and the natural world. The course considers the interconnected ways that social systems, the built environment, and related technologies produce environmental changes, and in turn how shifts in resources, air, water quality, climate, biodiversity, and ecosystems force societies to adapt. This course fulfills in the Environment, Technology, and Society category of UNH's Discovery Program.
Attributes: Environment, Technology, Social Science GP 2

SOC 565 - Environment and Society
Credits: 4
Introduces to theory and research in homicide studies, including a review of the origins of and social responses to homicide.

SOC 570 - Sexual Behavior
Credits: 4
This course approaches sexuality as a social phenomenon. We examine variability in sexual practices, sexual identities, and sexual behaviors throughout history, across cultures, and throughout the life course of individuals. Particularly, we focus on the social control of sexuality and the extent to which sexualities are socially constructed. We consider the media and other cultural influences on a diverse range of sexual experiences and take a straightforward, non-stigmatizing approach to tackling controversial issues.

SOC 595 - Independent Reading and Research
Credits: 2-8
Independent study of advanced or specialized topics in sociology requiring extensive reading and writing. Before registering, students must develop a project in consultation with a faculty supervisor and submit a proposal to the undergraduate committee. Prereq: 12 sociology credits and permission.

SOC 597 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics.
Attributes: Inquiry (Discovery); Writing Intensive Course

SOC 599 - Sociological Analysis
Credits: 4
Basic skills essential to sociological study, including: development of critical reading skills; evaluation of theory construction and evidence; analysis of classic and contemporary works, research, writing, and use of library resources. To be taken by sociology majors no later than the junior year. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

SOC 601 - Methods of Social Research
Credits: 4
Overview of major research methods: survey analysis, personal interview, participant observation, content analysis, and experimental design. Each student designs and completes a research project. Prereq: SOC 502 or equivalent and SOC 599; juniors and seniors only. Writing intensive.
Attributes: Writing Intensive Course

SOC 611 - Sociological Theory
Credits: 4
Analysis of the origins and development of sociological theory. Includes the classical works of Marx, Weber, and Durkheim and their connections to the major strands of present day research. Writing intensive.
Attributes: Writing Intensive Course
SOC 620 - Drugs and Society
Credits: 4
Provides students with an overview of drug use behavior as viewed from a sociological perspective. Highlights historical and current drug use trends, examines the social correlates of drug use, considers societal responses to drug use including treatment, prevention, and policy, and engages students in key controversial debates confronting U.S. citizens and policymakers. Provides a foundation for understanding of drugs and society.

SOC 625 - Mental Health and Society
Credits: 4
This course introduces students to sociological approaches for studying and understanding mental health and illness in society. With an emphasis on the importance of social stress, we examine the distribution of mental illness in the United States and identify the factors that help to explain mental health differences across social roles and statuses.

SOC 630 - Sociology of Gender
Credits: 4
Gender examined as (1) socially constructed differences between the sexes, and (2) a system of social relations, which are part of the fabric of our social institutions. Topics include gender socialization, gender and education, gender and employment, and work-family intersections. Attention paid to the issue of gender inequalities and to the intersection of class, culture, race-ethnicity, age, and sexual orientation with gendered experience and gendered institutions. Focuses primarily on the contemporary United States.

SOC 635 - Medical Sociology
Credits: 4
Health and illness are considered a sociocultural phenomenon. Meanings are attached to health and illness as they are influenced by our social values and our cultural beliefs, which to a large degree are influenced by available medical technologies. People’s experiences of health and illness are shaped by a range of social factors (e.g., race, class, gender) and follow clear patterns of social inequality. A critical approach is taken to examine topics such as the social determinants of health, illness and healthcare; the social construction of illness; the medicalization of society; and the social organization of health care.

SOC 635W - Medical Sociology
Credits: 4
Health and illness are considered as a sociocultural phenomenon. Meanings are attached to health and illness as they are influenced by our social values and our cultural beliefs, which to a large degree are influenced by available medical technologies. People’s experiences of health and illness are shaped by a range of social factors (e.g., race, class, gender) and follow clear patterns of social inequality. A critical approach is taken to examine topics such as the social determinants of health, illness and healthcare; the social construction of illness; the medicalization of society; and the social organization of health care. Writing intensive.
Attributes: Writing Intensive Course

SOC 640 - Religion
Credits: 4
The continuing significance of religion in society is a central area of sociological inquiry. Examines the historical and cultural explanations for the persistence of religion and apply diverse sociological perspectives to explaining the personal, institutional, and cultural relevance of religion with a focus on contemporary American society. Topics studied include religious authority, identity, violence, and the impact of religion on various domains of social life including gender relations, family, politics, and economy. Writing intensive.
Attributes: Writing Intensive Course

SOC 645 - Class, Status and Power
Credits: 4
Focuses on the major dimensions of inequality, including class, gender, and race, by exploring the distribution of economic, political, and social resources within contemporary societies.

SOC 655 - Sociology of Law and Justice
Credits: 4
Systematic study of how social factors, such as inequality, differentiation, culture, and organization, influence the justice process. Historical and cross-cultural focus on the behavior of the police, courts, and other legal institutions. Prereq: SOC 515 or permission; juniors and seniors only.

SOC 656 - Terrorism
Credits: 4
This course provides a global assessment of the definition and nature of terrorism, trends in terrorism over the course of the past several decades, perspectives concerning the degree to which cultural, economic, and political conflict contribute to terrorism, and alternative means for dealing with terrorism in the age of globalization.

SOC 660 - Urban Sociology
Credits: 4
Focuses on urban communities, urbanization, and urban social issues. Covers the historical development of cities; the differences between urban, suburban, and rural communities; urban life styles; and the significance of poverty and race for understanding contemporary American cities. Emphasizes American cities, with some consideration to world patterns of urbanization and the growth, development, and role of global cities. Writing intensive.
Attributes: Writing Intensive Course

SOC 665 - Environmental Sociology
Credits: 4
Interactions between society and the physical environment, including environmental constraints, population and economic growth, social impacts of resource development, large-scale environmental change, and the social bases of environmental attitudes, behavior, and politics. Writing intensive.
Attributes: Writing Intensive Course

SOC #680W - Sociology of the Holocaust
Credits: 4
Examines the origins, realities, and consequences of the Holocaust as an all-embracing European phenomenon. Topics include the genocidal policies and procedures of the Nazis and Soviets with respect to indigenous populations as well as the role of collaborators. This course is normally offered only at UNH-Manchester. Writing intensive.
Attributes: Writing Intensive Course
SOC 685 - Work and Occupations
Credits: 4
Examines the changes in workplace organizations and workers' lives, the emergence of new service and financial occupations, and how globalization, technology, and the increased presence of women in the labor force are impacting work and individuals' experiences of work.

SOC 693 - Global Social Change
Credits: 4
This course explores the causes and consequences of social change in societies around the world. Case studies of important social trends such as the diffusion of culture, international migration, health pandemics, changing status of women, environmental degradation, and promoting more equitable development enable investigation of the broad social implications of the process of globalization. Writing intensive.
Attributes: Writing Intensive Course

SOC #695 - Research on Family Violence in World Perspective
Credits: 4
The nature, frequency, causes, and consequences of family violence, including physical, verbal, material, and sexual abuse of children; of partners in dating, cohabitating, and marital relationships; and of the elderly; and also neglect of children and the elderly. Includes data analysis projects to provide experience with cross-national comparative research to test theories about social causes of family violence and the effects of family violence on society as a whole. Prereq: SOC 502 (or equivalent), SOC 601.

SOC 697 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics. Writing intensive.
Attributes: Writing Intensive Course

SOC 699 - Senior Thesis
Credits: 4 or 8
Independent work in the library or field culminating in a written senior thesis. Recommended for, but not confined to, majors intending to pursue graduate studies. Students must arrange for supervision from two faculty members and submit a proposal to the Undergraduate Committee before registering. May be completed in one or two successive semesters during the senior year. Permission required. May be repeated up to a maximum of 8 credits.

SOC 699H - Senior Honors Thesis
Credits: 4 or 8
Independent work in the library or field culminating in a written senior honors thesis and a formal research presentation. Recommended for, but not confined to, majors intending to pursue graduate studies. Required for students participating in the departmental honors program as part of their 16 honors credits. Students must arrange for supervision from two faculty members and submit a proposal to the Undergraduate Committee before registering. May be completed in one or two successive semesters during the senior year. Permission required. May be repeated up to a maximum of 8 credits.

SOC 715 - Criminological Theory
Credits: 4
Introduces graduate students and advanced undergraduates to the major theoretical literature in crime and delinquency. Covers both classical and contemporary theory, with empirical assessments of theories, including macro- and micro-level control, strain, and learning theories, as well as recent developments in biosocial, deterrence, labeling, and critical/feminist theories. Permission required.

SOC 720 - Sociology of Drug Use
Credits: 4
Examines licit and illicit drug use from a sociological perspective. Draws primarily from the sociology of mental health and criminology to explore a variety of drug-related topics including historical and current U.S. drug trends, dominant theoretical approaches about the initiation into, and continued use of drugs, drug-related crime, therapeutic use of drugs, prevention and treatment of drug problems, and drug-related policies. Permission required.

SOC 725 - Social Demography
Credits: 4
Social demography examines the linkages between changes in the size, composition and distribution of the population and changes in social, environmental, economic and political factors. The course examines demographic methods and the materials and the analytical techniques used by demographers to analyze population redistribution, fertility, work, marriage, migration and mortality. The policy implications of demographic change will be examined with attention to the U.S. as well as the developed and developing world. Permission required.

SOC 730 - Communities and the Environment
Credits: 4
People and the natural environments in which they live fundamentally structure communities around the globe. Economic change, expanding development, and human migration are transforming social and environmental conditions in both rural and urban settings, altering the identities of many communities as well as their relationships with the natural world. The importance of these emerging social and environmental issues has made them a focus for social science inquiry. This course exposes students to a range of sociological concepts, theories, and research approaches related to the study of communities and environmental issues. Some of the substantive themes that are covered include: population dynamics and environmental change; social capital and social networks; political economy and community development; collective action and social movements; science, technology, and environmental risks; and environmental racism and justice. The principal assignment for the course will be a research project where students investigate a community or environmental issue of their own interest. Permission required.

SOC 733 - Gender-Based Violence: US and International Perspectives
Credits: 4
Students examine the spectrum of gender-based violence occurring in the United States and Europe. Four main areas are examined: (1) Theoretical and methodological issues inherent in researching gender-based violence. (2) Different types of gender-based violence including sexual and relationship violence, harassment, pornography, and human trafficking. (3) The historical economic, and cultural contexts that facilitate gender-based violence. (4) Prevention and intervention efforts to reduce gender-based violence. Permission required.
SOC 735 - Sociology of Community
Credits: 4
This course analyzes "community" from a sociological perspective. Community is one of the fundamental concepts in the sociological literature; this course covers those aspects of the concept that are concerned with geographic communities: neighborhoods, communities, cities, etc. It considers how American communities have changed over time and what the current characteristics are, and how these characteristics are related to the "quality of life" in the communities. Students study theoretical and empirical approaches to studying communities, particularly but not exclusively American communities. Among specific areas of community research covered are: spatial inequality and concentrated poverty; what housing research shows about the importance of community to outcomes for families and children; the impact of community on health; and community development as a strategy for community change. Permission required.

SOC 740 - Sociology of Mental Health
Credits: 4
Introduces students to different sociological approaches for studying and understanding mental health and illness. Students examine the social distribution of mental illness in the United States and the social-structural factors that help to explain mental health variations. Also addresses issues surrounding mental health treatment, systems, and policies for the mentally ill. Permission required.

SOC 742 - Sociology and Social Policy
Credits: 4
Social policy and public policy defined: description of the policy making process. The political sociology of the policy-making process; who makes policy and who influences policy, under what conditions and with what effect. Definition of social policy research and the various roles social scientists can adopt for policy-relevant work. Students are responsible for critiquing the readings and for preparing a substantial research paper. Permission required.

SOC 745 - Race, Ethnicity, and Inequality
Credits: 4
Sociological perspectives on race and ethnic relations for graduate and advanced undergraduate students. Topics include the creation of racial and ethnic identities, the nature and extent of segregation, education, employment, and wealth inequalities, and the effects of state policy. The course emphasizes both theoretical and empirical assessments. Permission required.

SOC 749 - Race, Ethnicity, and Inequality
Credits: 4
Sociological perspectives on race and ethnic relations for graduate and advanced undergraduate students. Topics include the creation of racial and ethnic identities, the nature and extent of segregation, education, employment, and wealth inequalities, and the effects of state policy. The course emphasizes both theoretical and empirical assessments. Permission required.

SOC 773 - Childhood and Social Policy
Credits: 4
Exposes students to a variety of sociological perspectives about childhood in American society. Stimulates analysis about how social institutions, like the modern family, school, economic system, justice system and communications media affect children. Assumes prior understanding of important sociological concepts, critical thinking skills and social science writing ability. Permission required. Writing intensive. Attributes: Writing Intensive Course

SOC 780 - Social Conflict
Credits: 4
Analysis of the social conditions associated with the major forms of conflict management in human societies: discipline, rebellion, vengeance, negotiation, mediation, law, therapy, supernaturalism, and avoidance. Permission required. Writing intensive. Attributes: Writing Intensive Course

SOC 792 - Internship Independent Study
Credits: 2-8
Provides upper level sociology majors with an opportunity to apply what they have learned in the classroom to the real world. This will provide the opportunity for students to work individually with a faculty member on an Internship with the option of variable credit. There is no formal class time required. Students will arrange meetings with supervising faculty to plan assigned readings, update internship progress and complete semester projects. Project ideas are developed with faculty and internship site supervisor. Permission required.

SOC 793 - Internship
Credits: 4
Provides upper level sociology majors with an opportunity to apply what they have learned in the classroom to the real world. Students meet weekly to discuss assigned readings, internship progress and semester project. Project ideas are developed with faculty and internship site supervisor. Permission required.

SOC 794 - Evaluation Research
Credits: 4
This course is designed to cover major methodological and practical issues in the field of evaluation research, including the definition and meaning of evaluation; the purposes of evaluation; the design and conduct of evaluation studies; evidence-based policy writing; and the uses of evaluation results. This is an advanced undergraduate-level and graduate-level course. The prerequisite for the course is successful coursework in methods of research and statistical analysis.

SOC 797 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics. Permission required. Writing intensive. Attributes: Writing Intensive Course

Spanish (SPAN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SPAN 401 - Elementary Spanish I
Credits: 4
Conducted in Spanish. For students without previous knowledge of Spanish. Aural-oral practice, fundamental speech patterns, reading and writing to achieve a firm basis for an active command of Spanish. Lab. No credit toward a major. (No credit for students who have had two or more years of Spanish in secondary school; however, any such students whose studies of Spanish have been interrupted for 5 years or more should consult the coordinator of elementary Spanish. 401-402 taken together satisfies the foreign language requirement. Special fee.

SPAN 402 - Elementary Spanish II
Credits: 4
Conducted in Spanish. Aural-oral practice, fundamental speech patterns, reading and writing to achieve a firm basis for an active command of Spanish. No credit toward a major. 401-402 taken together satisfies the foreign language requirement. Special fee. SPAN 401 is a prerequisite for this course. Cannot be taken separately without permission of instructor. Attributes: Foreign Language Requirement
SPAN 403 - Review of Spanish
Credits: 4
Conducted in Spanish. Emphasizes aural/oral practice, reviews basic structure, reading and writing to develop active command of language. Preparation for Spanish 503. Designed for those who have had only two years of high school Spanish. Special fee. Does not satisfy the foreign language requirement. A grade of C or higher is required in the course to advance to SPAN 503.

SPAN 500 - Selected Topics in World Literature
Credits: 4
Topics chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, PORT 500, RUSS 500.) May be repeated for credit. Writing intensive.
Attributes: Literature, Phil, Ideas GP 8; Writing Intensive Course

SPAN 503 - Intermediate Spanish I
Credits: 4
Conducted in Spanish. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Spanish based on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 503H - Honors/Intermediate Spanish I
Credits: 4
Conducted in Spanish. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Spanish based on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 504 - Intermediate Spanish II
Credits: 4
Conducted in Spanish. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Spanish based on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 504H - Honors/Intermediate Spanish II
Credits: 4
Conducted in Spanish. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Spanish based on cultural and literary readings. Films. No credit toward the major. Special fee. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 525 - Spanish Civilization and Culture
Credits: 4
Historical, geographical, and artistic expressions of Spanish civilization that have formed the character of contemporary Spanish culture. Conducted in English. Majors must take either 525 or 526, but both may not be counted for major credit. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 526 - Latin American Civilization and Culture
Credits: 4
Significant historical, geographical, and artistic expressions of pre-Colombian and Latin American civilization. Conducted in English. Majors must take either 525 or 526, but both may not be counted for major credit. Special fee.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 595 - Practicum
Credits: 2
Practical use of Spanish language or cultural skills outside the classroom through special projects. Prereq: SPAN 504. May be repeated up to a maximum of 4 credits.

SPAN 631 - Advanced Conversation and Composition I
Credits: 4
Emphasis on written and spoken Spanish through in-class and online discussions and frequent writing assignments based on cultural and literary readings and films. Prereq: SPAN 504 or equivalent. Special fee. Writing intensive. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

SPAN 631H - Honors/Advanced Conversation and Composition I
Credits: 4
Practical application of fundamental phonetic theory to spoken Spanish. Special fee. Prereq: SPAN 632 (or equivalent) or consent of instructor.

SPAN 632 - Advanced Conversation and Composition II
Credits: 4
Emphasis on written and spoken Spanish through in-class and online discussions and frequent writing assignments based on cultural and literary readings and films. Prereq: SPAN 631 or equivalent. Special fee. Writing intensive. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

SPAN 632H - Honors/Advanced Conversation and Composition II
Credits: 4
Practical use of Spanish language or cultural skills outside the classroom through special projects. Prereq: SPAN 632 or equivalent. Special fee. Writing intensive. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course

SPAN 641 - Spanish Phonetics
Credits: 4
Emphasis on written and spoken Spanish through in-class and online discussions and frequent writing assignments based on cultural and literary readings and films. Prereq: SPAN 631 or equivalent. Special fee. Writing intensive. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Foreign Culture GP 5; Writing Intensive Course
SPAN 645 - Intro to Spanish Linguistics  
Credits: 4  
Establishes the basis for future application of linguistic principles. Explores different areas of linguistics including morphology, word formation and verbal inflection. Issues in syntax and semantics are analyzed both in isolation and in terms of their relationship to each other. Students will be equipped with the skills necessary to apply these linguistic concepts to actual Spanish language data and to achieve a better understanding of the structures governing the language they are studying. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee.

SPAN 647 - Hispanic Cultural Studies  
Credits: 4  
Contemporary approaches to the study of the cultures of Hispanic populations that examine the intersections of politics, art, religion and the forces of globalization. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee.

SPAN 648 - Readings in Current Periodicals  
Credits: 4  
Advanced practice in reading, speaking, and writing, based on current events in contemporary periodicals of the Spanish-speaking world. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee.

SPAN 650 - Introduction to Critical Analysis  
Credits: 4  
Methods and practice of literary criticism. Critical analysis of representative essays, fiction, poetry, and drama from Spain and Latin America. Frequent short papers. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee. Writing intensive.

SPAN 651 - Introduction to Spanish Literature and Thought  
Credits: 4  
Reading and analysis of major works within the historical, cultural, and social background of the Iberian peninsula. Emphasis on works from medieval to Golden Age Spain. Papers, discussion, and examinations in Spanish. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee. Writing intensive.

SPAN 652 - Introduction to Spanish Literature and Thought  
Credits: 4  
Reading and analysis of major works within the historical, cultural, and social background of the Iberian peninsula. Emphasis on works from medieval to Golden Age Spain. Papers, discussion, and examinations in Spanish. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee. Writing intensive.

SPAN 653 - Introduction to Latin American Literature and Thought  
Credits: 4  
Reading and analysis of major works within the historical, cultural, and social background of Latin America. Emphasis on works from the 20th century. Papers, discussion, and examinations in Spanish. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee. Writing intensive.

SPAN 654 - Introduction to Latin American Literature and Thought  
Credits: 4  
Reading and analysis of major works within the historical, cultural, and social background of Latin America. Emphasis on works from the 20th century. Papers, discussion, and examinations in Spanish. Prereq: SPAN 632 (or equivalent) or consent of instructor. Special fee. Writing intensive.

SPAN 683 - Summer Study in Costa Rica  
Credits: 8  
Studies in San Joaquin de Flores, Costa Rica. Six week summer immersion program for undergraduate students. Prereq: a minimum of 32 credit hours with an overall GPA of 2.5. Interested students should contact the program director. Spanish majors only. Special fee. Cr/F.

SPAN 685 - Study Abroad/Granada  
Credits: 16  
Studies at a Spanish or Latin American university. Prereq: primarily for juniors and seniors who have passed SPAN 503-504 or equivalent with a grade of B (3.00) or better. Noncredit orientation meetings required during semester prior to departure. Interested students should consult with the program directors. Special fee. Cr/F. (An IA [continuous grading] grade will be assigned until official transcript is received from the foreign institution.)

Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 686 - Study Abroad/Granada  
Credits: 20  
Studies in Granada, Spain. Prereq: primarily for juniors and seniors who have passed SPAN 503-504 or equivalent with a grade of B (3.00) or better. Noncredit orientation meetings required during semester prior to departure. Interested students should consult with the program directors. Special fee. Cr/F. (An IA [continuous grading] grade will be assigned until official transcript is received from the foreign institution.)

Attributes: World Cultures(Discovery); Foreign Culture GP 5

SPAN 790 - Topics in Second Language Acquisition/Pedagogy/Methodology  
Credits: 4  
A) Introduction to Second Language Acquisition, B) Internet Technologies and Second Language Learning. Prereq: permission of instructor. Special fee. May be taken more than once if no duplication of content.

SPAN 795 - Independent Study  
Credits: 1-4  
Guided individual study with training in bibliography and organization of materials. Topics selected by instructor and student in conference. Barring duplication of content, may be repeated for credit. Prereq: permission of of instructor. Special fee.
SPAN 797 - Topics in Hispanic Literary and Cultural Studies  
Credits: 4  
Attributes: Writing Intensive Course

SPAN 798 - Topics in Hispanic Linguistics and Cultural Studies  
Credits: 4  
A) History of the Spanish Language, B) Study of Spanish Mood and Aspect, C) Sociolinguistics of Spanish, D) Discourse Analysis, E) Politeness and Pragmatics, F) Bilingualism and Spanish in the U.S., G) Spanish Pronouns, Agreement and Modifiers, H) Regional and Social Variation in Spanish Phonetics, I) Other. Prereq: permission of instructor. Special fee. May be taken more than once for credit if no duplication of content.

SPAN 799 - Senior Honors  
Credits: 4  
For senior Spanish majors with a minimum cumulative grade-point average of 3.40 and the same or better average in the major who want to undertake a special honors project in an area of Spanish language or literature of their choice. Prereq: permission of advisor. Special fee.

Sustainability (SUST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SUST 401 - Surveying Sustainability  
Credits: 4  
This interdisciplinary and transdisciplinary course explores the history of sustainability and the varied and changing meanings of the concept. It focuses on the principles and challenges of sustainability in support of the long-term welfare of humans and the earth system. Students discuss and debate a set of global grand challenges, their local and national ramifications, and how to connect knowledge to action. Sustainability is explored through case studies, experiential learning, individual research and team projects.

SUST 501 - Sustainability Perspectives and Methods  
Credits: 4  
Sustainability Perspectives and Methods will explore the multiple ways in which we measure, assess and use concepts of sustainability. We begin by establishing the cross-cutting perspectives and methods that run throughout sustainability science including transdisciplinarity, systems thinking, stakeholder-driven research, and solutions-based projects. The course builds on this foundational knowledge to delve more deeply into sustainability challenges as examined through specific perspectives including the humanities, social sciences, and natural sciences. Prereq: SUST 401.

SUST 600 - Sustainability Independent Study  
Credits: 1-4  
SUST 600 will provide an independent study to students who are interested in studying of a topic in sustainability in depth. Due to the highly personalized nature of SUST 600, the specific readings, activities and assignments will vary based on student interests and disciplinary backgrounds. At a minimum, students will be guided in how to prepare a project proposal, place their work within the current literature on the topic, and complete a final project. Prereq: SUST 401. Permission required.

SUST 605 - Sustainability Internship  
Credits: 1-4  
SUST 605 will provide credit for practical work or a project experience in sustainability. The purpose of SUST 605 is to gain practical experience working in a sustainability field while simultaneously achieving specific learning goals pre-identified by the student and faculty mentor. Prereq: SUST 401. Permission required.

SUST 750 - Sustainability Capstone  
Credits: 4  
The Sustainability Capstone is the culminating experience in a series of three core courses for the Sustainability Dual Major. The objective of SUST 750 is to synthesize the knowledge obtained in other core and elective courses taken for the Sustainability Dual Major and apply it to a project. In doing so, students will explore areas of interest, reflect on undergraduate learning experiences, and experience the interdisciplinary aspects of sustainability issues. Prereq: SUST 401, SUST 501. Permission required.

Sustainable Agriculture & Food Systems (SAFS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SAFS 405 - Sustainable Agriculture and Food Production  
Credits: 4  
Introduces systems involved in sustainable agriculture with an emphasis on ecological and organic food production. Scientific and biological principles relating to sustainable and organic food production, and the role of sustainable agriculture within our communities. Special fee. 
Attributes: Environment, TechSociety(Disc); Technology GP 3T

SAFS 410 - A Taste of the Tropics  
Credits: 4  
This course will expose students to the exciting world of tropical agriculture and the ways that people in the tropics utilize a diverse array of food crops. Our lives as consumers in the developed world are touched by tropical products every single day. Whether it’s the cinnamon in your tea, the vanilla in your cookies, the black pepper on your salad, or your cup of hot coffee, you likely consume tropical crops whether you know it or not. Ever stop to wonder where these items are from and how they are produced? We will examine agriculture and food culture throughout the tropical world’s four principle areas: Latin America, Tropical Asia, Tropical Africa, and the South Pacific. Production systems ranging from large scale modern high input operations to home subsistence gardens are explored. Tropical crops are examined in five major groups: grains and legumes, starchy roots, exotic vegetables, tropical fruit, and herbs, spices, medicinal plants. Cultural uses of these crops throughout the tropical world are given special emphasis. 
Attributes: World Cultures(Discovery); Foreign Culture GP 5
SAFS 415 - Introduction to Brewing Art and Science  
Credits: 4  
Introduction to the scientific foundations of beer brewing. Topics covered will include beer styles; ingredient sourcing; industrial production from nano to macro scale; current trends and topics; quality control; safety and sustainability.

SAFS 421 - Introductory Horticulture  
Credits: 4  
Introduces horticultural practices and principles affecting plant growth and development in garden, landscape, greenhouse, and farm settings. Special fee. Lab.  
Attributes: Biological Science (Discovery); Discovery Lab Course; Biological Science GP 3B

SAFS 502 - Agroecology  
Credits: 4  
This course introduces students to the discipline and practice of agroecology, with an emphasis on relevant ecological theory within the context of production agriculture. Students are exposed to key ecological principles from population, community, and ecosystem ecology and agronomy. Students learn about the history and consequences of modern industrial agricultural systems and the need for more sustainable management practices that consider ecological interactions.

SAFS 510 - Agriculture and Development in the Neotropics  
Credits: 4  
Course is designed as a three week immersion into tropical agriculture and Costa Rican ecology and culture. Agriculture plays a pivotal role in Costa Rica's history and in shaping current events. Production of horticultural and agronomic crops occurs on a variety of scales ranging from large export based systems, to mid-sized operations for domestic sales, and sustenance based home gardens. Examples of all systems are visited and discussions focus on their overall sustainability. Sustainability is a broad concept and requires consideration of socio-cultural, environmental, and economic factors. Agriculture and agricultural products infuse the culture as seen by large participation in farmers markets and appreciation for a wide variety of fruits and vegetables prepared in myriad ways. An appreciation for nature also infuses the culture and is embodied by the country's extensive system of national parks and protected reserves along with the national philosophy of 'Pura Vida'. Special fee.  
Attributes: World Cultures (Discovery); Foreign Culture GP 5

SAFS 600 - Field Experience  
Credits: 1-4  
A supervised experience providing the opportunity to apply academic knowledge in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Permission required. Cr/F.

SAFS 601 - Fruit Crop Production  
Credits: 4  
This course explores the origin, distribution, botany, and cultural practices of fruit crops. Fruit crops represent an important component of both our dietary needs and many agricultural production systems. Emphasis is given to temperate fruit crops suitable for New England growing conditions. Other topics explored include integrating fruit crops into landscapes, organic and conventional cultural practices, and post-harvesting handling. Prereq: SAFS 421 or permission.

SAFS 632 - Controlled Environment Agriculture: A Systems Approach  
Credits: 4  
This course provides a practical, species-independent approach toward understanding the control of agricultural production environmental variables from a farmer's perspective with a focus on the required system-engineering aspects. The fundamentals of controlled environments will be explored in class and lab from crop coverings to complete indoor production systems. System design approaches will be discussed using case studies to dissect a farmer's approach as a progression in designing a successful system and the means for maintaining the required environmental conditions. Prereq: SAFS 421 or SAFS 405.

SAFS 642 - Team Experience in Agroecosystems Management (TEAM - Organic)  
Credits: 4  
TEAM - Organic is a 2-semester experiential course where students are actively engaged in the operation of the COLSA/NHAES Organic Dairy Research Farm. Building on principles of agro-ecology and sustainable agriculture, students explore and practice the environmental, economic, social and production strategies needed for organic food production. Organic dairy farming methods and best practices are presented and applied. The organic food chain is addressed along with marketing and value-added strategies for organic dairy products. Instruction permission. Two semesters of SAFS 642 are required.

SAFS 651 - Plant Pathology  
Credits: 4  
Nature, symptomatology, etiology, epidemiology, and control of important plant diseases. Prereq: BIOL 409, BIOL 411 and BIOL 412, or equivalent. Lab.

SAFS 679 - Food Production Field Experience I  
Credits: 4  
This is part one of a two course series to be taken during spring semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for the UNH Dairy Bar. Lectures, readings, and hands-on activities during Part I focus on all aspects of production: propagation, crop establishment, irrigation, crop management, soil considerations, and pest and disease practices. Prereq: SAFS 405 or permission of instructor.

SAFS 680 - Food Production Field Experience II  
Credits: 4  
This is part of a two course series to be taken during fall semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for the UNH Dairy Bar. Lectures, readings, and hands-on activities in part two focus on crop harvesting and maturity, post-harvest considerations, marketing, special event planning and execution, record keeping, and small farm business management. Prereq: SAFS 405, SAFS 679 or permission of instructor.
SAFS 689 - Greenhouse Management and Operation
Credits: 4
Course provides introduction to greenhouse construction, design, environmental control, and current trends in the industry. Fundamentals of starting a greenhouse business including safety and labor, marketing, and post-harvest considerations also covered. Efforts towards making the greenhouse industry more sustainable are explored along with certification options and procedures. Crops representative of current major New England crops are grown during lab. Students learn about crop selection and practices including IPM, irrigation, and fertility management. Prereq: SAFS 421 or permission of the instructor. Lab. Special fee. (Offered alternate years). Writing intensive. Attributes: Writing Intensive Course

SAFS 729 - Agricultural Waste Management
Credits: 4
The management of agricultural wastes is crucial in the development of sustainable agricultural practices. This course covers principles of managing, handling, treating, and applying animal manures and organic byproducts from an agricultural system perspective. Topics include waste characterization, descriptions of systems and technology, utilization of wastes as resources (land application, composting electricity generation, fertilization, etc.), land application principles, preparations of waste management plans, and potential impacts to the environment. Prereq: SAFS 502 or permission of instructor.

SAFS 731 - Sustainable Landscape Design and Management
Credits: 4
Students examine principles and trends in sustainable sites development and apply knowledge of ecological and biological systems in the design and maintenance of residential and commercial landscapes. Understanding woody plant structure and function and plant responses to environmental factors and horticultural practices are included as an integral part of sustainable landscape establishment. Each student completes a sustainable landscape renovation plan that creates an attractive human habitat and provides ecosystem services such as biodiversity and wildlife habitat, soil and water quality protection, nutrient recycling and microclimate modification. Prereq: SAFS 421.

SAFS 733 - Advanced Topics in Sustainable Agriculture
Credits: 4
In this capstone course, SAFS seniors engage with their peers in critical discussion of a collection of SAFS faculty-selected seminal works (papers, books, videos, etc.) relating to agricultural and food systems sustainability across scales, local to global. The course aims to improve critical reading, discussion, presentation, and writing skills; build cohort cohesiveness; and challenge SAFS students to examine their beliefs and working assumptions about agricultural and food systems sustainability. Prereq: SAFS major, or permission.

SAFS 760 - Insect Pest Management
Credits: 4
Students learn the principles of integrated pest management, as they apply to insects (and some other arthropods). Additionally, they learn to recognize the major orders of insects, and some insect families that are important as natural enemies of pests. Course incorporates a significant amount of writing, plus learning to search the scientific literature. Prereq: BIOL 411 and BIOL 412 or equivalent. Writing intensive. Attributes: Writing Intensive Course

SAFS 795 - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems. Permission required. May be repeated to a maximum of 8 credit hours.

SAFS 795W - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems. Permission required. May be repeated to a maximum of 8 credit hours. Writing intensive. Attributes: Writing Intensive Course

SAFS 799 - Honors Senior Thesis
Credits: 1-4
Independent research requiring a written proposal, thesis, and presentation of research results to an audience of faculty and/or students. Intended for students completing SAFS Honors-in-Major requirements. Contact SAFS Program coordinator prior to senior year to arrange supervision and obtain permission. Two-semester sequence; students typically register for 5 credits over two semesters. IA grade (continuous course) given at end of first semester. Writing intensive. Attributes: Writing Intensive Course

TSAS Communication (COM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COM 209 - Expository Writing and Reading
Credits: 4
The main course goal is to produce inquisitive capable and confident writers for written communication challenges in higher education and future careers. Particular focus is paid to practice in visual description, research, argument, revision and analytical reading. Instructors focus on writing as a process of learning, not a product of learning. Includes individual conferences with students to discuss their writing and drafts. Class sessions are driven by open discussion and group activities.

COM 210 - Public Speaking
Credits: 3
In a recent Graduate Management Admissions Council (GMAC) survey, 86% of recruiters for major employers claimed “communication skills” as the first trait they seek in new employees. That said, building confidence and practicing public communication is a way to stand out in both social situations and the workplace. In COM 210, we practice persuading, instructing and storytelling in an active atmosphere, all with an effort to build confidence in oratory, analyzing audiences and generating quality ideas.

COM 212 - Writing in the Workplace
Credits: 3
Practice in various forms of technical and professional writing: technical instructions and descriptions, reports, proposals, business letters, and more. Applications relate to employees/employers, suppliers, customers, and others. The course emphasizes the importance of layout and design to effective communication.
COM 292 - Studies in Communications
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research or scholarly endeavor is to explore new areas in the student’s field of study or to pursue course materials in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include the art of persuasive speaking, writing, literature, or technical reporting. Permission required.

COM 591 - Studies in Communication
Credits: 1-3
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research or scholarly endeavor is to explore new areas in the student’s field of study or to pursue course materials in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include the art of persuasive speaking, writing, literature, or technical reporting. Permission required.

TSAS Mathematics (MTH)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MTH 202 - College Algebra
Credits: 3
Review of elementary algebra, coordinate system, inequalities, roots, polynomials, factoring, radicals, and functions. A significant amount of class time is spent on problem solving in all concept areas. The course provides a solid foundation of algebraic topics including, logarithmic functions, exponential function, matrices, inverse functions and nonlinear systems. Placement is based on satisfactory score on math assessment.

MTH 203 - Algebra and Trigonometry
Credits: 3
Basic algebra topics, radicals, exponents, introduction to functions and graphs, simple applications of algebra. Trigonometric functions of angles; applications of right triangles, identities, and equations. 3 lec.

TSAS Social Science (SSCI)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SSCI 292 - Studies
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research or scholarly endeavor is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific social science topic. Course may be repeated up to a maximum of 8 credits.

SSCI 403 - Environmental Issues & Society
Credits: 2
Course focuses on contemporary environmental problems and their relationship to society. Students examine the nature and extent of specific problems, such as pollution or global warming, and review current thinking about causes, possible interrelationships, and proposed solutions. 2 lec.

SSCI 404 - Leadership Effectiveness Grp P
Credits: 2
By studying various theories of group development and leadership approaches, students explore the ways leaders influence group behavior and goal attainment. Students practice applying theories to specific situations and explore their own individual strengths and weaknesses as both leaders and group members.

TSAS Thompson School Applied Science (TSAS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

TSAS 235 - Introductory Chemistry
Credits: 3
Introduces chemical concepts and principles, including chemical symbols, conversion factors, chemical calculations, chemical and physical properties and changes. Introduction to organic compounds—their structure, major reactions, and applications—followed by an elementary introduction to biomolecules and how they function in metabolism. Other topics include acids, bases, solutions, and radiation chemistry.

TSAS 405A - Computers in the Workplace/Focus on Software Applications
Credits: 2
A foundation course in the practical use of computer technology with a focus on intermediate functions in software applications common in the workplace; word processing (styles, tables); refining spreadsheet (charts, linking and embedding objects/documents); presentations (working with images) and working between applications. Available only for students in Thompson School of Applied Science.

TSAS 456B - Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security
Credits: 2
This half semester course focuses on hard disk management (folder structure in the latest version of Windows and in a networked environment), hardware (including various devices and output) selection criteria, basic computing networking (including the university's network), internet functions (Boolean search terms); safe computing (cloud tools, document sharing) and cyber security, and hardware teardown. Available only for students in the Thompson School of Applied Science.
Technology (TECH)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

TECH 400 - Introduction to CEPS Programs
Credits: 1
An overview of programs offered by the College of Engineering and Physical Sciences with an emphasis on skills needed to be successful academically, career opportunities and professional development. Required course of all undeclared majors in CEPS. Cr/F.

TECH 401 - Scientific Research Exploration
Credits: 2
This course introduces incoming freshmen to the scientific research process via a hands-on approach, which includes case studies, group work, and a two-week immersion experience under the guidance of the College of Engineering and Physical Sciences (CEPS) faculty. Course readings, discussions, and active participation in local research will facilitate the student's exploration of experimental design, hypothesis testing, data collection and analysis, interpretation of results, and effective communication of research findings. In the context of a group research project, students begin thinking like scientists, as well as strengthening their math, writing, and oral communication skills. Prereq: permission. Open to incoming freshmen only.

TECH 500 - Integrated CEPS Seminar I
Credits: 2
The course focuses on building an interdisciplinary community among students; introducing the STEM disciplines as fields of study and professions, discussing the nature of scientific knowledge and ethics; learning how to learn, and engaging with CEPS student organizations, and with other campus academic support structures. Students are evaluated on their participation in class activities, written assignments, presentations, and posting/commenting to/on topical online blogs, which promote out-of-class discussion. Permission required. Cr/F.

TECH 501 - Integrated CEPS Seminar II
Credits: 1
The seminar course is intended for students transferring to CEPS. The course focuses on building an interdisciplinary community among students, advancing topics from TECH 500, and professional development via engagement in undergraduate research and career development activities. Students are required to be simultaneously involved in a research project with a faculty member of their choosing. Students are evaluated on their participation in class activities, written assignments, presentations, and posting/commenting to/on topical online blogs, which promote out-of-class discussion. Permission required. Cr/F.

TECH 564 - Fundamentals of CAD
Credits: 3
Fundamentals of CAD and computer-based graphics, including using CAD as a design tool to create engineering drawings. AutoCAD and Softdesk Civil software used to cover the following topics: drawing file storage and retrieval, display functions, basic drawing and editing commands, symbol libraries, plotting drawings on paper, and using parametric design features in the CAD system. Basic DOS familiarity is assumed. Prereq: civil engineering majors only. Special fee. Lab.

TECH 601 - Fundamentals Examination Review Course
Credits: 1
A ten-week review course for those interested in taking the fundamentals examination to be certified as an engineering-in-training (EIT). Cr/F.

TECH 602 - Machine Shop Training
Credits: 1
In this course, the operation of the basic metal-cutting machine tools (e.g., engine lathe, milling machine, drill press, band saw, cut-off saw, etc.) are demonstrated. The students receive introductory training on the safe operation of these machines as well as on safe practices in the machine shop. Two small projects are completed to demonstrate basic machine shop abilities by the end of the course. Prereq: no course prerequisites, but students must successfully complete an online shop safety quiz prior to the first day of the course. Offered spring and fall semesters only. Special fee. Cr/F.

TECH 602A - Machine Shop Training
Credits: 1
This course focuses on building an interdisciplinary community among students, advancing topics from TECH 500, and professional development via engagement in undergraduate research and career development activities. Students are required to be simultaneously involved in a research project with a faculty member of their choosing. Students are evaluated on their participation in class activities, written assignments, presentations, and posting/commenting to/on topical online blogs, which promote out-of-class discussion. Permission required. Cr/F.

TECH 685 - Budapest Program
Credits: 16
Enables students to pursue a semester of study at the Technical University of Budapest. For information, contact the Dean's Office, College of Engineering and Physical Sciences. Prereq: CEPS students only. Special fee. Cr/F.
Attributes: World Cultures(Discovery); Foreign Culture GP 5

TECH 696 - Independent Study
Credits: 1-4
Open to all qualified students pursuing studies that do not fall within existing departmental areas. Special fee when the topic is chemistry for engineers.

TECH 697 - CEPS Industrial Experience
Credits: 1
Students in the CEPS Industrial Experience must register for TECH 697 during each semester (fall and/or spring) in which they are participating in their industrial work experience. Student in the minor must get permission from the minor advisor in order to register for this course.
TECH 750 - Intellectual Asset Management for Engineers and Scientists
Credits: 4
This course provides an introduction to the most important topic in the 21st century – intellectual assets. Students will receive an overview in practical, real-world aspects of managing intellectual assets (copyright, patents, trademarks, trade secrets, etc.). Students taking this course will be exposed to lectures, guest presentations, and case studies aimed at increasing their understanding of intellectual property strategies and related legal issues; technology assessment; technology valuation; licensing issues, strategies and negotiation techniques; business planning and start-up company development; and strategies for attracting investment for new ideas. The instructors and guest speakers for the course are involved in managing, protecting, investing in, or commercializing intellectual property assets in real-world settings such as university technology transfer offices, patent law firms, venture capital firms, start-up companies, and related settings.

TECH 797 - Undergraduate Ocean Research Project
Credits: 2
Students work as members of interdisciplinary project teams on contemporary ocean-related problems under the guidance of a faculty adviser. Student team defines problem, prepares a budget, conducts literature surveys, engages in dialogue with experts in the community, deals with vendors, designs, and builds a working engineering model, gathers analyzes scientific data or conducts a comprehensive study, makes interim reports, and defends the results before a jury of experts. Prereq: normally senior standing and permission of the program director. A yearlong effort: 2 credits each semester, 4 credits total, an IA (continuous course) grade given at the end of the first semester. Writing intensive.
Attributes: Writing Intensive Course

Theatre & Dance (THDA)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

THDA 435 - Introduction to Theatre
Credits: 4
Introduces all aspects of theatrical production: play writing, acting, directing, design, technical theatre and construction, and theatre management. Cultural and social context of theatre in our time and through the ages. Introduces major classical and modern types of theatre. Selected plays are read and discussed, and attendance at theatrical production is required. Special fee.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 436 - History of Theatre I
Credits: 4
The history of theatre and its drama is introduced through close study of the world's greatest plays from the Greeks through the end of the 17th century – how these plays were performed then, how they are performed now, their political, social, and cultural urgencies.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

THDA 436H - Honors/History of Theatre I
Credits: 4
The history of theatre and its drama is introduced through close study of the world's greatest plays from the Greeks through the end of the 17th century – how these plays were performed then, how they are performed now, their political, social, and cultural urgencies. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

THDA 438 - History of Theatre II
Credits: 4
The history of theatre and its drama is introduced through close study of the world's greatest plays of the 19th, 20th, and 21st centuries – how these plays were performed then, how they are performed now, their political, social, and cultural urgencies.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

THDA 438H - Honors/History of Theatre II
Credits: 4
The history of theatre and its drama is introduced through close study of the world's greatest plays of the 19th, 20th, and 21st centuries – how these plays were performed then, how they are performed now, their political, social, and cultural urgencies. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Writing Intensive Course

THDA 439 - In Bed with the Bard: Shakespearean Seduction from Romeo and Juliet to Leonardo and Claire
Credits: 4
Introduces the imaginative process by which actors and directors bring Shakespeare's plays to life on the stage. Detailed study of eight plays.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 440A - Honors/Theatre and Social Justice
Credits: 4
This course that will examine to what degree dramatic literature and theatre art has effected socio-political change in the past, and in the present, through an in-depth exploration of texts, artistic methods and theatrical techniques. Students will create theatrical art related to various sociopolitical issues. Absolutely no experience in theatre is necessary, as this course is built around the premise that we all have the ability to create art and affect politics and society.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 441 - Exploring Musical Theatre
Credits: 4
This is an introductory course designed to enhance the student's enjoyment and understanding of musical theatre. Course content and internet exploration as well as play attendance are designed to acquaint students with and nurture an appreciation for musical theatre. This course is intended for introductory students of all majors who are interested in studying musical theatre elements, styles, and significance.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6
THDA 442 - Introduction to the Art of Acting
Credits: 4
Designed for non-THDA major students interested in the art of acting. Students broaden and deepen their own creativity, gain a deeper understanding of human behavior and interaction, and strengthen analytical skills through class work and projects. Focuses on the basic skills of acting: the ability to effectively communicate, to gain access to the full spectrum of human emotions, and increase spontaneity. Important innovators and theorists in the field of theatre and acting are covered, such as Sanford Meisner, Constantine Stanislavski, Bertolt Brecht, Jerzy Grotowsky, Agusto Boal, and Jacques Lacoq. Additional topics include contemporary plays and playwrights, an historical perspective of the art of acting, and the current state of live theatrical performance. Theatre majors not allowed.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 444A - What's Old Becomes New: Threading Theatrical Themes into Societal Truths
Credits: 4
To what degree does updating theatrical themes contribute to societal norms and relevant commentary? This course will examine how enduring dramatic ideas evolve by comparing plays that are written in reaction to or as an extension of a provocative piece, both carrying on similar themes but told in updated ways. Students also will investigate the role these adaptations play in theatre history, why they are done and whether they are justified as quality art.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery)

THDA 444B - Famous Dancers of the 20th Century
Credits: 4
The purpose of this course is to provide an introduction to the dancers of the twentieth century whose contributions to the art form have made dance an important cultural necessity. This includes examining how their style of dance and unique personalities has had a major influence on our perceptions of dance and how they have had an effect on society. Writing intensive.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6; Inquiry (Discovery); Writing Intensive Course

THDA 450 - History of Musical Theatre in America
Credits: 4
Study of the development of the musical and its relationship to American social history.

THDA 458 - Costume Construction
Credits: 4
Study and development of costuming techniques, including hand and machine sewing, pattern drafting, alterations, and fabric manipulation. Emphasis on demonstrated understanding. Special fee.

THDA 459 - Stagecraft
Credits: 4
Elements of play production: basic building components, tools, and materials for producing the scenery, equipment and shop layouts supporting all of the areas of the set, lighting, and costume designs; and consideration of various stage spaces and theatrical venues. Practical application on University theatre productions. Special fee. Lab.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 460 - Elements of Design
Credits: 4
Course is designed for students who are interested in theatrical design elements including scenery, costume, lighting and sound. Class encompasses lecture, discussion, presentation and studio (work in class) formats. Critique and discussion are essential to the creative thinking that a designer needs to have. Throughout the course, each student is expected to complete projects that incorporate the design elements they have studied.

THDA 462 - Ballet I
Credits: 4
Introductory course: technique, historical development of ballet. Students who have had several years of ballet are expected to register for THDA 562 or 662. Instructor determines appropriate level.
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 463 - Theatre Dance I
Credits: 4
Introductory course: techniques; improvisation; lectures on jazz, ethnic, and other theatrical dance forms. Students with prior experience are expected to register for THDA 563 or THDA 663. Instructor determines appropriate level. Special fee
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 470 - Movement and Vocal Production
Credits: 4
Expansion of the student's vocal and physical/kinesthetic awareness, utilizing basic theories and lessons of Lessac, Laban, and Alexander. Text exploration is supplemented with exercises from Berry. Permission required. Special fee.

THDA 475 - Stage Makeup
Credits: 2
Fundamentals of juvenile, old age, character, and special stage makeup techniques. Special fee.

THDA 487 - History of Dance
Credits: 4
This course will be a study of dance from prehistory to the present. Through an interactive approach students will gain methods to perceive, create and respond to the history of dance through integrated arts and technology. Activities both in and out of the classroom will aid in the understanding of dance and how it has evolved throughout history both socially and as a means of entertainment. This course will also examine how dance has influenced or collaborated with other art forms.
Attributes: FinePerformingArts(Discovery)

THDA 500 - Musical Theatre Voice I
Credits: 1
This course provides students with a foundation in healthy, relaxed, and dynamic singing of primarily musical theatre repertoire. In addition to expanding the student's knowledge of and ability to sing various styles of musical theatre repertoire, this course provides a venue to explore and develop analytical skills relating to character and script.

THDA 520 - Creative Drama
Credits: 4
Drama techniques leading to the design and execution of drama sessions with children. Includes role-playing, improvisation, and story dramatization. Lab.
THDA 522 - Storytelling, Story Theatre, and Involvement Dramatics  
Credits: 4  
This course actively explores storytelling techniques based on individual needs. An examination of story theatre and involvement styles leads to practical experience in individual performances. Participants will actively develop performance techniques that reflect a variety of styles and approaches for storytelling. We will examine the historical significance of storytelling in Eastern and Western civilizations and develop a perspective on its role in culture and religion. Applications for both educational and entertainment purposes will be explored through acting and vocal techniques, games, media, felt board, and puppetry. This course will include an examination of story theatre and involvement styles and the development of the ensemble for performance. The projects will include individual performances and group collaboration of selected stories appropriate for a wide range of audiences. The final project will reflect the participant's individual needs and utilize storytelling techniques developed in the course. Special fee.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 531 - The London Experience: Discovery  
Credits: 4  
Learn about one of the greatest cities in the world during this 10-day trip to London. This Discovery class begins as a two-week, on-line course and then packs in a busy schedule visiting amazing sights and taking in some of the best theatre in the English speaking world. The course offers an insight into the history, politics, society and culture of London through the lens of art, architecture, music, and of course, theatre. Special fee.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6

THDA 532 - The London Experience  
Credits: 2  
Exploration of the culture and history of London while enhancing study of live theatre prior to active study in the country. May be repeated to a maximum of 4 credits. IA (continuous grading). Special fee.

THDA 541 - Art and Theatre Administration  
Credits: 4  
Administration practices applied to arts, music, and theatre management. Fund raising, public relations, business and box office management, audience development and long range planning.  
Attributes: Inquiry (Discovery)

THDA 546 - Costume Design for the Theatre  
Credits: 4  
How to design costumes for the theatre, not figure drawing, although drawing techniques are taught. Script analysis and research and presentational techniques for costume design explored and implemented. Special fee. Prereq: THDA 460 or permission of instructor.  
Attributes: Fine Arts GP 6

THDA 547 - Stage Properties  
Credits: 4  
Research and manufacture of period and modern stage, trim, and hand properties. Prereq: THDA 459. Special fee.

THDA 548 - Stage Lighting Design and Execution  
Credits: 4  
Script analysis, the light plot, and instrument schedule, including cue-writing, color, instrumentation, and the mechanics of developing a functional design. Special fee.  
Attributes: Fine Arts GP 6

THDA 550 - Actor's Voice Through Text  
Credits: 4  
Continuing development of the actor's techniques for creating increased vocal expressiveness. Addresses the methods of varying vocal style and presentation through in-depth analysis and interpretation of the text. Prereq: THDA 470.

THDA 551 - Acting I  
Credits: 4  
Development of fundamental vocal and physical stage techniques for actors and directors through exercises, improvisation and theatre games. Special fee.  
Attributes: Inquiry (Discovery)

THDA 552 - Acting II  
Credits: 4  
Focuses on strengthening the actor's ability to achieve a higher level of truth, presence, and spontaneity on stage. Building on the approach devised by Sanford Meisner, this highly intensive class creates a bridge to connect these developing skills to various forms of text. Prereq: THDA 551. Special fee.

THDA 554 - Stage Combat  
Credits: 4  
This course actively explores stage combat techniques for unarmed combat as well as basic rapier swordplay. Students are expected to prepare hand-to-hand acting projects as well as a final rapier fight project which demonstrates proper stage combat techniques learned during the semester. Special fee.

THDA 555 - Musical Theatre I  
Credits: 4  
Foundations of solo musical theatre performance, including the development of the speaking and singing voice, stage movement, and character analysis explored through exercises, improvisation, theatre games, in-class performance, and written assignments. Lab. Special fee.

THDA 562 - Ballet II  
Credits: 2  
Extension of ballet I syllabus; emphasis is on technique, with additional step vocabulary. May be repeated for a maximum of 16 credits. Prereq: THDA 462 or permission.

THDA 563 - Theatre Dance II  
Credits: 2  
Technique; African-Cuban, modern, and East Indian dance; body movement through exercise and combinations involving stretch, strength, and flexibility. May be repeated for a maximum 16 credits. Prereq: THDA 463 or permission. Special fee.

THDA 564 - Compocinema  
Credits: 4  
Compocinema examines dance/movement as an interdisciplinary form that integrates the human body, digital video camera, the computer program, and site-specific and/or collaborative formats. Emphasizing conceptual and practical approaches, students (individually and in groups) will take turns developing and performing movement as well as planning, designing, shooting, editing, observing, describing, analyzing, and revising video of dance/movement as artistic expression. Prereq: THDA 442 or THDA 462 or THDA 463 or THDA 551 or permission.

THDA 576 - Pointe  
Credits: 2  
Intermediate course in the art of dancing on pointe. Focus on technique involved in gaining strength and on methodology for understanding the art of the ballerina. May be repeated up to a maximum of 16 credits.
THDA 583 - Introduction to Puppetry  
Credits: 4  
Introduces the art of puppetry for general appreciation, entertainment, application in the classroom, and as a therapeutic tool. Emphasis on constructing a variety of puppets (e.g., hand, rod, shadow, and scarf) and adapting literary sources for scripts and performance. Special fee.  
Attributes: FinePerformingArts(Discovery); Fine Arts GP 6  

THDA 589 - Practicum  
Credits: 1  
The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester. Cr/F.  

THDA 592A - Special Topics  
Credits: 1-4  
Special topics, projects in theatre and dance. Content varies according to needs and interests of students and faculty. Course descriptions are available in department office. May be repeated for credit. Special fee.  

THDA 597 - Dance Theatre Performance  
Credits: 2  
Designed for students participating in UNH Dance Theatre Company. Skill development through rehearsal and actual performance experience. May be repeated for a maximum of 16 credits.  

THDA 600 - Musical Theatre Voice II  
Credits: 1  
This course is a continuation of THDA 500: Musical Theatre Voice I. Students build on the groundwork in vocal technique, analysis, and performance established in Musical Theatre Voice I and continue to explore and develop these skills.  

THDA 624 - Theatre for Young Audiences  
Credits: 4  
Introduces coaching and directing techniques for classical and contemporary acting styles in theatre for young audiences. Historical contents leads into practical exploration of actor training and coaching, production and design, choreography, and business management for theatre and for youth programs. Students develop teaching strategies for young performers and participate in a culminating project. Prereq: THDA 551 and THDA 436 or THDA 438. Special fee.  
Attributes: Fine Arts GP 6  

THDA 632 - Interpretation of Shakespeare in Theatre  
Credits: 4  
Increases understanding of Shakespeare's language and action, and improves ability to speak his verse and prose with clarity and verve. Students achieve insights into Shakespeare's plays through the medium of performance. Weekly oral and written assignments. Prereq: THDA 551 and THDA 552; or permission of instructor.  

THDA 633 - Dance Composition  
Credits: 4  
Practical, developmental approach to process of creating dances. Prereq: THDA 561; 562; 563; or permission. Special fee.  

THDA 638 - American Theatre: 1920-1970  
Credits: 4  
A survey of American plays from O'Neill onward. Students read and analyze two plays a week. Oral, written, and theatrical assignments. Prereq: (one of the following) THDA 436, THDA 438, THDA 450 or permission of the instructor.  

THDA 640 - Playwriting  
Credits: 4  
To illuminate and guide each student through the art and craft of writing for performance. This course explores the fundamental principles needed to build a realistic play that is intended to be produced upon the stage. Though the course is built around the construction of plays, the principles, writing exercises, readings, and other assignments serve as a solid base for any form of dialogue driven writing. Special fee.  
Attributes: Writing Intensive Course  

THDA 640W - Playwriting  
Credits: 4  
To illuminate and guide each student through the art and craft of writing for performance. This course explores the fundamental principles needed to build a realistic play that is intended to be produced upon the stage. Though the course is built around the construction of plays, the principles, writing exercises, readings, and other assignments serve as a solid base for any form of dialogue driven writing. Special fee. Writing intensive.  

THDA 641 - Stage Management  
Credits: 2  
Introduces to the concepts and skills needed for stage management. Stage managers perform a central role in the theatrical production, coordinating artistic and technical elements. They need a thorough understanding of the script, strong management skills, and a solid background in all aspects of the theatre. Prepares students to function as a stage manager in productions at any theatre. Prereq: (one of the following) THDA 459; THDA 551; THDA 597; THDA 655; or THDA 741. Special fee.  

THDA 650 - Scene Painting for the Theatre  
Credits: 2  
Scene painting analyzed. Techniques and media to create a larger-than-life approach to scale, equipment for conversion, and appropriate stylistic techniques for enlargement reviewed. Employs basic painting techniques and methods of paint application, but scale conversion technique extend the training of easel painters. Prereq: THDA 459. Special fee.  

THDA 651 - Rendering for the Theatre  
Credits: 2  
Theatrical rendering is a presentational arrangement of given items in perspective appropriate to a set or in a costume at a frozen moment during the production, indicating appropriate mood, atmosphere, and depth. For the theatre, this is generally done in watercolor; but many other media are possible and are explored. Special fee.  

THDA 652 - Scene Design  
Credits: 4  
Scene design from script to finished design. Both aesthetic and practical viewpoints considered. Emphasis on presentational techniques: study of perspective and finished rendering. Prereq: THDA 460 or permission of instructor. Special fee.  

THDA 653A - Performance Project  
Credits: 2  
Application of prior coursework to a formal theatre production or to an individual performance or teaching project. Substantial written work is factored into the final grade. May be repeated for up to 8 credits. Writing intensive.  
Attributes: Writing Intensive Course
THDA 653B - Performance Project/Musical Theatre
Credits: 2
Application of prior coursework to a formal theatre production or to an individual performance or teaching project related to Musical Theatre. Substantial written work is factored into the final grade. May be repeated. Special fee. Writing intensive.
Attributes: Writing Intensive Course

THDA 654 - Scenic Arts Project
Credits: 2
Application of prior coursework to a formal theatre production or to an individual performance or teaching project. Substantial written work is factored into the final grade. May be repeated up to a maximum of 8 credits. Writing intensive.
Attributes: Writing Intensive Course

THDA 655 - Musical Theatre Scene Study
Credits: 4
Builds on and expands the techniques learned in Acting I and Musical Theatre Voice I, with a special emphasis on partner work and scene study. Prereq: THDA 551 or permission of instructor. Special fee.
Attributes: Writing Intensive Course

THDA 657 - Play Reading
Credits: 4
A high-volume reading course that introduces a breadth of dramatic literature from ancient times to the present. Reading lists vary according to interests and needs of students. Students read and analyze three plays/week.

THDA 662 - Ballet III
Credits: 2
Advanced-level course in technique; pointe work included. May be repeated for a maximum of 16 credits. Prereq: THDA 662 or permission.

THDA 663 - Theatre Dance III
Credits: 2
Extension of Theatre Dance I and II; brings students to a more advanced technical level. May be repeated for a maximum of 16 credits. Prereq: Theatre Dance II. Special fee.

THDA 665 - Aerial Dance
Credits: 2
The study of aerial arts including two and one point trapeze and fabric. May be repeated for a maximum of 16 credits. Prereq: THDA 662 or 663. Permission required.

THDA 670 - Dialects
Credits: 4
Study and practice in basic dialect acquisition for performers. Prereq: THDA 470, THDA 551. Permission required. Special fee.

THDA 683 - Advanced Puppetry
Credits: 4
In-depth study of the theory and practice of puppetry for the advanced student. Students develop skills in manipulation and construction of selected puppet forms and apply these skills in performance. Examines historical perspectives and the application of puppetry in the classroom and as a therapeutic tool. Prereq: THDA 583 or permission. Special fee.

THDA 684 - Special Topics
Credits: 2-4
Exploration of topics agreed upon by students and instructor. Topics vary. May be repeated.

THDA 691 - Internship
Credits: 2-8
Fieldwork with a regional or touring theatre. This advanced level internship allows the student to experience a professional theatre setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. A written report is required. May be part- or full-time with credits assigned accordingly. Permission required. Student must also register for a graded 4-credit independent study. May be repeated up to a maximum of 12 credits. Cr/F.

THDA 700 - Musical Theatre Voice III
Credits: 1
This course is a continuation of THDA 600: Musical Theatre Voice II. Students continue to develop their skills of vocal technique, analysis, and performance established in Musical Theatre Voice II, while focusing these skills towards their application in auditioning for, and performing in, professional theatre. This course is repeatable for up to 3 credits.

THDA 721 - Arts Integration
Credits: 4
This course examines the value and practical application of incorporating the arts into non-arts educational settings. From the perspective of multiple intelligences and varied learning styles, students investigate how the arts can enhance teaching methodology by developing and implementing lesson plans for a variety of non-arts subject areas. Active theatre involvement is limited; the focus is on practicing teaching methods. Special fee. Writing intensive.
Attributes: Writing Intensive Course

THDA 727 - Methods of Teaching Theatre
Credits: 2-4
The capstone of the theatre education major’s studies. Designed for students who are preparing to enter student teaching. Provides practical information, skills, and lesson plans that theatre teachers use as source material for the secondary classroom. Covers a wide range of teaching models. Students define and articulate a personal teaching philosophy, write comprehensive semester curricula and course syllabi, and create an extracurricular program plan and philosophy. Prereq: THDA 520. Special fee. Writing intensive.
Attributes: Writing Intensive Course

THDA 729 - Community Oriented Drama Programs
Credits: 1-4
Advanced practicum in designing, developing, and producing drama programs for the school and community. Includes audience analysis and marketing skills as well as adapting spaces, soliciting volunteers, and working with a limited budget. May be repeated to a maximum of 12 credits. Special fee.

THDA 732 - Choreography
Credits: 4
Theoretical and practical consideration of the creative and aesthetic aspects of ballet, modern, and theatre dance. Prereq: THDA 633. Special fee.

THDA 741 - Directing
Credits: 4
A process oriented approach to the art of stage directing. The course begins with an in-depth focus on script analysis. Students then develop their skills as the "master storyteller" through imagination, interpretation, communication, and style. Prereq: THDA 551 and THDA 552. Special fee.
THDA 742 - Directing II  
Credits: 4  
In-depth study of the theory and practice of stage direction for the advanced student. Builds on 741, Directing. Students strengthen and expand their existing knowledge of the subject area. Exploration focuses on three areas of directorial communication: application to periods and styles, exploration of avant-garde theory, and directorial technique. Concludes with a major project mounted for public performance. Prereq: THDA 741. Special fee.  

THDA 755 - Advanced Musical Theatre  
Credits: 4  
Students learn to integrate and expand on techniques in previous acting, musical theatre, and voice classes, with special emphasis given to audition techniques, repertoire expansion and specialization, and in-depth analysis of the business and personal requirements necessary to be a successful artist in the professional theatre. Prereq: THDA 551 and THDA 655, or permission of the instructor. Special fee.  

THDA 758 - Acting III  
Credits: 4  
Applies the principles and techniques acquired by students in THDA 551 and THDA 552 to various genres, such as epic and absurdist, and to mediums such as television and film. Special attention is given to characterization beyond the student’s standard range and the development of the actor as a creative artist, using the techniques of such methodologists as Lacoq, Laban, and Grotowski. Prereq: THDA 551 and THDA 552. Special fee.  

THDA 759 - Acting: Period and Style  
Credits: 4  
Techniques of style analysis and period research. For the first time in the students’ undergraduate actor training, students synthesize their basic actor training with the heightened language and archetypal characterization inherent in the classical theatre of the ancient Greeks, the Commedia dell’ Arte, the Renaissance, the Neoclassical period, and the Restoration period. Prereq: THDA 470, THDA 551, THDA 552; one semester of THDA 436 or THDA 438, or permission. Special fee.  

THDA 760 - Teacher Planning for Theatre  
Credits: 4  
Focuses on lesson and unit planning for the areas of high school theatre history, play analysis, and play writing. Students will practice various methods of teaching these areas of drama. Prereq: THDA 436 and THDA 438. Special fee.  

THDA 786 - Dance Pedagogy  
Credits: 4  
Methods course that focuses on the art and science of teaching the movement forms of ballet, modern, jazz and tap. Designed to prepare students who are seeking dance certification with a M.Ed. or a M.A.T., or who wish to open their own studio. Provides background into the nature of teaching, standards that make up good teaching, awareness of National/State standards, and study and practice of lesson plans in K-12 school curricula or private studios. Prereq: THDA 462 and THDA 562, or THDA 463 and THDA 563, or permission of the instructor.  

THDA 791 - Internship in Theatre and Dance  
Credits: 2-8  
Fieldwork with a regional or touring theatre or with a theatre education program. This advanced-level internship allows the student to experience a professional theatre/theatre education setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. Written report required. May be part- or full-time with credits assigned accordingly. Permission required. May be repeated up to a maximum of 12 credits.  

THDA 795 - Independent Study  
Credits: 1-8  
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Writing intensive.  

Attributes: Writing Intensive Course  

THDA 796 - Independent Study  
Credits: 1-8  
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Writing intensive.  

Attributes: Writing Intensive Course  

THDA 798 - Senior Thesis  
Credits: 2  
Supervised research leading to the presentation of a major research paper. Prereq: permission, majors only, senior standing. Writing intensive.  

Attributes: Writing Intensive Course  

THDA 798H - Honors Senior Thesis  
Credits: 4  
Supervised research leading to the presentation of a major research paper; the resulting paper is defended in an oral presentation before department faculty. Required for graduation from the honors program in Theatre and Dance. Prereq: permission, majors only, and senior standing. Writing intensive.  

Attributes: Writing Intensive Course
THDA 799 - Capstone Project  
Credits: 2 or 4  
This required course incorporates and tests the knowledge that majors have learned over their careers in the Department of Theatre and Dance. Capstone experiences are tailored to each student through conference with their adviser in their specific Theatre and Dance track. Writing intensive.  
Attributes: Writing Intensive Course

THDA 799H - Honors/Capstone Project  
Credits: 4  
See description for THDA 799. THDa majors only. Writing intensive.  
Attributes: Writing Intensive Course

Tourism Planning & Development (TOUR)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

TOUR 400 - Introduction to Tourism  
Credits: 4  
Provides an informational foundation in tourism and gives a more extensive knowledge of the tourism industry. Examines historical perspectives, tourism organization, and supply and demand of the tourism industry. Discusses the dynamic and pluralistic nature of the tourism industry.

TOUR 510 - Tourism and Global Understanding  
Credits: 4  
Introduces ways in which tourism can act as a vehicle to understanding foreign cultures. Responsible tourism, has the potential to help bridge cultural and psychological distances that separate people of different races, religions, and socio-economic classes. Through responsible tourism we can learn to appreciate, trust, and respect the human diversity that our world has to offer. Helps students gain an informed acquaintance with other cultures and customs, and to understand the central role of tourism in international and cross-cultural understanding. Cr/F option.

TOUR 560 - Special Topics  
Credits: 2-4  
A) Heritage Tourism Planning, B) Rural Tourism Development. Prereq: TOUR 400. May be repeated.

TOUR 560H - Honors/Special Topics  
Credits: 4  
A) Heritage Tourism Planning, B) Rural Tourism Development. Prereq: TOUR 400. May be repeated.

TOUR 615 - Tourism Planning and Development  
Credits: 4  
The planning and development of tourist resources and programs within a geographic region. Planning models are reviewed and analyzed. The relationship among tourists, tourist developments, and the planning of tourist attractions and services is examined. A strategic planning process is applied to the development of a regional tourism plan in New Hampshire. Prereq: TOUR 400.

TOUR 700 - Marketing Communications Research: Methodological Foundations  
Credits: 4  
Concepts, tools, and techniques to facilitate accurate product, service, and idea marketing communications. Specific application to tourism and economic/community development initiatives are included. Prereq: Basic statistics course or permission.

TOUR 705 - Ecotourism: Managing for the Environment  
Credits: 4  
Ecotourism embraces both the environment and economics. Provides a comprehensive framework for planning and managing ecotourism in order to both maximize potential benefits and minimize potential costs for people and the environment. Seminar format. Case studies used to assess the role of ecotourism in the sustainable development of natural resources. Prereq: TOUR 400, juniors or seniors only.

TOUR 767 - Social Impact Assessment  
Credits: 4  
Provides a cross-disciplinary perspective on the issues, problems, and methods of Social Impact Assessment (SIA). Provides analytic approach and theoretical framework for the assessment of diverse events, including changes in the natural environment, the local economy, or dominant technology. SIA is required of most U.S. and Canadian federal- and state-sponsored projects that come under the National Environmental Protection Act, as well as all projects funded by international donor agencies. (Juniors and seniors only.) Writing intensive.  
Attributes: Writing Intensive Course

TOUR 792 - International Experience  
Credits: 1-4  
Travel to foreign country for study of a specific topic to be approved by the student's major adviser. Prereq: permission.

TOUR 794 - Internship  
Credits: 4-12  
Fieldwork brings students in a full-time, 15-week (600 hours) supervised situation where they have an opportunity to achieve a synthesis, transfer, and application of the academic experience in a setting similar to that associated with professional employment. Prereq: permission. May be repeated up to a maximum of 12 credits.

TOUR 798 - Independent Study  
Credits: 1-4  
Special assignments in readings, investigations, field problems. May include teaching experience. Prereq: permission.

TOUR 798W - Independent Study  
Credits: 1-4  
Special assignments in readings, investigations, field problems. May include teaching experience. Prereq: permission. Writing intensive.  
Attributes: Writing Intensive Course

UNHM Associate Degree English (ENG)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
ENG 301 - Introduction to College Composition and Reading
Credits: 4
Introduces students to academic standards of writing and reading at the college level through a variety of reading and writing tasks utilizing reflection, review and revision. Designed as a preparatory course for ENGL 401. Students are required to meet individually with instructors outside of class. May not be taken for credit toward a Bachelor's Degree. Special fee.

ENG #301A - Introduction to College Composition and Reading for ESL Students
Credits: 4
Introduces ESL/ESOL students to standards of academic English in listening, speaking, reading, and writing. Strengthens vocabulary and grammar skills. Designed as a preparatory course for ENGL 400. May not be taken for credit toward a Bachelor's Degree.

UNHM Independent Study (UMIS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

UMIS 599 - Independent Study
Credits: 1-4
Independent study with the approval and sponsorship of UNHM faculty of material not covered in regular course offerings. Barrng duplication of subject, may be repeated for credit up to a maximum of 8 credits.

UNHM Special Topics (UMST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

UMST 401 - First Year Seminar
Credits: 1
The focus of this seminar is not on a specific academic subject or field of study; instead, the focus is on the student. This course is intentionally designed and proactively delivered for the purpose of promoting personal success in college and in life after college--by fostering the development of skills or strategies that are both applicable and valuable across subjects. The course focuses on the following topics: college expectations and opportunities, campus resources, learning styles and strategies including lecture note-taking, test taking, memory and concentration; life management, goal setting, educational planning, career decision-making, health maintenance, diversity and instructor/student relationships. The course integrates personal growth, academic and career success with problem solving, critical and creative thinking.

UMST 500 - Internship
Credits: 1-4
The UNHM internship places students in a variety of business and organizational settings under the direction of a faculty adviser and workplace supervisor. Students fulfill the obligations of the workplace internship plan, as well as complete individually-designed projects of academic merit under the direction of UNH faculty. Open to matriculated students with a 2.5 GPA or better. Students must receive approval of the UNHM internship coordinator. May be taken from 1-4 elective credits per semester, to a maximum of 8 credits. Credit/Fail.

UMST 501 - Money and Independence
Credits: 1
This course provides students with an objective, neutral and current introduction to personal financial literacy. Students develop the skills necessary to establish good financial habits and a healthy financial future. This course helps students to become familiar with fundamental financial concepts including budgeting, credit, contracts, student loans, identity theft and planning for the future. No credit for students who have completed UMST 599 Money Literacy and Advocacy; students may not receive credit for both. Does not satisfy the English Core.

UMST 521 - Tutor Development
Credits: 3
This interdisciplinary course, team-taught by the Director and Assistant Director of the Learning Center, is intended to prepare undergraduates for working as peer tutors. Students will study theories of adult development, learn several approaches to tutoring in their discipline(s), and practice their tutoring and communication skills. This course may be taken for 2- or 4-credits. Cannot be repeated. Prereq: permission of instructor is required.

UMST 523 - Shared Learning
Credits: 2
Shared Learning aims to teach students about theories of collaborative learning, tutoring, and mentoring and to provide opportunities for the students to apply the theories. Students discuss ethical issues, conflict resolution, and differences in styles or goals. They develop and practice effective communication skills, including reflective listening and constructive feedback.

UMST 525 - Exploring Leadership
Credits: 1
Exploring Leadership seminar is an introductory course on the foundations of student development and leadership. There is a particular focus on student leadership with an emphasis on mentoring new students. The seminar is designed to enable students to formulate and articulate their own personal philosophy of leadership and a leadership action plan. This course is applicable to any student already involved or interested in college leadership. No credit for students who have completed UMST 599: Exploring Leadership.

UMST 526 - Social Justice and Student Leadership
Credits: 1
An exploration of social justice through personal and institutional lenses to analyze power and privilege, discrimination and prejudice, inclusion and equity through the intersections of multiple identities of race, gender, sexual orientation, class, nationality, ethnicity, ability and religion to develop student leaders who will also promote an equitable and inclusive environment and serve as social change agents at the college, on the campus, and in a diverse global society.

UMST 531 - Engaging in the Community: Learning through Service
Credits: 1-4
Students provide service to the community while engaging in meaningful experiences that build upon their skills and interests and help develop an awareness of civic issues and community needs. The primary purpose of the course is to work in the community to meet a community need. Student critically reflect on their experiences in a bi-weekly seminar through in-class discussions, readings, and journaling. Course may be repeated for a total of 8 credits.
UMST 581 - Exploring Your Career Options  
Credits: 1  
This course is designed to teach students how to make informed decisions about their career aspirations. Students will learn to identify essential resources that will assist them in gaining a better understanding of opportunities available to them. Career choice is very personal, therefore each student will identify a minimum of two paths of interest to research. By comparing and contrasting options, participants will be better prepared to accomplish and own their academic and career goals. Letter grades are assigned. This course cannot be repeated for credit. Students who enrolled in UMST 599 Internship and Career Planning Seminar previously are not eligible to take this course for credit.

UMST 582 - Internship and Career Planning Seminar  
Credits: 1  
This course is strongly encouraged for any student seeking internship and/or employment opportunities. Participants will research and evaluate opportunities related to their career interests, conduct informational interviews, create tailored resumes and cover letters, use LinkedIn as a networking and job search resource, and participate in employer-based resume reviews and mock interviews. This course is open to all students in all majors and is suited for students interning and/or seeking employment within the next six months. Letter grades are assigned. This course cannot be repeated for credit. Students who enrolled in UMST 599 Internship and Career Planning Seminar previously are not eligible to take this course for credit.

UMST 599 - Special Topics  
Credits: 1-4  
Occasional offerings dependent on availability and interest of faculty, barring duplication of subject, may be repeated for credit.

UMST 601 - Community Based Research  
Credits: 4  
Students will conduct an authentic research project(s) focused on a local community issue(s) in partnership with a local nonprofit organization(s). The primary purpose of the course is for students to experience the research process working closely with faculty and community partners. All phases of the research process are explored in this seminar style class. Course may be repeated for a total of 8 credits. Instructor permission required.

UMST 799 - Pre-Pharmacy Concurrent Enrollment  
Credits: 1-20  
Registration place-holder for students completing the fourth year of their B.A. Biology Program at Massachusetts College of Pharmacy and Health Studies in the Pre-Pharmacy articulation program.

Veterinary Technology (VTEC)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

VTEC 424 - Introduction to Veterinary Technology  
Credits: 2  
An overview of the veterinary technology field. Topics in veterinary office practice management are covered, including, appointment scheduling, inventory control, financial transactions, client communication and regulatory, legal, and ethical aspects of veterinary practice. Other topics include veterinary technician and animal science career options, professional development and domestic animal management including breed identification, terminology, and husbandry.

VTEC 497 - Veterinary Technology Work Experience  
Credits: 0  
Provides students supervised introductory hands-on experience in a veterinary medical facility. Students apply skills learned in animal handling and nursing, laboratory methods, client communication and practice management courses. Students are responsible for obtaining a position in an approved veterinary facility and need to complete a minimum of 80 hours of work to fulfill course requirements. Must have rabies vaccine series completed prior to the start of the semester. Open to veterinary technology students only. Prereq: AAS 449.

VTEC 565 - Pharmacology for Veterinary Technicians  
Credits: 4  
This course provides study in the area of veterinary medicines emphasizing classes and actions of drugs, calculating dosages, proper administration, and dispensing of drugs. Topics include general pharmacology, calculating dosages, pharmacy regulation guidelines and record keeping. Case-based learning is utilized to correlate common diseases in companion animals with associated pharmacological agents. Specifically, disease pathogenesis, diagnosis, and treatment options are discussed along with pertinent technician interventions and evaluations. Prereq: AAS 228, MTH 202.

VTEC 575 - Veterinary Anesthesia and Surgical Assisting  
Credits: 4  
Theory and practical techniques for providing safe and effective anesthesia to veterinary patients, and providing nursing care and assistance in all aspects of veterinary surgery. Veterinary dental care is covered as well. For veterinary technology majors only. Prereq: AAS 550, AAS 579, VTEC 565. Veterinary Technology majors only.

VTEC 579 - Small Animal Practicum for Veterinary Technicians  
Credits: 2  
An applied, companion animal care class held off-campus at the NHSPCA and/or Cocheo Valley Humane Society. Students work as a team to provide nursing care to shelter animals. Care includes patient evaluation, administration of medication and fluids, wound management, collection and analysis of diagnostic samples, and medical record keeping. Species are primarily dogs and cats but may also include other small mammals and birds. Prereq: AAS 579. Veterinary Technology majors only.

VTEC 582 - Pet Access to Wellness Services (P.A.W.S.)  
Credits: 1  
PAWS provides veterinary technology students a service learning opportunity. Students manage a wellness clinic for pets, developing staffing and appointment schedules and education materials, and performing appropriate procedures on pets. Students are also responsible for providing laboratory and diagnostic services to shelter pets as needed throughout the semester. 2 semesters of 1 credit each are required. Prereq: AAS 449, VTEC 439.

VTEC 583 - Large Animal Practicum  
Credits: 2  
An applied large animal class covering basic veterinary nursing care and procedures, focusing on horses and cows. The majority of class time is spent practicing hands-on skills with animals. Restricted to veterinary technology students only. Prereq: AAS 421, AAS 250.
VTEC 595 - Veterinary Technology Internship  
Credits: 3  
Provides students supervised hands-on experience in a veterinary medical facility within a clinical setting, students apply skills learned in animal handling and nursing, diagnostics and laboratory, client communication and practice management courses. Students are responsible for obtaining a position in an approved veterinary facility prior to the start of the semester. Open to veterinary technology students only. Prereq: AAS 550, AAS 579.

Women's Studies (WS)  

WS 401 - Introduction to Women's Studies  
Credits: 4  
Interdisciplinary survey of the major areas of women's studies: women's history, cross-cultural perspectives, women in literature, psychology of women, etc. Basic principles and concepts fundamental to more advanced women's studies research. Topics vary. Required for major and minor. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

WS 401H - Honors/Introduction to Women's Studies  
Credits: 4  
Interdisciplinary survey of the major areas of women's studies: women's history, cross-cultural perspectives, women in literature, psychology of women, etc. Basic principles and concepts fundamental to more advanced women's studies research. Topics vary. Required for major and minor. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Writing Intensive Course

WS 405 - Gender, Power and Privilege  
Credits: 4  
This course explores the diversity of women's lives through the dynamics of status, power, privilege, and inequality in contemporary United States. Students will examine women's diverse experiences by using the theoretical framework of the social construction of race, gender, economic class, and sexual orientation in historical context. We will examine categories of difference and the processes, philosophical developments, institutions, and conditions that lead to and rely on power and privilege in modern American society.  
Attributes: Humanities(Disc); Literature, Phil, Ideas GP 8

WS 444 - Trans/Forming Gender  
Credits: 4  
Using a social construction approach, students explore the multiple ways in which gender is constructed within the lives of children, women, men, and transgender people. Specific attention focuses on the social institutions and systems that encourage both the construction and reproduction of gender identity and expression across the lifespan. Students actively participate in identifying historical and current day factors and institutions that shape gender. Students explore the roles of families, schools, educational settings, media, the workplace, recreation activities, the medical system, religion, laws, and the laws and the legal system in the construction of gender.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery)

WS 444A - Race Matters  
Credits: 4  
Class examines race categories in the United States and how these historically changing categories shape our diverse realities across racial, ethnic, gendered, classed, and national identities. Students examine race as a category of difference and explore the multiple ways that individuals claim racial identities. Specific attention focuses on how diverse women have made history in their own lives and in the lives of others by resisting the interlocking systems of oppression.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery)

WS 444B - Score!: Gender and Diversity in Sports  
Credits: 4  
Utilizing guest lectures, films, readings, projects and discussion, this writing intensive course provides first-year students with the opportunity to investigate the social, historic, economic and political factors that shape sports opportunities for girls and women in the United States. Students examine the extent to which sports experiences are the same for all girls and women in their diversity, as well as comparable to males across their differences. Writing intensive.  
Attributes: Social Science (Discovery); Social Science GP 7; Inquiry (Discovery); Writing Intensive Course

WS 444C - On the Roads to Equality  
Credits: 4  
Looking beyond what is traditionally thought of as the women's rights movement in the United States, this course remaps women's history and activism to include a diversity of women's experiences. A multicultural examination of history focuses on women's leadership and participation in immigrant rights, labor, the Black Women's Club, economic justice, reproductive rights, self determination and feminist movements during the 19th and early 20th centuries. Writing intensive.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery); Writing Intensive Course

WS 444D - Cyborgs, Avatars, and Feminists: Gender in the Virtual World  
Credits: 4  
Utilizing feminist theoretical and critical investigations of gender and techno culture, students explore women's popular and theoretical conceptions of cyberspace. Students explore numerous digital communication systems within cyberspace and examine how and why a diversity of women utilize these systems. This course provides students with the opportunity to investigate the impact that advancements in virtual technology have in the lives of women.  
Attributes: Environment, TechSociety(Disc); Technology GP 3T; Inquiry (Discovery)

WS 505 - Survey in Women's Studies  
Credits: 4  
In-depth study of topics not covered in regular course offerings. The course explores the breadth and depth of Women's Studies from a historical perspective. In order to understand Women's Studies currently, students look at the historical foundations that contribute social, political, and economic influences on the topics. Barring duplication of topic, may be repeated for credit.  
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4; Inquiry (Discovery)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
WS 510 - Framing Feminism: Gender Politics in Film
Credits: 4
This course examines the history of feminist struggle in the U.S. by critically viewing and analyzing diverse films from the 1970s to the present. Students learn about the three waves of feminism and the various sociocultural, economic, sexual and political issues faced by women in the long and ongoing quest to achieve gender equality. Students explore methods of historical inquiry and film criticism to enable complex analyses of historical developments and contemporary arrangements of power. Attention is paid to how multiple identities and forms of oppression intersect in women’s diverse lived experiences.
Attributes: Historical Perspectives(Disc); Historical Perspectives GP 4

WS 515 - Game Girl: The Social Construction of Gender Identities in Video Games
Credits: 4
This course examines the representations of girls and women in digital gaming environments and patterns of digital game play. Students explore how gender intersects with the broader contexts of digital games and the game industry. Specific attention focuses on the Girl’s Game Movement and the extent to which females are influenced by female characters in video games and how they are influencing the creation of new representations of females in video games.
Attributes: Social Science (Discovery); Social Science GP 7

WS 595 - Special Topics
Credits: 1-4
In-depth study of topics not covered in regular course offerings. Prereq: permission; WS 401.

WS 595W - Special Topics
Credits: 1-4
In-depth study of topics not covered in regular course offerings. Prereq: permission; WS 401. Writing intensive.
Attributes: Writing Intensive Course

WS 632 - Feminist Thought
Credits: 4
Theories of women’s oppression and emancipation explored from various historical, political, cultural, and social perspectives. A major goal of the course is to increase awareness of historical and contemporary feminist approaches to understanding women’s experiences, representations, and relative positions in societies. The course also considers the interrelation of theory and practice and the impact of past feminist theories on feminist movements. Prereq: WS 401 or WS 405. Writing intensive.
Attributes: Writing Intensive Course

WS 795 - Independent Study
Credits: 1-4
For advanced students who have the preparation to carry out an individual project of supervised research on a specific women's studies topic. Preparation should include WS 401 or equivalent, and/or other women's studies courses. Barring duplication of topic, may be repeated for a maximum of 8 credits. Prereq: permission of instructor and women's studies coordinator.

WS 796 - Advanced Topics
Credits: 4
Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission.

WS 796W - Advanced Topics
Credits: 1-4
Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission. Writing intensive.

WS 797 - Internship
Credits: 4
Students gain practical experience in a woman-focused agency or organization. Plan of study and requirements are developed together with a faculty adviser and the student’s workplace adviser. Bi-monthly seminar with all internship students and instructor. Prereq: permission. WS majors or minors. May be repeated up to a maximum of 8 credits.

WS 798 - Colloquium
Credits: 4
Intensive study of specialized topic for advanced students. Topics vary with instructor. Barring duplication of topic, may be repeated for credit. Required for WS majors. Writing intensive.
Attributes: Writing Intensive Course

WS 799 - Honors Thesis
Credits: 4-8
With a faculty sponsor, students enrolled in the honors-in-major program develop an independent, investigative project in women's studies. Written thesis. Prereq: permission, majors only.

Zoology (ZOOL)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ZOOL 400 - Professional Perspectives in Zoology
Credits: 1
Presentations by departmental faculty provide an informal overview of various zoological topics and professional opportunities. The course acquaints students with faculty, provides information on departmental research projects, and facilitates early research involvement for students. Required for all first-year zoology majors. (Fall only). Cr/F.

ZOOL 401 - Human Biology
Credits: 4
Elementary study of structure, function, and development of all systems of the body. No credit toward major or minor. Cannot be taken for credit after BMS 507 and BMS 508. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

ZOOL 406 - Evolution of Human Behavior
Credits: 4
All species are subject to evolutionary forces and humans, including our vast array of behaviors, are no exception. We therefore explore human behavior in the context of evolution by natural selection, with a focus on current research in this field. By understanding the behavioral adaptations that allowed our human ancestors to better navigate the challenges of survival and reproduction, we can hope to understand our own actions on a more integrative, comprehensive level.
Attributes: Biological Science(Discovery); Biological Science GP 3B
ZOOL 412 - Biology of Animals
Credits: 4
Fundamentals of modern animal biology from cells to organisms, including structure, function, genetics, development, ecology, and the diversity produced by animal evolution. Weekly demonstrations and virtual e-labs provide a hands-on introduction to the animal kingdom. Special fee. Lab. (Fall semester only.)
Attributes: Biological Science(Discovery); Discovery Lab Course; Biological Science GP 3B

ZOOL 444 - Dogs to Dragons: Origins of Species
Credits: 4
A freshman "inquiry" seminar introducing fundamental evolutionary concepts and mechanisms, as well as examining the nature of science, and the ways in which scientists use imagination and inference to better understand the natural world. Through evolutionary case studies ranging from the very real to the purely imaginary, students learn to compare and assess explanatory hypotheses, and to use creative, scientifically-disciplined inference as working scientists do. They also develop their abilities to decide what is or isn't science, and to judge the relevance and adequacy of evidence claimed to support hypotheses. The course begins by introducing the mechanism of natural selection through the engaging example of dog domestication, move from there to broader discussions of speciation (including species definitions, and case studies of speciation in progress). The central portion of the course focuses on issues of definitions (what is a "hypothesis" anyway?), and developing increasingly sophisticated and well-informed judgments about different sorts of biological information. In the final section, we explore proper and improper roles of imagination and creativity in science: how (and why) real scientists use fictional species, and how to tell the difference between fictions and frauds while leaving room for humor and invention. Writing intensive.
Attributes: Biological Science(Discovery); (Discovery); Writing Intensive Course

ZOOL 518 - Vertebrate Morphology
Credits: 5
Evolutionary and comparative examination of vertebrate anatomy. Covers the structure of the major systems at both the macroscopic and microscopic levels. Prereq: BIOL 411 and BIOL 412 or equivalent. Special fee. Lab.

ZOOL 529 - Developmental Biology
Credits: 4
Introduces developmental biology, examining basic developmental mechanisms and their evolutionary contexts. Principles and tools of the trade, overview of major developmental events in various phyla, current areas of research and other special topics. Labs include different ways to observe development (from low- to high-tech), and work with selected live material. Prereq: BIOL 411 and BIOL 412 or equivalent. No credit if credit earned for ZOOL 729. Special fee. Lab.

ZOOL 542 - Ornithology
Credits: 4
Identification and biology of birds, especially those of northeastern United States. Involves field trips, laboratory work, and lectures. Prereq: one semester of biology. (Spring semester only.)

ZOOL 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

ZOOL 610 - Principles of Aquaculture
Credits: 4
Introduces the culture practices employed for production of aquatic organisms. Topics include ecological and environmental considerations, selective breeding, nutrition, diseases, processing, and marketing. Emphasis on finfish. Prereq: BIOL 411 and BIOL 412 or equivalent.

ZOOL 611 - Principles of Aquaculture Lab
Credits: 2
Laboratory exercises in aquaculture covering the use of chemical reagents to monitor water quality; brood stock feeding and management; use of anesthesia and fish handling; spawning marine finfish; culturing algae, rotifers and Artemia for marine larviculture; larviculture of marine finfish; assessing fish growth; hatchery hygiene. Includes site visits to local production facilities. Prereq: BIOL 411 and BIOL 412 or equivalent. Coreq: ZOOL 610.

ZOOL 613 - Animal Behavior
Credits: 5
Introduces the naturalistic study of animal behavior. Emphasizes the evolution, development, physiology, and ecology of behavior. Topics include the genetic and acquired bases of behavior; neuroethology and behavioral endocrinology; communication, orientation, foraging strategies, reproductive ecology, and the evolution of altruistic behavior. Prereq: BIOL 412 or equivalent. Lab. Writing intensive. Special fee.
Attributes: Writing Intensive Course

ZOOL 625 - Principles of Animal Physiology
Credits: 3
Introduces the principles of animal function. The major systems (digestion, metabolism, respiration, circulation, osmotic and ionic regulation, nerve-muscle function, endocrine control) are covered with emphasis on functional mechanisms at the cell and tissue levels. Prereq: one year of introductory biology is required.

ZOOL 626 - Animal Physiology Laboratory
Credits: 2
Basic training in the measurement of function in animals, data analysis and expression, and the development of scientific communication skills. Special fee. Writing intensive.
Attributes: Writing Intensive Course

ZOOL 628 - Marine Invertebrate Evolution and Ecology
Credits: 5
Stresses the rich diversity of marine invertebrates by integrating phylogenetic trends with physiological and behavioral adaptation, and with ecological and symbiotic interactions. Offers a comparative survey of invertebrates from protozoans to protostomes; deals with aspects of form and function, development, evolution, classification, ecology, and natural history. Students work with live and preserved animals. Extensive dissections and a field component are required. Prereq: BIOL 411 and BIOL 412. Special fee. Lab. (Not offered every year.)
ZOOL 690 - Evolution
Credits: 4
Biological evolution is the changes within populations of organisms that extend beyond the lifetime of individuals. Darwin's mechanism of evolution by natural selection, and other evolutionary forces, explain the diverse adaptations of organisms to different environments. Topics include principles of heredity, sources and maintenance of variation, adaptation, speciation, classification, development, the history of life and the earth, and current controversies. Prereq: BIOL 411 and BIOL 412 or equivalent. Writing intensive.
Attributes: Writing Intensive Course

ZOOL 710 - Ichthyology
Credits: 4
Introduces the evolution, systematics, anatomy, physiology, and ecology of fishes, with emphasis on New England species. Prereq: principles of biology or equivalent. Lab. (Offered in alternate years.) Special fee.

ZOOL 721 - Aquatic Invasive Species
Credits: 4
Capstone course for a limited number of biological science majors to work closely with and help teach a Discovery course for non-majors in biology. Involves lectures, discussions, and laboratory and field exercises and write-ups focusing on managing aquatic invasive species based on an understanding of their ecology. Special fee.

ZOOL 726 - Conservation Behavior
Credits: 4
Conservation biology is well established as a crucial bridge between basic biology and resource management. Recently, biologists have begun to recognize the importance of the link between conservation and animal behavior. Management strategies can have very real impacts on the behavior of animals; likewise, animal behavior (in captivity and the wild) should inform our approach to conservation in a variety of contexts. This interdisciplinary course explores the causes and consequences of this relationship. Prereq: at least one of the following ZOOL 713, NR 650, or permission. Writing intensive.
Attributes: Writing Intensive Course

ZOOL 733 - Behavioral Ecology
Credits: 4
Behavioral adaptations of animals to their environment, including the evolution of behavior and behavioral genetics; foraging and competition for resources; reproductive ecology, mating systems and parental care; and the evolution of cooperative behavior. Examples include both vertebrates and invertebrates. Emphasizes critical understanding of concepts as exhibited in oral and written exercises. Students conduct independent investigations. Prereq: ZOOL 713 or permission. Lab. (Offered in alternate years.) Writing intensive.
Attributes: Writing Intensive Course

ZOOL 736 - Genes and Behavior
Credits: 4
Genes and behavior examines the genetic underpinnings of animal behavior, and how behavior evolves on a genetic level. The course primarily relies on readings from the primary literature, using examples from laboratory model organisms, animals in their natural habitats, and humans. Topics include aggressiveness, social behavior, personality, parental care, communication, mating behavior, novelty seeking behavior, and foraging. This interdisciplinary course examines these behaviors at multiple levels, including genomics, population genetics, molecular genetics, epigenetics, endocrinology, and neurobiology. Prereq: GEN 604 and ZOOL 713 or equivalent.

ZOOL 745 - Biology and Diversity of Insects
Credits: 4
The lecture examines the unique biology and structure of insects, the most diverse group of organisms. The laboratory project is based on past public requests for an understanding of aquatic insect biodiversity in streams. Experience in sampling, sorting, and identifying aquatic insects is developed, and an understanding of biodiversity indices is developed for a formal report and presentation. Prereq: BIOL 411 and 412 or equivalent. Special fee. (Not offered every year).

ZOOL 750 - Biological Oceanography
Credits: 4
Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ESCL 750.) Special fee. Lab. (Not offered every year.)

ZOOL 772 - Fisheries Biology
Credits: 3
Principles of fisheries science, with emphasis on techniques used to assess the biological characteristics of exploited fish populations, and the use of such information for fisheries management. Prereq: ZOOL 710 or equivalent; permission. (Not offered every year.)

ZOOL 773 - Physiology of Fish
Credits: 4
Investigates the physiological processes responsible for maintaining homeostasis in fishes. Focuses on the function and regulation of the major organ systems during stress and environmental adaptation. Topics include reproduction, osmoregulation, digestion, endocrinology, and sensory perception.

ZOOL 777 - Neurobiology and Behavior
Credits: 4
Survey of fundamental concepts and recent discoveries in neurobiology. Topics include structure and function of neurons, development, cellular basis of behavior (sensory and motor systems), neuropharmacology, and neural plasticity (learning). Prereq: BIOL 411 and BIOL 412 or permission. Physiology (ZOOL 625) also desirable.

ZOOL 795 - Special Investigations
Credits: 1-4
Independent study in various areas including but not limited to animal behavior, developmental biology, ecology, endocrinology, evolution, ichthyology, genetics, history of biology, invertebrate biology, neurobiology and behavior, protozoology, teaching practices, underwater research, vertebrate biology, and biological techniques. Course sections for advanced work, individual or group seminar. May include reading, laboratory work, organized seminars, and conferences. Prereq: permission of instructor needed.

ZOOL 795W - Special Investigations
Credits: 1-4
Independent study in various areas including but not limited to animal behavior, developmental biology, ecology, endocrinology, evolution, ichthyology, genetics, history of biology, invertebrate biology, neurobiology and behavior, protozoology, teaching practices, underwater research, vertebrate biology, and biological techniques. Course sections for advanced work, individual or group seminar. May include reading, laboratory work, organized seminars, and conferences. Prereq: permission of instructor needed. Writing intensive.
Attributes: Writing Intensive Course
ZOOL 799 - Honors Senior Thesis

Credits: 1-4

Working under the direction of a faculty sponsor, the student plans and carries out independent research resulting in a written thesis. Limited to students entering their senior year; required for students in the honors program or working toward honors-in-major. Prereq: permission. A two-semester sequence. 2-4 credits each semester; 8 credits maximum. IA (continuous grading) given at the end of the first semester. Writing intensive.

Attributes: Writing Intensive Course
Faculty Listing

The faculty listing in the catalogs are static and updated annually in the Fall. The 2017-2018 faculty listing in the catalogs will be updated in Fall 2017. The Fall 2016 faculty listing will appear in the 2017-2018 catalogs until that time.

A

Abbott, Katherine R
LECTURER
Sociology

Abeles, Sigmund M
PROFESSOR EMERITUS
A.B., Univ of South Carolina, 1955
M.F.A., Barnard College, 1957

Aber, John D
PROFESSOR
Natural Resources & The Environment
B.S., 1971, M.F.S., 1973, Ph.D., Yale University, 1976

Abrams, Eleanor D
EXECUTIVE DIRECTOR
Engagement & Academic Outreach
B.S., University of Massachusetts - Amherst, 1983
Ph.D., Louisiana State University, 1994

Abramson, Seth D
ASSISTANT PROFESSOR
English
B.A., Dartmouth College, 1998
J.D., Harvard Law School, 2001
M.F.A., University of Iowa, 2009
M.A., University of Wisconsin, 2010

Abril Sanchez, Jorge
LECTURER
Languages, Literatures, & Cultures
B.A., Universidad de Oviedo, Spain, 2001
M.A., University of Massachusetts - Amherst, 2004

Adamovich, Frank W
ASSOCIATE PROFESSOR EMERITUS
B.S., Fitchburg State College, 1960
M.S., Simmons College, 1968

Adams, Nancy E
EXTENSION EDUCATOR EMERITA
M.S., Michigan State University, 1977

Adams, Robert L A
ASSOCIATE PROFESSOR EMERITUS
B.A., Williams College, 1961
M.A., 1966, Ph.D., Clark University, 1971

Afolayan, Funso S
ASSOCIATE PROFESSOR
History

Aikens, Melissa L
ASSISTANT PROFESSOR

Akiyama, Sachiko
ASSISTANT PROFESSOR
Art and Art History
B.A., Amherst College, 1995
M.F.A., Boston University, 2002

Aktekin, Tevfik
ASSOCIATE PROFESSOR
Decisions Sciences
B.S., Yildiz Technical University, Turkey, 2002

Al Jawad, Bessam Z
LECTURER
Electrical & Computer Eng Dept

Alexander, Lee
RESEARCH ASSOCIATE PROFESSOR EMERITUS
B.S., Marietta College, 1968
M.S., University of New Hampshire, 1980

Aliano, Richard A
SENIOR LECTURER
Political Science
B.A., 1968, M.A., City University of New York, 1969
J.D., St. John's University - New York, 1981

Aliouche, El-Hachemi
ASSOCIATE PROFESSOR
Hospitality Management

Allen, Jenica M
ASSISTANT PROFESSOR
Natural Resources & The Environment
B.A., Smith College, 2003
M.S., University of Virginia, 2007
Ph.D., University of Connecticut, 2012

Alonzo, Roy S
PROFESSOR EMERITUS
A.S., Becker Junior Coll, 1951
B.S., Boston University, 1953
M.B.A., Western New England Univ, 1961
Ed.D., Nova College, 1978

Alperin, Holly L
CLINICAL ASSISTANT PROFESSOR
Kinesiology
B.S., Central Michigan Univ, 1999
M.Ed., Boston University, 2003

Amato-Wierda, Carmela C
ASSOCIATE PROFESSOR
Dean's Office - CEPS
B.A., Harvard University, 1988
Ph.D., Rensselaer Polytechnic Institute, 1993
Ames, Raina S
ASSOCIATE PROFESSOR
Theatre & Dance
B.A., 1990, M.Ed., Western Illinois University, 1999
M.F.A., Virginia Commonwealth University, 2002

Amsden, Katherine
ASSOCIATE PROFESSOR EMERITA
A.B., Sweet Briar College, 1953
M.S., Smith College, 1956
Ph.D., University of Southern California, 1967

Andam, Cheryl Marie P
ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.S., University of The Philippines, Philippines, 1998
M.S., State University of New York at Binghamton, 2007
Ph.D., University of Connecticut, 2011

Andersen, Kenneth K
PROFESSOR EMERITUS
B.S., Rutgers University, 1955
Ph.D., University of Minnesota, 1959

Anderson, Franz E
PROFESSOR EMERITUS
B.A., Ohio Wesleyan University, 1960
M.S., Northwestern University, 1962
Ph.D., University of Washington, 1967

Andrade, Arturo S
AFFILIATE ASSISTANT PROFESSOR
Biological Sciences
B.S., University of Michoacan, Mexico, 2001
Ph.D., National Polytechnic Institute of Toulouse, France

Andrew, David S
PROFESSOR EMERITUS
Ph.D., Washington University, 1977

Andrew, Michael D
PROFESSOR EMERITUS
B.S., Cornell University, 1960

Andrews, Tama H
SENIOR LECTURER
Political Science

Annicchiarico, Michael J
PROFESSOR
Music
B.M., University of New Hampshire, 1976
M.F.A., 1981, Ph.D., Brandeis University, 1993

Annis, William H
PROFESSOR EMERITUS
B.S., University of Maine, 1951
M.A.Agr., University of New Hampshire, 1959
Ed.D., Cornell University, 1961

Antosiewicz, Rose T
ASSOCIATE PROFESSOR EMERITA
A.B., Brown University, 1954
Ph.D., University of California - Los Angeles, 1971

Arcand, Carolyn L
LECTURER
Political Science
B.S., Syracuse University, 2001
M.P.A., University of Southern Maine, 2006
M.S., 2011, Ph.D., University of Massachusetts - Boston, 2014

Armenti, Karla R
RESEARCH ASSISTANT PROFESSOR
Institute on Disability
B.A., Norwich University, 1981
M.S., 1995, Ph.D., University of Massachusetts - Lowell, 2001

Armstrong, Jennifer K
PRINCIPAL LECTURER
Philosophy
M.A., 1985
MTS, Harvard Divinity School, 1987
M.A., University of Massachusetts - Amherst, 1991

Arnoldy, Roger L
PROFESSOR EMERITUS
B.S., Saint Mary'S Coll (Minn), 1956
M.S., 1959, Ph.D., University of Minnesota, 1962

Aronson-Shore, Carol
PROFESSOR
B.F.A., Boston University, 1963
M.A., University of Chicago, 1965

Arthanat, Sajay
ASSOCIATE PROFESSOR
Occupational Therapy
B.S., Santosh College Occupational Therapy, India, 1997

Asbjornsen, Heidi
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., Carleton College, 1989
M.S., 1993, Ph.D., Yale University, 1999

Ashcraft, Catherine M
ASSISTANT PROFESSOR
Natural Resources & The Environment
B.A., University of Pennsylvania, 1998
M.S., Yale University, 2002
Ph.D., Massachusetts Institute of Technology, 2011

Ashley, Charles H
ASSOCIATE PROFESSOR EMERITUS
A.B., Dartmouth College, 1957
M.Ed., University of New Hampshire, 1960
Ed.D., Boston University, 1969

Ashton-Savage, Audrey
PRINCIPAL LECTURER
Marketing

Ashwell, Thomas W
PRINCIPAL LECTURER
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
<th>Education</th>
</tr>
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<tbody>
<tr>
<td>Atallah, Shady S</td>
<td>Assistant Professor</td>
<td>Natural Resources &amp; The Environment</td>
<td>B.S., 2003, MENG, Holy Spirit University of Kaslik, Lebanon, 2003 M.Sc., American Univ of Beirut, 2006 M.S., University of California, 2009 Ph.D., Cornell University, 2014</td>
</tr>
<tr>
<td>Aytur, Semra A</td>
<td>Associate Professor</td>
<td>Health Management &amp; Policy</td>
<td>B.A., Brown University, 1991 M.P.H., Boston University, 1996 Ph.D., University of North Carolina, 2005</td>
</tr>
<tr>
<td>Babbitt, Kimberly J</td>
<td>Associate Dean</td>
<td>Natural Resources &amp; The Environment</td>
<td>B.S., University of New Hampshire, 1984 M.S., Texas A &amp; M University, 1988 Ph.D., University of Florida, 1996</td>
</tr>
<tr>
<td>Baber, Kristine M</td>
<td>Associate Professor Emerita</td>
<td>University of New Hampshire, 1984</td>
<td>M.A., 1981, Ph.D., University of Connecticut, 1983</td>
</tr>
<tr>
<td>Bailey, Brigitte G</td>
<td>Associate Professor</td>
<td>English</td>
<td>B.A., University of Virginia, 1977 A.M., 1980, Ph.D., Harvard University, 1985</td>
</tr>
<tr>
<td>Bailey, Cristina J</td>
<td>Assistant Professor</td>
<td>Accounting and Finance</td>
<td>B.B.A., 2003, M.Acc., University of New Mexico, 2005 Ph.D., Texas Tech University, 2015</td>
</tr>
<tr>
<td>Baker, Alan L</td>
<td>Associate Professor</td>
<td>Biological Sciences</td>
<td>B.A., State University of New York at Binghamton, 1966</td>
</tr>
<tr>
<td>Baber, Nelson A</td>
<td>Associate Professor</td>
<td>Hospitality Management</td>
<td>B.S., San Jose State University, 1978 A.O.S., Culinary Institute of America, 2004 M.S., Purdue University, 2005 Ph.D., Texas Tech University, 2008</td>
</tr>
<tr>
<td>barcelona, Robert J</td>
<td>Associate Professor</td>
<td>Recreation Management &amp; Policy</td>
<td>B.A., University of Mississippi, 1993</td>
</tr>
</tbody>
</table>
Barkey, Dale P
PROFESSOR
Chemical Engineering
B.A., Clark University, 1979
M.S., University of Cincinnati, 1982
Ph.D., University of California - Berkeley, 1987

Barksdale, Pamela J
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Barnaby, Roland T
EXTENSION EDUCATOR EMERITUS
B.Ed., Plymouth State University, 1963
M.Ed., University of New Hampshire, 1970

Barnett, Carole K
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Management

Barney, Dwight
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B.S., 1967, M.S., University of New Hampshire, 1972

Barrett, James P
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B.S., Nc State University, 1954
M.F., 1958, Ph.D., Duke University, 1962

Barretto, Timothy E
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Thompson School of Applied Science
B.A., 1974, M.A., University of New Hampshire, 1982

Barrows, Clayton W
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Hospitality Management

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B.S., 1961, M.Ed., Saint Lawrence Univ, 1965

Barth, Brian M
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Molecular, Cellular, & Biomedical
B.S., 2004, M.S., Colorado State University, 2005
Ph.D., University of Alaska, 2009

Bartlett, David S
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B.A., Amherst College, 1971
M.S., 1976, Ph.D., University of Delaware, 1979

Bartos, Radim
ASSOCIATE PROFESSOR
Computer Science
M.S., Czech Technical University, Czech Republic, 1987
M.S., 1996, Ph.D., University of Denver, 1997

Bartow, Ann M
PROFESSOR

UNHL FP IP Center
B.S., Cornell University, 1985
J.D., University of Pennsylvania, 1990
LL.M., Temple University, 1997

Basterra, Maria
PROFESSOR
Mathematics & Statistics
B.S., University of Texas at Austin, 1992
M.S., 1993, Ph.D., University of Chicago, 1998

Batterson, Sarah A
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History
B.A., Vassar College, 2001
M.A., Brandeis University, 2005
Ph.D., University of New Hampshire, 2013

Bauer, Christopher F
PROFESSOR
Chemistry
B.S., University of Notre Dame, 1974
M.S., University of Illinois at Urbana-Champaign, 1976
Ph.D., Colorado State University, 1979

Baughman, Reagan A
ASSOCIATE PROFESSOR
Economics
B.A., Drew University, 1996
M.A., 1999, Ph.D., Syracuse University, 2001

Baum, William M
PROFESSOR EMERITUS
A.B., 1961, Ph.D., Harvard University, 1966

Baxter, Charlene F
STATE EXTENSION SPECIALIST EMERITA
B.S., 1974, M.S., Cornell University, 1982

Bean, Gretchen H
CLINICAL ASSISTANT PROFESSOR
Social Work
B.A., University of New Hampshire, 1995
M.A., University of Chicago, 2002

Beasley, Joan B
RESEARCH ASSOCIATE PROFESSOR
Institute on Disability
B.A., City University of New York, 1976
M.Ed., Northeastern University, 1981
Ph.D., Brandeis University, 2000

Beasley, Wayne M
PROFESSOR EMERITUS
B.S., Harvard University, 1946
M.S., Massachusetts Institute of Technology, 1965

Bechtell, Homer
PROFESSOR EMERITUS
B.S., Grove City College, 1951
M.A., 1956, Ph.D., University of Wisconsin, 1963

Becker, Mimi Larsen
ASSOCIATE PROFESSOR EMERITUS
B.A., Carleton College, 1957
M.A., 1989, Ph.D., Duke University, 1993

Bedker, Patricia D
ASSOCIATE PROFESSOR
Biological Sciences
B.S., University of Massachusetts - Amherst, 1976
M.S., University of New Hampshire, 1980
Ph.D., Cornell University, 1985

Beemer, Crisly A
ASSISTANT PROFESSOR
English
B.A., Hofstra University, 1993
B.A., State University of New York, 1996
Ph.D., Miami University - Ohio, 2008

Beemer, Lawrence W
LECTURER
English
B.A., State University of New York at Purchase, 1996
M.A., State University of New York at New Paltz, 2002
Ph.D., Ohio University, 2011

Begis, Maggie D
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Ph.D., Boston University, 2009

Begum, Momotaz
ASSISTANT PROFESSOR
Computer Science
B.S., Bangladesh University of Engin, 2003
M.S., Memorial University - Canada, 2005
Ph.D., Unv of Waterloo, 2010

Belford, Mary K
SENIOR LECTURER EMERITA
B.S., California State College in Pe, 1970
M.A., West Virginia University, 1972

Bell, Brent J
ASSOCIATE PROFESSOR
Kinesiology
B.A., University of New Hampshire, 1989
M.S., New England College, 1997
Ph.D., University of New Hampshire, 2005

Bell, Erin S
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
B.C.E., Georgia Institute of Technology, 1996
M.S., 1998, Ph.D., Tufts University, 2003

Beller-McKenna, Daniel
ASSOCIATE PROFESSOR
Music
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INDEX

A
Academic Calendar .................................................................10
Academic Honesty ...............................................................33
Accounting and Finance (ACFI) ..........................................363
Administration (ADMN) .....................................................365
Administration-UNHM (ADM) .............................................366
Admission .................................................................13
Adolescent and Youth Development Minor .......................184
Adolescent and Youth Development Minor .......................195
Aerospace Studies (AERO) .................................................367
Africana & American Studies (AFAM) .............................367
African and African American Studies (AFAM) ............38
African and African American Studies Minor ..................38
Agribusiness .................................................................201
Agribusiness Minor ..........................................................201
Agricultural Mechanization (AM) ....................................367
Agriculture, Nutrition and Food Systems .........................201
American Sign Language and Deaf Studies Minor ..........321
American Sign Language (ASL) ....................................368
American Studies (AMST) .................................................39
American Studies (AMST) .................................................368
American Studies Minor ...................................................39
Analytical Economics Major (B.S.) ................................272
Analytics and Data Science (DATA) ................................321
Analytics and Data Science Major (B.S.) .........................321
Analytics (DATA) ..........................................................369
Animal Behavior ............................................................202
Animal Behavior Minor .....................................................202
Animal Science (ANSC) .....................................................202
Animal Science Major (B.S.) .............................................202
Animal Science Major: Dairy Management Option (B.S.) ...204
Animal Science Minor .......................................................205
Animal Sciences (ANSC) ...................................................370
Anthropology (ANTH) ......................................................40
Anthropology (ANTH) ......................................................374
Anthropology Major (B.A.) ...............................................40
Anthropology Minor ........................................................41
Applied Animal Science (AAS) ........................................298
Applied Animal Science (AAS) ........................................379
Applied Animal Science: Animal Agriculture Concentration (A.A.S.) ....... 299
Applied Animal Science: Companion Animal Science Concentration (A.A.S.) ... 300
Applied Animal Science: Equine Management Concentration (A.A.S.) 302
Applied Business Management (ABM) .........................383
Applied Human Anatomy and Physiology .......................171
Applied Human Anatomy and Physiology Minor ...........171
Applied Mathematics Major: Computation Option (B.S.) ....152
Applied Mathematics Major: Dynamics and Control Option (B.S.) ....153
Applied Mathematics Major: Economics Option (B.S.) .......154
Applied Mathematics Major: Fluid Dynamics Option (B.S.) ....154
Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.) ....155
Applied Mathematics Minor .............................................158
Arabic (ARBC) ..............................................................383
Architectural Studies Minor .............................................44
Art .................................................................323
Art and Art History (ARTS) ...............................................42
Art History Minor ..........................................................45
Art Minor .................................................................45
Art Minor (UNHM) ..........................................................323
Arts/History & Studio (ARTS) ...........................................384
Asian Studies ..............................................................45
Asian Studies Minor ......................................................45
ASL/English Interpreting (ASL) ......................................319
ASL/English Interpreting Major (B.S.) ..........................320
Athletic Training ............................................................172
Athletic Training Major (B.S.) ...........................................172
B
Biochemistry, Molecular & Cellular Biology (BMCB) ....390
Biochemistry, Molecular and Cellular Biology (BMCB) 205
Biochemistry, Molecular and Cellular Biology Major (B.S.) .............. 206
Biochemistry, Molecular and Cellular Biology Minor ..................208
Bioengineering (BENG) ..................................................121
Bioengineering (BENG) ..................................................391
Bioengineering Major (B.S.) ...........................................122
Biological Science (BSCI) ...............................................392
Biological Sciences .........................................................208
Biological Sciences (A.S.) ...............................................323
Biological Sciences (BSCI) ...............................................323
Biological Sciences Major (B.A.) .....................................324
Biology (BIOL) ............................................................208
Biology (BIOL) ............................................................394
Biology Major (B.S.) .......................................................209
Biology Minor ................................................................. 211
Biomedical Science (BMS) ........................................... 211
Biomedical Science (BMS) ........................................... 397
Biomedical Science Major: Medical and Veterinary Sciences Option (B.S.) ........... 216
Biomedical Science Major: Medical Laboratory Sciences Option (B.S.) ................. 211
Biomedical Science Major: Medical Microbiology Option (B.S.) ......................... 214
Biomedical Science Minor ............................................ 218
Biotechnology (B.S.) .................................................. 325
Biotechnology (BIOTECH) ............................................ 325
Business Administration (ADMN) .................................. 264
Business Administration Major: Accounting Option (B.S.) ................................ 265
Business Administration Major: Entrepreneurial Studies Option (B.S.) ............... 265
Business Administration Major: Finance Option (B.S.) ......................................... 266
Business Administration Major: Information Systems and Business Analytics Option (B.S.) ................................................................. 267
Business Administration Major: Management Option (B.S.) .............................. 268
Business Administration Major: Marketing Option (B.S.) ...................................... 269
Business Administration Major: Student Designed Option (B.S.) ............................ 270
Business Administration Minor ...................................... 270
Business (BUS) ......................................................... 327
Business (BUS) ......................................................... 402
Business Major (B.A.) .................................................. 328
Business Major: Accounting Option (B.A.) ......................................................... 329
Business Minor .......................................................... 330

C
Campus Life, Programs and Services for Students .............................................. 15
Chemical Engineering (CHE) ........................................ 123
Chemical Engineering (CHE) ........................................ 406
Chemical Engineering Major (B.S.) ........................................ 124
Chemical Engineering Major: Bioengineering Option (B.S.) .............................. 125
Chemical Engineering Major: Energy Option (B.S.) ........................................... 126
Chemical Engineering Major: Environmental Engineering Option (B.S.) .......... 127
Chemistry (CHEM) ..................................................... 127
Chemistry (CHEM) ..................................................... 407
Chemistry Major (B.A.) ................................................ 127
Chemistry Major (B.S.) .............................................. 129
Chemistry Minor ........................................................ 130
Child Life Minor ......................................................... 184
Child Life Minor ........................................................ 196
Chinese (CHIN) ......................................................... 46
Chinese (CHIN) ......................................................... 410
Chinese Minor .......................................................... 46
Cinema Studies ............................................................ 47
Cinema Studies Minor .................................................. 47
Civil & Environmental Engineering (CEE) ......................................................... 131
Civil & Environmental Engineering (CEE) ......................................................... 411
Civil Engineering Major (B.S) ........................................................................ 132
Civil Technology (CT) ................................................................................. 303
Civil Technology (CT) ................................................................................. 416
Civil Technology: Construction Management Concentration (A.A.S) ............. 304
Civil Technology: Surveying and Mapping Concentration (A.A.S) ................... 305
Civil Technology: Sustainable Energy Management Concentration (A.A.S) .... 306
Classics (CLAS) ......................................................................................... 47
Classics (CLAS) ......................................................................................... 417
Classics, Humanities, and Italian Studies (CHI) ............................................... 50
Classics Major: Ancient Mediterranean Civilizations Option (B.A) ................. 48
Classics Major: Classical Languages & Literatures Option (B.A) .................... 48
Classics Major: Latin & Latin Teaching Option (B.A) ...................................... 49
Classics Minor ................................................................. 50
Coaching ................................................................................................. 173
Coaching Minor ....................................................................................... 173
Cognates ................................................................................................. 51
College of Engineering and Physical Sciences ................................................ 120
College of Health and Human Services ........................................................ 171
College of Liberal Arts .............................................................................. 34
College of Liberal Arts (COLA) .................................................................... 420
College of Life Sciences and Agriculture ....................................................... 200
Communication Arts (CA) ........................................................................... 331
Communication Arts (CA) ........................................................................... 426
Communication Arts Major (B.A) ................................................................ 331
Communication Arts Major: Cinema and Media Arts Option (B.A) ............... 334
Communication Arts Major: Digital Media Option (B.A) ............................... 334
Communication Arts Major: Human Relations Option (B.A) .......................... 335
Communication Arts Minor .......................................................................... 335
Communication (CMN) .............................................................................. 52
Communication (CMN) .............................................................................. 421
Communication Major (B.A) ....................................................................... 53
Communication Major: Business Applications Option (B.A) ......................... 54
Communication Major: Media Practices Option (B.A) .................................... 54
Communication Minor ................................................................................ 55
Communication Sciences & Disorders (COMM) ............................................. 429
Communication Sciences and Disorders (COMM) ........................................ 174
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Sciences and Disorders Major (B.S.)</td>
<td>174</td>
</tr>
<tr>
<td>Community &amp; Environmental Planning (CEP)</td>
<td>432</td>
</tr>
<tr>
<td>Community and Environmental Planning (CEP)</td>
<td>219</td>
</tr>
<tr>
<td>Community and Environmental Planning Major (B.S.)</td>
<td>219</td>
</tr>
<tr>
<td>Community Leadership (CSL)</td>
<td>432</td>
</tr>
<tr>
<td>Community Planning Minor</td>
<td>221</td>
</tr>
<tr>
<td>Composition Major (B.M.)</td>
<td>89</td>
</tr>
<tr>
<td>Computer Engineering Major (B.S.)</td>
<td>148</td>
</tr>
<tr>
<td>Computer Information Systems (COMP)</td>
<td>336</td>
</tr>
<tr>
<td>Computer Information Systems Major (B.S.)</td>
<td>336</td>
</tr>
<tr>
<td>Computer Information Systems Minor</td>
<td>337</td>
</tr>
<tr>
<td>Computer Programming Cognate</td>
<td>139</td>
</tr>
<tr>
<td>Computer Science and Entrepreneurship (COMP)</td>
<td>338</td>
</tr>
<tr>
<td>Computer Science and Entrepreneurship Major (B.S.)</td>
<td>338</td>
</tr>
<tr>
<td>Computer Science (CS)</td>
<td>136</td>
</tr>
<tr>
<td>Computer Science (CS)</td>
<td>433</td>
</tr>
<tr>
<td>Computer Science Major (B.S.)</td>
<td>136</td>
</tr>
<tr>
<td>Computer Science Major: Bioinformatics Option (B.S.)</td>
<td>138</td>
</tr>
<tr>
<td>Computer Science Minor</td>
<td>139</td>
</tr>
<tr>
<td>Computing Technology (COMP)</td>
<td>437</td>
</tr>
<tr>
<td>Continuing Education, Summer Session, and January Term</td>
<td>361</td>
</tr>
<tr>
<td>Course Descriptions</td>
<td>32</td>
</tr>
<tr>
<td>Course Descriptions</td>
<td>362</td>
</tr>
<tr>
<td>Creative Writing Minor</td>
<td>350</td>
</tr>
<tr>
<td>Cross Campus Registration</td>
<td>22</td>
</tr>
<tr>
<td>Culinary Arts &amp; Nutrition (CAN)</td>
<td>439</td>
</tr>
<tr>
<td>Culinary Arts and Nutrition (CAN)</td>
<td>307</td>
</tr>
<tr>
<td>Culinary Arts and Nutrition: Baking and Pastry Arts Concentration (A.A.S.)</td>
<td>308</td>
</tr>
<tr>
<td>Culinary Arts and Nutrition: Culinary Arts Concentration (A.A.S)</td>
<td>308</td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Dairy Management Minor</td>
<td>205</td>
</tr>
<tr>
<td>Dance Minor</td>
<td>115</td>
</tr>
<tr>
<td>Deaf and Hard of Hearing Studies Minor</td>
<td>175</td>
</tr>
<tr>
<td>Decision Sciences (DS)</td>
<td>441</td>
</tr>
<tr>
<td>Degrees</td>
<td>29</td>
</tr>
<tr>
<td>Digital Writing and Literature Cognate</td>
<td>51</td>
</tr>
<tr>
<td>Disabilities Minor</td>
<td>189</td>
</tr>
<tr>
<td>Discovery Program</td>
<td>26</td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Earth Sciences (ESCI)</td>
<td>142</td>
</tr>
<tr>
<td>Earth Sciences (ESCI)</td>
<td>442</td>
</tr>
<tr>
<td>Earth Sciences Major (B.A.)</td>
<td>143</td>
</tr>
<tr>
<td>Earth Sciences Major (B.S.)</td>
<td>143</td>
</tr>
<tr>
<td>Earth Sciences Minor</td>
<td>144</td>
</tr>
<tr>
<td>Earth Sciences Teaching Major (B.A.)</td>
<td>145</td>
</tr>
<tr>
<td>Ecogastronomy</td>
<td>221</td>
</tr>
<tr>
<td>Ecogastronomy Dual Major</td>
<td>222</td>
</tr>
<tr>
<td>Ecogastronomy Dual Major: Eco (ECO)</td>
<td>271</td>
</tr>
<tr>
<td>Ecogastronomy (ECO)</td>
<td>446</td>
</tr>
<tr>
<td>Economics (ECON)</td>
<td>272</td>
</tr>
<tr>
<td>Economics (ECON)</td>
<td>447</td>
</tr>
<tr>
<td>Economics Major (B.A.)</td>
<td>273</td>
</tr>
<tr>
<td>Economics Major: Global Trade and Finance Option (B.A.)</td>
<td>274</td>
</tr>
<tr>
<td>Economics Major: Money and Financial Markets Option (B.A.)</td>
<td>274</td>
</tr>
<tr>
<td>Economics Major: Public Policy and Sustainability Option (B.A.)</td>
<td>275</td>
</tr>
<tr>
<td>Economics Minor</td>
<td>276</td>
</tr>
<tr>
<td>Economics-UNHM (ECN)</td>
<td>450</td>
</tr>
<tr>
<td>Education</td>
<td>339</td>
</tr>
<tr>
<td>Education (EDUC)</td>
<td>55</td>
</tr>
<tr>
<td>Education (EDUC)</td>
<td>451</td>
</tr>
<tr>
<td>Education Four-Year, Undergraduate Option</td>
<td>57</td>
</tr>
<tr>
<td>Education Minor</td>
<td>58</td>
</tr>
<tr>
<td>Education Minor (UNHM)</td>
<td>339</td>
</tr>
<tr>
<td>Educational Studies Dual Major</td>
<td>57</td>
</tr>
<tr>
<td>Electrical &amp; Computer Engineering (ECE)</td>
<td>455</td>
</tr>
<tr>
<td>Electrical and Computer Engineering (ECE)</td>
<td>147</td>
</tr>
<tr>
<td>Electrical Engineering Major (B.S.)</td>
<td>150</td>
</tr>
<tr>
<td>Electrical Engineering Technology Major (B.S.)</td>
<td>340</td>
</tr>
<tr>
<td>Engineering Physics Major (B.S.)</td>
<td>165</td>
</tr>
<tr>
<td>Engineering Technology (ET)</td>
<td>340</td>
</tr>
<tr>
<td>Engineering Technology (ET)</td>
<td>458</td>
</tr>
<tr>
<td>English (ENGL)</td>
<td>59</td>
</tr>
<tr>
<td>English (ENGL)</td>
<td>460</td>
</tr>
<tr>
<td>English Literature Major (B.A.)</td>
<td>60</td>
</tr>
<tr>
<td>English Major (B.A.)</td>
<td>61</td>
</tr>
<tr>
<td>English Minor</td>
<td>65</td>
</tr>
<tr>
<td>English Minor</td>
<td>351</td>
</tr>
<tr>
<td>English Teaching (ENGLCH)</td>
<td>341</td>
</tr>
<tr>
<td>English Teaching Major (B.A.)</td>
<td>63</td>
</tr>
<tr>
<td>English Teaching Major (B.A.) UNHM</td>
<td>341</td>
</tr>
<tr>
<td>English/Journalism Major (B.A.)</td>
<td>64</td>
</tr>
<tr>
<td>English/Speakers of Other Languages (ESL)</td>
<td>475</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>277</td>
</tr>
<tr>
<td>Field</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Marine, Estuarine and Freshwater Biology (MEFB)</td>
<td>544</td>
</tr>
<tr>
<td>Marketing (MKTG)</td>
<td>547</td>
</tr>
<tr>
<td>Materials Science Minor</td>
<td>151</td>
</tr>
<tr>
<td>Materials Science (MS)</td>
<td>151</td>
</tr>
<tr>
<td>Mathematics (MATH)</td>
<td>549</td>
</tr>
<tr>
<td>Mathematics Minor</td>
<td>549</td>
</tr>
<tr>
<td>Mathematics Major</td>
<td>152</td>
</tr>
<tr>
<td>Mechanical Engineering Major (B.S.)</td>
<td>160</td>
</tr>
<tr>
<td>Mechanical Engineering (ME)</td>
<td>159</td>
</tr>
<tr>
<td>Mechanical Engineering Minor</td>
<td>555</td>
</tr>
<tr>
<td>Mechanical Engineering Minor (B.S.)</td>
<td>162</td>
</tr>
<tr>
<td>Mechanical Engineering Technology Major (B.S.)</td>
<td>341</td>
</tr>
<tr>
<td>Middle Eastern Studies Minor</td>
<td>85</td>
</tr>
<tr>
<td>Middle Eastern Studies Minor (B.S.)</td>
<td>85</td>
</tr>
<tr>
<td>Molecular Science (MILT)</td>
<td>558</td>
</tr>
<tr>
<td>Molecular, Cellular, Biomedical Sciences</td>
<td>244</td>
</tr>
<tr>
<td>Music Education Major (B.M.)</td>
<td>89</td>
</tr>
<tr>
<td>Music Education (MUED)</td>
<td>565</td>
</tr>
<tr>
<td>Music Major: Composition Option (B.A.)</td>
<td>86</td>
</tr>
<tr>
<td>Music Major: Music Liberal Studies Option (B.A.)</td>
<td>87</td>
</tr>
<tr>
<td>Music Major: Performance Study Option (B.A.)</td>
<td>88</td>
</tr>
<tr>
<td>Music Minor</td>
<td>93</td>
</tr>
<tr>
<td>Music (MUSI)</td>
<td>559</td>
</tr>
<tr>
<td>Music (MUSI, MUED)</td>
<td>86</td>
</tr>
<tr>
<td>Musical Theatre Minor</td>
<td>116</td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Natural Resources and the Environment</td>
<td>244</td>
</tr>
<tr>
<td>Natural Resources (NR)</td>
<td>566</td>
</tr>
<tr>
<td>Navitas non-credit (NAV)</td>
<td>574</td>
</tr>
<tr>
<td>Neuropsychology Major (B.S.)</td>
<td>352</td>
</tr>
<tr>
<td>Neuropsychology (PSYC)</td>
<td>352</td>
</tr>
<tr>
<td>Neuroscience and Behavior Major (B.S.)</td>
<td>93</td>
</tr>
<tr>
<td>Neuroscience and Behavior Major (B.S.)</td>
<td>245</td>
</tr>
<tr>
<td>Neuroscience and Behavior (NSB)</td>
<td>93</td>
</tr>
<tr>
<td>Neuroscience and Behavior (NSB)</td>
<td>244</td>
</tr>
<tr>
<td>Neuroscience and Behavior (NSB)</td>
<td>574</td>
</tr>
<tr>
<td>Nursing Major (B.S.)</td>
<td>186</td>
</tr>
<tr>
<td>Nutrition (NURS)</td>
<td>186</td>
</tr>
<tr>
<td>Nutrition Major: Dietetics Option (B.S.)</td>
<td>575</td>
</tr>
<tr>
<td>Nutrition Major: Nutrition and Wellness Option (B.S.)</td>
<td>248</td>
</tr>
<tr>
<td>Nutrition Major: Nutritional Sciences Option (B.S.)</td>
<td>249</td>
</tr>
<tr>
<td>Nutrition Minor</td>
<td>251</td>
</tr>
<tr>
<td>Nutrition (NUTR)</td>
<td>246</td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Occupational Therapy Major (B.S.)</td>
<td>188</td>
</tr>
<tr>
<td>Occupational Therapy (OT)</td>
<td>188</td>
</tr>
<tr>
<td>Ocean Engineering Major (B.S.)</td>
<td>162</td>
</tr>
<tr>
<td>Ocean Engineering Minor</td>
<td>164</td>
</tr>
<tr>
<td>Ocean Engineering (OE)</td>
<td>162</td>
</tr>
<tr>
<td>Ocean Engineering (OE)</td>
<td>583</td>
</tr>
<tr>
<td>Oceanography Minor</td>
<td>146</td>
</tr>
<tr>
<td>Outdoor Adventure Leadership</td>
<td>190</td>
</tr>
<tr>
<td>Outdoor Adventure Leadership Minor</td>
<td>190</td>
</tr>
<tr>
<td>Outdoor Education</td>
<td>191</td>
</tr>
<tr>
<td>Outdoor Education Major (B.S.)</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Paul College Business &amp; Economics (PAUL)</td>
<td>585</td>
</tr>
<tr>
<td>Performance Major (B.M.)</td>
<td>90</td>
</tr>
<tr>
<td>Peter T. Paul College of Business and Economics</td>
<td>262</td>
</tr>
<tr>
<td>Philosophy</td>
<td>353</td>
</tr>
<tr>
<td>Philosophy Major (B.A.)</td>
<td>95</td>
</tr>
<tr>
<td>Philosophy Major: Ethics and Social Responsibility Option (B.A.)</td>
<td>96</td>
</tr>
<tr>
<td>Philosophy Minor</td>
<td>96</td>
</tr>
<tr>
<td>Philosophy Minor (UNHM)</td>
<td>353</td>
</tr>
<tr>
<td>Philosophy (PHIL)</td>
<td>94</td>
</tr>
<tr>
<td>Philosophy (PHIL)</td>
<td>586</td>
</tr>
<tr>
<td>Physics Major (B.A.)</td>
<td>166</td>
</tr>
<tr>
<td>Physics Major (B.S.)</td>
<td>167</td>
</tr>
<tr>
<td>Physics Major: Astronomy Option (B.S.)</td>
<td>168</td>
</tr>
<tr>
<td>Physics Major: Chemical Physics Option (B.S.)</td>
<td>169</td>
</tr>
<tr>
<td>Physics Major: Materials Science Option (B.S.)</td>
<td>170</td>
</tr>
<tr>
<td>Physics Minor</td>
<td>170</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
<td>164</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
<td>590</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>251</td>
</tr>
<tr>
<td>Plant Biology Minor</td>
<td>251</td>
</tr>
<tr>
<td>Political Economy Minor</td>
<td>358</td>
</tr>
<tr>
<td>Political Science Major (B.A.)</td>
<td>98</td>
</tr>
<tr>
<td>Program</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Political Science Minor</td>
<td>98</td>
</tr>
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<td>Political Science Minor</td>
<td>358</td>
</tr>
<tr>
<td>Political Science (POLT)</td>
<td>97</td>
</tr>
<tr>
<td>Political Science (POLT)</td>
<td>594</td>
</tr>
<tr>
<td>Politics and Society Major (B.A.)</td>
<td>354</td>
</tr>
<tr>
<td>Politics and Society Major: American Politics and Public Policy Option (B.A.)</td>
<td>355</td>
</tr>
<tr>
<td>Politics and Society Major: International and Comparative Studies Option (B.A.)</td>
<td>356</td>
</tr>
<tr>
<td>Politics and Society Major: Law and Justice Option (B.A.)</td>
<td>354</td>
</tr>
<tr>
<td>Politics and Society (PS)</td>
<td>601</td>
</tr>
<tr>
<td>Portuguese (PORT)</td>
<td>603</td>
</tr>
<tr>
<td>Pre-Teaching Major (B.M.)</td>
<td>92</td>
</tr>
<tr>
<td>Prelaw</td>
<td>282</td>
</tr>
<tr>
<td>Premedical/Prehealth Care Professional Study</td>
<td>283</td>
</tr>
<tr>
<td>Professional Writing Minor</td>
<td>352</td>
</tr>
<tr>
<td>Programs of Study</td>
<td>38</td>
</tr>
<tr>
<td>Programs of Study</td>
<td>121</td>
</tr>
<tr>
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<td>171</td>
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<td>201</td>
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<td>264</td>
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<td>298</td>
</tr>
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<td>319</td>
</tr>
<tr>
<td>Psychology Major (B.A.)</td>
<td>99</td>
</tr>
<tr>
<td>Psychology Major (B.A.) UNHM</td>
<td>359</td>
</tr>
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<td>Psychology Minor</td>
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</tr>
<tr>
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<td>360</td>
</tr>
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<td>359</td>
</tr>
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<td>Psychology (PSYC)</td>
<td>604</td>
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<td>Public Health Minor</td>
<td>179</td>
</tr>
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<td>Public History Minor</td>
<td>345</td>
</tr>
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<td>Queer Studies</td>
<td>101</td>
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<td>Queer Studies Minor</td>
<td>101</td>
</tr>
<tr>
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<tr>
<td>Race &amp; Ethnic Studies (RES)</td>
<td>608</td>
</tr>
<tr>
<td>Race and Ethnic Studies Minor</td>
<td>102</td>
</tr>
<tr>
<td>Race and Ethnic Studies (RES)</td>
<td>102</td>
</tr>
<tr>
<td>Recreation Management &amp; Policy (RMP)</td>
<td>608</td>
</tr>
<tr>
<td>Recreation Management and Policy Major: Program and Event Management Option (B.S.)</td>
<td>194</td>
</tr>
<tr>
<td>Recreation Management and Policy Major: Therapeutic Recreation Option (B.S.)</td>
<td>194</td>
</tr>
<tr>
<td>Recreation Management and Policy (RMP)</td>
<td>192</td>
</tr>
<tr>
<td>Religious Studies Minor</td>
<td>103</td>
</tr>
<tr>
<td>Religious Studies (RS)</td>
<td>103</td>
</tr>
<tr>
<td>Religious Studies (RS)</td>
<td>612</td>
</tr>
<tr>
<td>Reserve Officer Training Corps Programs (ROTC)</td>
<td>283</td>
</tr>
<tr>
<td>Russian Major (B.A.)</td>
<td>104</td>
</tr>
<tr>
<td>Russian Minor</td>
<td>105</td>
</tr>
<tr>
<td>Russian (RUSS)</td>
<td>612</td>
</tr>
<tr>
<td>Russian (RUSS)</td>
<td>104</td>
</tr>
<tr>
<td>Russian Studies Minor</td>
<td>105</td>
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<td>S</td>
<td></td>
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<td>Security Studies</td>
<td>105</td>
</tr>
<tr>
<td>Security Studies Minor</td>
<td>105</td>
</tr>
<tr>
<td>Sign Language Interpreting (INTR)</td>
<td>614</td>
</tr>
<tr>
<td>Skills and Perspectives for the Digital World Cognate</td>
<td>52</td>
</tr>
<tr>
<td>Skills and Perspectives for the Digital World Cognate</td>
<td>142</td>
</tr>
<tr>
<td>Social Justice Leadership Minor</td>
<td>118</td>
</tr>
<tr>
<td>Social Work Major (B.S.)</td>
<td>196</td>
</tr>
<tr>
<td>Social Work (SW)</td>
<td>196</td>
</tr>
<tr>
<td>Social Work (SW)</td>
<td>615</td>
</tr>
<tr>
<td>Sociology Major (B.A.)</td>
<td>106</td>
</tr>
<tr>
<td>Sociology Minor</td>
<td>107</td>
</tr>
<tr>
<td>Sociology (SOC)</td>
<td>106</td>
</tr>
<tr>
<td>Sociology (SOC)</td>
<td>618</td>
</tr>
<tr>
<td>Spanish Major (B.A.)</td>
<td>108</td>
</tr>
<tr>
<td>Spanish Minor</td>
<td>108</td>
</tr>
<tr>
<td>Spanish (SPAN)</td>
<td>107</td>
</tr>
<tr>
<td>Spanish (SPAN)</td>
<td>622</td>
</tr>
<tr>
<td>Special Education Minor</td>
<td>59</td>
</tr>
<tr>
<td>Special University Programs</td>
<td>281</td>
</tr>
<tr>
<td>Sport Studies</td>
<td>198</td>
</tr>
<tr>
<td>Sport Studies Major (B.S.)</td>
<td>198</td>
</tr>
<tr>
<td>Statistics Major (B.S.)</td>
<td>157</td>
</tr>
<tr>
<td>Statistics Minor</td>
<td>159</td>
</tr>
<tr>
<td>Studio Arts Minor</td>
<td>45</td>
</tr>
<tr>
<td>Study Abroad Programs</td>
<td>284</td>
</tr>
<tr>
<td>Study Away U.S.A.</td>
<td>292</td>
</tr>
<tr>
<td>Sustainability</td>
<td>293</td>
</tr>
<tr>
<td>Sustainability Dual Major</td>
<td>293</td>
</tr>
<tr>
<td>Sustainability (SUST)</td>
<td>625</td>
</tr>
<tr>
<td>Sustainable Agriculture &amp; Food Systems (SAFS)</td>
<td>625</td>
</tr>
</tbody>
</table>