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**In the Beginning**

When the New Hampshire College of Agriculture and the Mechanic Arts opened in 1868, it had "great expectations and unlimited possibilities," and little else. It boasted no buildings, curriculum, or classes—not even a campus of its own. It had one full-time professor—the gifted and devoted chemist Ezekiel Dimond. It had a graduating class of three students—William Ballard of Concord, Lewis Perkins of North Adams, Mass., and Charles Sanders of Penacook. And it had a mandate to reach out to the people of the state: to "educate intelligent men in the broadest sense, worthy citizens of a state in which the people ultimately rule, and of whose dearest interests knowledge and virtue are the only safeguards."

By the time Ballard, Perkins, and Sanders returned for their 50th reunion in 1921, they must have been amazed at how far their alma mater had come. The college had a campus in Durham, thousands of acres strong, with academic and dairy buildings, residence halls, athletic field, and a railroad station. University students had helped to dig ditches, grade athletic fields, and plant trees—a tradition of pride and involvement that continued through the 1940s.

**The College Becomes a University**

The Agricultural Experiment Station had made the College indispensable to the region's farming community and state forestry since 1888, providing a rich source of research opportunity for faculty and students as well. The majority of students majored in liberal arts and were more likely to study English or history en route to becoming lawyers, teachers, or business people than they were to study botany or chemistry to prepare themselves to become farmers.

Everything had changed—everything except the College's relentless drive to push itself to greater levels. By the early 1920s, students and faculty were pressuring the state legislature to turn NHC into UNH—the University of New Hampshire. The feat was accomplished in 1923. By decade's end, the marine laboratory on the Isles of Shoals would offer students the chance to study marine diversity off Portsmouth's shore. Marine scientists would eventually make the city's harbor the best surveyed body of water in the world.

To undertake for the state's Depression-strapped industry what the Agricultural Experiment Station had for its farmers, the University created an "engineering experiment station" in 1929. Here, small firms lacking capital for research and development could submit, free of charge, problems for study—everything from learning about raw materials to designing more economical ways to run manufacturing plants.

The technological revolution continued through the war years and was bolstered later by the influx of students supported by the G.I. Bill.

**The University Today**

Today the University of New Hampshire is made up of dozens of academic departments, interdisciplinary institutes, and research centers that attract students and faculty from around the world. As state-of-the-art facilities are built to support academic growth, new residence and dining halls are built to meet the growing popularity of campus life, the University continues to rest lightly on the Durham landscape. Some 13,000 students and hundreds of faculty and staff live and work easily amid the rolling hills and riverbeds of one the most beautiful campuses in the nation.

The University of New Hampshire is lean, strong, and highly responsive to the needs of its public mandate—one that increasingly results in productive partnerships not only with the state, but the region and nation. The University of today has met its greatest expectations and stands on the threshold of unlimited possibilities.

Look around the University today: what you see is not one, but a great many communities brought together in the process—at once profoundly personal and inextricably social—of discovery and engagement concerning issues of the greatest public importance.

You see a campus in which world class research centers and laboratories, graduate seminars, undergraduate honors classes, service-learning projects, and student internships have mobilized the University's capacities for teaching, research, and partnership building.

You see faculty and students from health and human services and liberal arts working as part of the Carsey Institute to undertake applied and policy research on improving the quality of family life. You see the University's working scientists, mathematicians, engineers, and educators engaging in the Joan and James Leitzel Center to improve mathematics, science, and engineering education from kindergarten through college. You see researchers come together from across the University to undertake a ground-breaking study of the complexities of improving the region's air quality in the era of modern industry.
Powerful Linking of Teaching and Research

Where the University of New Hampshire has linked teaching and research programs with the practical realities of life, it has set the international standard with centers and institutes whose names have become synonymous with excellence in such fields as 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, as freshmen and seniors, on campus and around the world.

The University's international research opportunities program was the first 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 studies 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.

Mission

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

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

Teaching. All undergraduate programs of instruction at the University are built on a program of general education. The objectives of general education 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 special 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, through the Office of Outreach Education and Summer Studies, and through research and consultation on particular needs of New Hampshire citizens. The University is dedicated to collaborative learning inside and outside the classroom.

Library

The UNH Library consists of the main Dimond Library, four specialized branch libraries, an extensive government documents collection, and the Douglas and Helena Milne Special Collections and Archives. In addition to more than a million volumes and 6,000 periodical subscriptions, the library has government publications, maps, sound recordings, compact discs, video cassettes, DVDs, and manuscripts. The library offers extensive electronic resources including indexes in a wide variety of subject areas, databases supplying full-text periodical and newspaper articles, and statistical data sets. Experienced librarians and staff provide expert service to people seeking information or research assistance.

The library is a member of the elite Boston Library Consortium, whose members include some of the most well-known research institutions in the nation. Through the consortium, UNH faculty, faculty emeriti, students, and staff at both the Durham and Manchester campuses have full access to a combined collection of more than 31 million volumes via interlibrary loan and on-site visits to member libraries.

The expanded and completely renovated Dimond Library combines the best traditions of the 19th century with the information access of the 21st. It offers three grand reading rooms, seating for 1,200 students and other researchers, computer workstations on every floor, numerous laptop computer hookups throughout the building, wireless access, and 21 miles of shelving for books.

The four branch libraries specialize in science, mathematics, and engineering.

The Biological Sciences Library is located in Kendall Hall, the Chemistry Library is in Parsons Hall, the Engineering/Mathematics/Computer Science Library is in New Hampshire Hall (rear entrance), and the Physics Library is in DeMeritt Hall. All branches have reserve materials, reference collections, circulating collections, periodicals, and electronic resources. All branch materials are indicated in the UNH Library catalog.

For more information on Dimond and the branch libraries, visit 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. A stream flowing through a large wooded area in the middle of campus enhances natural open space among the buildings. College Woods, on the edge of campus, includes five miles of well-kept paths through 260 acres of forest.

During the last decade, 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. Renovations of Murkland and Congreve Halls have also been completed. In 2004, UNH was named one of the Top 25 Most Entrepreneurial Colleges by The Princeton Review and Forbes.com, ranking 10th in the nation.

According to The Princeton Review, while there are more than 2,000 colleges in the United States, few concentrate on raising the next generation of successful entrepreneurs. Schools named to the Top 25 show a commitment to creating programs to encourage young entrepreneurs on campus, as well as looking at how their alumni have fared in the real world.

UNH's ranking was based on the efforts of the Whittemore School of Business and Economics. UNH was the only public university in the Northeast to make the top 10.

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.

All degree programs at the University are approved for veterans' educational benefits. Individuals are encouraged to contact the veterans coordinator in Stoke Hall about specific questions.

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 its applicants for admission.

Admission

UNH welcomes campus visitors. Prospective students are encouraged to contact the Office of Admissions in order to arrange a campus tour and/or group information session. 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. Please call the Office of Admissions at (603) 862-1360 for further information or to schedule a visit, or visit the Web at www.unh.edu/admissions.

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 candidates' secondary school course selections and achievement, recommendations, and the results of a Scholastic Assessment Test (SAT-I) or from the American College Testing program (ACT). Consideration is also given to character, initiative, leadership, and special talents.

Most successful candidates present at least four years of English and mathematics, three or more years of laboratory science, three or more years of social science, and at least three years of study in a single foreign language or more than one year of study in two different languages. Recommended mathematics preparation includes the equivalent of algebra I, geometry, algebra II, and trigonometry or 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 should have also 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.

Applicants may indicate a prospective major upon 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 school and college divisions in Durham and at UNH Manchester.

(For information concerning bachelor and associate degree programs offered through UNHM, see the section on the University of New Hampshire at Manchester [page 152]; for information concerning the Thompson School of Applied Science, see page 141.)

Many University students request a change in major during their undergraduate years, and most are approved. These changes are possible after a student has been at the University for at least a semester and has permission from the appropriate college dean and department chairperson. In recent years, however, the University has not always been able to honor all requests for a change of major, most notably into nursing or occupational therapy.

Admission Test Requirements

All candidates for admission to bachelor's degree programs are required to submit the results of an SAT-I or the ACT. Applicants graduating from high school in 2006 or later must submit SAT-I or ACT results with the new essay portion. SAT-II 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).

Music Candidates

Candidates applying for programs in the Department of Music must make arrangements with the department chairperson for an audition (603) 862-2404. Details regarding audition requirements may be obtained from the department.

Admission Deadlines

The Admissions Office welcomes high school students who seek fall semester freshman admission to apply any time after the start of the senior year and before the February 1 priority deadline. Admission notifications are provided on a continuous basis through April 15th. Admitted freshmen have until May 1 to confirm their intent to enroll at the University.

The review of freshman candidates begins as soon as a complete application (including official grade reports through the first marking period of senior year and a confirmed senior-year course schedule, the results of the SAT-I or ACT, and a letter of recommendation) is on hand. To apply ensuring early action (an "early reading" by mid-January of the senior year), candidates must submit admission applications by December 1. In some cases, the Admission Committee will request senior mid-year grade reports in order to make a final admission decision.

All positive admission decisions made prior to the completion of a candidate's coursework in progress are considered "provisional" and are subject to the verification of satisfactory senior year achievement when final high school transcripts are reviewed by the Admission Committee.

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

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. 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 course-work for college credit and satisfactory achievement on University approved placement examinations, including the College Board Advanced Placement (AP) Tests, or through the College Level Examination Program (CLEP).

The University accepts AP Tests in every subject area, with credit and course equivalency based on the score achieved. Contact
the Office of Admissions for further information (603) 862-1360 or visit www.unh.edu/admissions/ap.html.

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 for all credit by exam and advanced placement testing is 64 semester hours.

Associate Degree Candidacy

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

Students may be considered for admission to associate in applied science degree programs offered by the University's Thompson School of Applied Science. Candidates applying as high school seniors must submit the results of the SAT-I or an ACT, both with essay. Students granted freshman admission to the Thompson School are eligible to live in a University residence hall.

Eligibility for Degree Candidacy

Applicants who meet the appropriate requirements for admission may become candidates for any undergraduate degree offered by the University. However, applicants having a bachelor of arts 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 Business Management).

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 Affairs and the dean's office of the University college division to which the student is applying.

Before seeking readmission, suspended students must remain away from school for at least one semester. Applications from suspended students should include a statement about the applicant's readiness to resume University work.

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 and the extent to which that selection addresses the University's general education requirements. Transfer credit is awarded for completed courses 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 to qualify for general education consideration. Transfer credit evaluations are provided with the offer of admission.

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.

Some programs may have enrollment limitations. Transfer students may contact the Department of Housing (603) 862-2120 to determine the availability of on-campus housing or (603) 862-0303 for assistance locating off-campus housing.

Priority deadlines for transfer applicants are November 1 for the spring semester and March 1 for the fall semester.

No portion of a student's grade-point average will transferred; that is, external averages will not be calculated with UNH grades.

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, or call (617) 357-9620.

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. Special (non-degree) students register for coursework through the University's Office of Outreach Education and Summer Studies. In evaluating requests for full-time status, the Office of Admissions generally applies the same criteria used in the review of applicants for admission to degree candidacy. Special students have full access to academic support services. Students must maintain satisfactory achievement to continue with University coursework.

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 applicants 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.

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 brochure 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 may obtain the FAFSA from local high schools or from the UNH Financial Aid Office.

The financial aid application deadline for aid awarded by the University 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 Stafford 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.

Note: There is reference on the FAFSA to a “deadline” of May 1. 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. Students must reapply each year for a grant.

Loan Programs

Two loan funds are administered by the University: UNH Loan Fund and Federal Perkins Loans. Admitted undergraduate and graduate degree candidates who will attend the University on at least half-time basis may be considered for these loans. Financial need must be clearly demonstrated, and loans may be used only for educational expenses.

Most states now have higher education loan plans established by the Higher Education Act of 1965. Contact your local bank, other lender, or the Financial Aid Office for information.

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 Air Force. Entering freshmen may compete for four-year scholarships during the last year of high school, but a variety of scholarships are also available to students already attending the University.

Scholarships pay up to full tuition, all mandatory University fees, and 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 may receive a room and board grant for the entire time they are on the scholarship.

For more information contact: Air Force ROTC at (603) 862-1480 or Army ROTC at (603) 862-1078.

Campus Life

Housing

The University offers students a variety of housing options, including small halls of approximately 100 students to medium halls and large halls (ranging from 400 to 600 students). The newest residence, Mills Hall, houses students in suites ranging from four to eight persons. Scott Hall is our all female residence. Upperclass undergraduates may also choose from either of two on-campus apartment complexes: the Gables and Woodside apartments. These apartment complexes are designed to meet the more independent and self-reliant life-styles of upperclass students. Theme-based housing is offered in many buildings on campus. Some of our programs are located in the minidorms, where each house focuses on a theme, and Smith Hall, where the focus is on international and intercultural activities. There is also a residence hall for students participating in SELF (Students Electing to Live Free), a program whose participants have chosen not to use alcohol or any chemical substances.

The Department of Housing and the Residential Life Office are committed to providing a living environment that maintains high standards of health and safety. Full-time professional directors manage the residence halls and work with a student staff to offer special programs and enforce hall standards.

Undergraduate University housing is available to all full-time baccalaureate degree candidates and to associate in applied science degree candidates. Offers of housing to associate in arts degree and Division of Continuing Education students are made 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
upon admission to the University. Offers will be made on a space-available basis. All application materials are available at the Department of Housing located in Pettee House.

For more information, contact the Department of Housing (603) 862-2120.

Dining

High quality food, flexible menus, meal plans, and special events have earned UNH multiple national menu awards. Services have greatly expanded to reflect new trends and ideas, for example, grab and go locations including Philbrook Café, the Wildcatssen, the MUB Food Court and the MUB Coffee Office. Our dining halls offer a fresh state-of-the-art dining experience. “Home Cookin’ Recipes,” Goodies Packages, and Birthday Cakes programs create a sense of belonging for students. Flexible meal plans give students the option of eating at the dining halls or using Dining Dollars or Cat's Cache at many retail operations around campus.

All students who reside in University housing (except Babcock Hall and the Gables and Woodside apartment residents) are required to purchase a meal plan from the designated mandatory choices. Students living in undergraduate apartments or off campus may choose to purchase any of the meal plans offered. Visit the Web site for the latest information about meal plans and services at www.unh.edu/dining. Students who have specific nutrition concerns or medically-restricted diets should meet with the registered dietician and executive chef to review options for dining hall accommodations.

The Dining ID Office can assist with questions. Call (603) 862-1821.

UNH Dining is committed to exceeding the expectations of our guests and takes pride in maintaining our position as a leader in the food service industry.

Memorial Union Building

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 establish 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 1958. Currently, the MUB is the only building on campus to have complete wireless capabilities in all public spaces and meeting rooms.

Headquartered in the MUB are the Information Center; two movie theaters; the UNH Copy Center; the UNH Bookstore; the Ticket Office; specific lounge/study space for nontraditional, commuter and graduate students; and Granite Square Station & Shipping, which provides undergraduate mail boxes and UPS shipping service. Computing and Information Services provides a computer cluster and Help Desk with walk-in service, and runs the Wildcat Wireless phone store. The Games Room is equipped with pool and ping pong tables. The Entertainment Center and Wildcat Den provide a comfortable atmosphere for relaxing with live acoustical performances as well as socializing and study space. The Food Court offers expanded dining options, and food service is also available in the Coffee Office. The Student Senate Office, WUNH-radio, The New Hampshire (the student newspaper), and nearly 60 other student organizations have office space in the MUB.

The Leadership Center (MUB 122) currently serves as the hub for student involvement at the University of New Hampshire and is home to four offices: Greek Affairs, Off-Campus & Commuter Student Services, Student Organization Services, and Project LEAD. Whether a student is interested in joining a student organization or starting a new one, participating in one of many leadership development programs, or simply learning about campus resources—this is the place! Student and professional staff members oversee the University recognition process for all student organizations and are available for advising or training on topics related to organizational development and program planning.

Off-Campus and Commuter Student Services strives to connect the half of the student population who do not live in University housing to campus. Programs, such as Good Morning Commuters and the Commuter Connection listserv, bring information to students about campus happenings, events, and activities. Off-Campus and Commuter Services also helps students understand the ins and outs of moving off campus by providing educational sessions in the residence halls.

Recognized student organizations and University departments are encouraged to use rooms in the MUB. Reservations can be arranged via the scheduling Web site www.unh.edu/mubscheduling, calling MUB Scheduling at (603) 862-1526, or stopping in the Office of the Memorial Union to fill out a form. For a complete listing of Memorial Union programs, services, and events, phone the Information Center at (603) 862-2600 or visit the Web site at www.unhmb.com.

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 Art Gallery, and the Departments of Music, Theatre and Dance, and Art and Art History bring artists of international stature to campus. Most events are free.

The fine and performing arts are an integral part of undergraduate education. Programs are frequently incorporated into coursework. For further information or a brochure call the numbers listed below:

Department of Music (603) 862-2404
The Art Gallery (603) 862-2372
Art and Art History (603) 862-2190
Theatre and Dance (603) 862-2919
UNH Celebrity Series (603) 862-3242
Traditional Jazz Series (603) 862-2404
Memorial Union
Ticket Office (603) 862-2290 on the Web www.unhmb.com

Campus Recreation

Many opportunities for leisure activities, regardless of skill or ability, are offered through Campus Recreation. The Hamel Student Recreation Center is available to all full-time matriculating students and recreation pass holders, seven days a week (excluding UNH holidays and shutdowns). The center offers participants two multipurpose courts, a group exercise studio, club/martial art studio, an 8,000 square foot fitness center with more than 100 exercise stations, with cardio-theater including five TVs, three basketball/volleyball courts, an indoor track, a lounge, several classrooms, locker rooms, towel and lock service at the equipment room, saunas, and new synthetic sports fields. The Department of Campus Recreation offers a variety of activities designed to make it easier to reach personal fitness goals and have fun. Participants may take part in one of the many group exercise classes such as step aerobics, Reebok cycling, or cardio kickboxing. Other opportunities include yoga, pilates, racquetball, personal training, massage therapy, or running in the
Homecoming 5K Race. Noncredit courses are also offered including CPR and First Aid.

The intramural sports program consists of 23 different sports and activities offered to co-rec, men's and women’s teams. Intramural sports are organized, competitive leagues and tournaments officiated by trained students. These activities generally take place Sunday through Thursday and are 3–7 week leagues or short elimination tournaments. The Department of Campus Recreation assists special interest groups or sport club teams to reflect the varied recreation and cultural preferences of campus community members. Some clubs are intensely competitive, requiring a daily commitment to workouts and conditioning. They compete either on an inter-collegiate basis with New England teams or sponsor University tournaments. Other clubs meet on a casual “come when you can” basis. The wide variety of clubs can meet every interest or skill level.

In addition to the Recreation Center, the Department of Campus Recreation offers ice skating in the Whittemore Center arena during non-peak/non-team hours, manages a large outdoor recreation facility on Mendum’s Pond in Barrington with its own sailing and canoe center, runs a children’s camp (Camp Wildcat) in the summer, and supports the men’s crew boat house. One of the largest student employers on campus, Department of Campus Recreation provides opportunities for more than 300 student employees in a variety of positions. For further information call (603) 862-2031 or visit campuscurec.unh.edu.

Programs and Services for Students

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.

Center for Academic Resources (CFAR)

The Center for Academic Resources offers a comprehensive program of academic-related services to undergraduate students. Participants work on an individual basis or in group seminars with trained staff members to improve their academic performance and enhance their educational experience. The center offers learning skills instruction, drop-in subject area tutoring, study groups, computer support, course information, clarification of academic goals, personal advising, and referral. The center serves approximately 1,600 students a year. There is no cost associated with these services.

Additional services are available through the Student Support Services component for students enrolled in four-year programs who meet income and disability criteria. These services include individualized subject-area tutoring, support for students with learning disabilities, graduate school advising and preparation, and scholarship search assistance. Student Support Services is 100 percent federally funded through a $303,868 grant from the U.S. Department of Education.

Located at Wolff House (8 Ballard Street, next to Health Services), the center is open weekdays from 8:00 A.M. to 4:30 P.M. and evenings by appointment. For further information call (603) 862-3698 (voice/TTY), fax (603) 862-0840, or visit the Web site at www.cfar.unh.edu.

Counseling Center

The Counseling Center offers confidential professional consultation, individual and group therapy, and educational workshops for a broad range of emotional, psychological, and interpersonal concerns. Services are provided for all students who have paid their Health Services/Counseling fee and who may be facing a major crisis, confusion, depression, family difficulties, or other personal problems.

The center provides a scheduled intake system. Intake appointments can be made over the phone or in person. In addition, emergency services are offered by the Counseling Center during regular business hours, 8:00 A.M.–5:00 P.M., Monday through Friday, and after hours by calling the Counseling Center at (603) 862-2090 or Health Services at (603) 862-1530. When necessary, the center’s staff assists with outside mental health referrals.

The staff, which includes licensed psychologists, counselors, and consulting psychiatrists, is committed to the welfare and development of UNH students. The staff is available for consultation with faculty, administrative staff, and parents on matters relating to the welfare of students. The Counseling Center is fully accredited by the International Association of Counseling Services, Inc. and offers a predoctoral internship training program that is accredited by the American Psychological Association.

All information about a student’s visits to the Counseling Center is confidential and cannot be released without the written permission of the student.

For information or to schedule an appointment, call (603) 862-2090 or visit the Counseling Center’s Web site at www.unhcc.unh.edu/index.html.

Athletics, Men’s and Women’s

UNH participates in the following intercollegiate men's athletics programs: basketball, cross country, football, hockey, soccer, swimming, tennis, and track and field. UNH also participates in the following intercollegiate women's athletics programs: basketball, crew, cross country, field hockey, gymnastics, ice hockey, lacrosse, skiing, soccer, swimming, tennis, track and field, and volleyball. An undergraduate athletic pass provides access to certain sporting events on a space available basis. (See also Campus Recreation, page 7.)

Cat’s Cache

Cat’s Cache is a convenient way to make purchases on and off campus. An account may be started when a student signs up for housing, attends June Orientation, or pays tuition.

Cat’s Cache balances carry from semester to semester, year to year, and can be added to at any time with cash or check or a credit card at our Web site (www.unh.edu/dining). Full refunds are available upon request. There are no fees.

Cat’s Cache is accepted at many retail outlets on and off campus, including the UNH Bookstore and other shops in the Memorial Union Building; campus vending machines; the pro shop at the Hamel Recreation Center; MUB Food Service; the dining halls; New England Center Acorn’s Restaurant; and the UNH Dairy Bar. See full listing at www.unh.edu/dining.

Computing and Information Services (CIS) www.unh.edu/cis

Computer access. All students have access to networked computing resources on campus. UNH has five microcomputer clusters which offer more than 220 Dell Pentium and Apple Macintosh computers as well as high-speed laser printing. All clusters are completely networked and offer a suite of software as well as access to the Internet via the World Wide Web. The clusters are staffed by student consultants who assist with questions or problems. Two clusters are available 24 hours/day. For information and cluster hours, call (603) 862-0058 for an automated recording.
There are no monthly fees or time limits. UNH provides a high speed network connection for using ResNet. There are minimum standards for hardware and software. For information, visit the ResNet Web site at www.unh.edu/resnet.

UNHINFO. UNH's main Web server functions as the starting search point to find any on-line University information such as events, jobs, courses, directories, departments, and much more. UNHINFO is accessible to computers with a network connection, including the student computing clusters, dorms, and Internet service providers, at www.unh.edu.

Access: Support Services for Students with Disabilities
The University of New Hampshire is committed to providing students with documented disabilities a living and learning experience with equal access to programs and facilities. The University will make reasonable adjustments and accommodations, and provide academic aids to promote student independence and access to the full range of college activities at UNH.

All students with a disability, who anticipate the need for services, should self-identify and provide written documentation to the Access Office. Please submit documentation as soon as possible after acceptance to smooth coordination of available services. Access is located in the Memorial Union Building, Room 118, (603) 862-2607 (voice/TTY).

General Information for Students with Disabilities
Students seeking accommodations, academic aids or adjustments; arrangements for moving classes to accessible locations; or priority registration (to be determined on a case by case basis) should contact the Access office at (603) 862-2607 (Voice/TTY).

Most major buildings have ramps and many have elevators and adapted restroom facilities. Contact Access or Affirmative Action Office with questions about building facilities.

Students with disabilities who require handicap parking permits on-campus use must seek the permits from the Department of Motor Vehicles (DMV) of their home state (that is, the state where their driver’s license was issued). Applications for New Hampshire handicap permits are available at Parking Services. Processing of New Hampshire permits, however, must still be done by the DMV of the student’s home state. Please note: All students using handicap parking permits must still purchase either a commuter or on-campus resident pass. Questions about temporary handicap parking should be directed to Parking Services at (603) 862-1010.

Special arrangements for students who need routine assistance can be made with University Health Services at (603) 862-1330. Types of assistance might include: injections, examinations, laboratory tests, and medication management.

For information about dietary restrictions due to disability or for special arrangements possible during periods of inclement weather, please contact Food Service: University Hospitality Services at (603) 862-2583.

Students with disabilities who plan to live in campus residence halls should contact the Call and Dispatch Center provides UNH and USNH administration and support as well as UNH network connection problem assistance.

Walk-In Services. CIS Telecommunications and Client Services coordinates Walk-In Services, located at MUB 109. CIS Telecommunications offers kiosks for e-mail access, Web browsing, and CIS Knowledge Base searches. Staff are available to discuss UNH computing and voice communication-related issues, including central system account distribution, voice mail and account password resets, cell phones, virus scanning services, file conversion, and disk/file repair and recovery. Walk-In Services also distributes CD Loaner Kits containing the latest antivirus software and UNH network software programs.

ResNet. UNH's Residential Network provides a high speed network connection for each student living in the residence halls and undergraduate apartments on campus. There are no monthly fees or time limits for using ResNet. There are minimum standards for hardware and software. For information, visit the ResNet Web site at www.unh.edu/resnet.

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ResNet. UNH's Residential Network provides a high speed network connection for each student living in the residence halls and undergraduate apartments on campus. There are no monthly fees or time limits for using ResNet. There are minimum stan-
Recent events have ranged from dance mara­thons to charity banquets and have benefited organizations such as the Children’s Miracle Network and the Cam Neely Foundation. In conjunction with service to the community, each chapter offers opportunities for leadership development and social interaction. The system has two governing bodies (Interfraternity and Panhellenic Councils) comprised of current representatives from various chapters. Additional challenge and support is available through the Office of Greek Affairs, which is staffed by a full-time coordinator of Greek Affairs, and two undergraduate interns.

Anyone who has questions about joining a sorority or fraternity may contact the Office of Greek Affairs, Memorial Union Building (MUB 122), (603) 862-1002.

International Students and Scholars
The Office of International Students and Scholars (OISS) promotes international education at UNH by facilitating the enrollment and employment of foreign nationals and by providing them with essential support services. The OISS coordinates programs which encourage interaction between the international, campus, and local communities, thereby fostering awareness and appreciation of other cultures. It is the responsibility of the OISS to ensure University compliance with U.S. immigration and employment regulations and to assist international students, exchange scholars, faculty, and staff in the achievement of their academic and professional goals.

The OISS staff provides counseling, information on University policies, administrative support, and referral services. A variety of social and educational programming activities are offered, including orientation for incoming students, faculty, and staff, and others designed to enhance student interaction with the broader community and provide opportunities for sharing in family events. For more information on programs and services, visit the OISS Web site at www.unh.edu/oiss. To schedule an appointment, call (603) 862-1288 or send e-mail to OISS@unh.edu.

All international students are encouraged to maintain contact with the OISS and are required by law to report changes of address, academic program, or source of educational funds.

Judicial & Mediation Programs
The Judicial & Mediation Programs Office administers the student judicial process. Through the Student Code of Conduct, the office maintains community standards of behavior that are intended to preserve and protect the University’s educational mission of teaching, research, and public service, as well as promote the student’s academic achievement and personal development. To attain these aspirations, students must live, work, and learn in an environment of civility and respect where both rights and responsibilities are deeply valued. For the University community to thrive, the rules of conduct must be clear and understood by all members of the community. The Student Code of Conduct codifies and explains community standards of behavior and responsibility, as well as the rights and remedies accorded to all members of the community.

More specific information regarding the Student Code of Conduct and Judicial Process can be found in Student Rights, Rules and Responsibilities. For more information, please call Judicial Programs Office at (603) 862-3377, or visit the Web site at www.unh.edu/student-life/judprograms/index.html.

The UNH Mediation Program provides community members with an opportunity to talk about and resolve disputes in an alternative and non-adversarial manner. Students or University community members or organizations can access mediation or conflict resolution training or consultation by self-referral. Mediation and/or conflict resolution training or consultation is also available as an alternative to filing conduct charges against a student in some situations. Mediation is provided by trained neutral mediators, who are in charge of and guide the process in a neutral setting and confidential process. The mediators are not involved in the dispute, do not take sides, and do not make any decision for the disputants. The mediators are part of this community-based mediation program and are supervised by the Judicial & Mediation Programs Office. Some examples of situations appropriate for mediation include issues arising out of relationships such as roommate, friendships, dating partners, neighbors, teammates, organization members, landlord/tenants, etc.

Through mediation, disputants are able to identify the issues in a conflict, have their perspective heard and acknowledged, and communicate about how to better understand and solve their problem(s). The mediators, who are often peers, facilitate communication between the parties and empower the students to generate options for resolution and ultimately assist the development of their own resolution to the dispute. The Mediation Program is a larger component of the effort to provide students with the opportunity to develop important life skills such as conflict resolution, anger management, and effective communication skills. For more information call (603) 862-3377.

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, injustice, and equity. Their work is grounded in an understanding of diversity that includes people of all abilities, ages, ethnicities, genders, nationalities, races, religious/spiritual traditions, socioeconomic classes, and sexualities.

Providing support and development for students of color (black, Asian, Latino/a, Native American, Pacific Islanders, and biracial students), and for lesbian, gay, bisexual, transgender, and questioning students is at the heart of their work.

OMSA offers cultural and educational programs, opportunities for exploring leadership potential within a multicultural context, provides referrals to obtain support and help from other people and programs on campus, gets students connected, helps students to learn more about race, sexuality, and gender, responds to acts of intolerance, and helps all members of the University Community to feel safe and welcome at UNH.

The office provides computers for student use, social and study space, a media library, and educational resources for faculty and staff. Staff members include Sean McGhee, director; Bob Coffey, LGBT coordinator; and Irene Kao, multicultural coordinator. For more information, stop by the office in room 327 of the Memorial Union Building (MUB), or phone (603) 862-0324.

Nontraditional Student Services
Since the 1970s, the nontraditional student population at the University of New Hampshire has been an active, hardworking group. These students remain dedicated to their education, to their families, and to helping one another deal with issues and concerns often experienced by those having challenging lives apart from a university setting.

To assure that the University and its activities respond to the needs, desires, and lives of nontraditional students, a nontraditional student advisory board provides active support to this student population in concert with the nontraditional student intern. The intern works to enhance communication among students by various publications and informs, advises, and generally supports nontraditional students during their time at UNH.
In addition, the Nontraditional Student Organization (NTSO) in the Memorial Union, offers programs and provides lounge space in MUB 112. Students are encouraged to stop by for information, to study in the lounge, or to visit with other students.

President's Commission on the Status of Women

The mission of the UNH President's Commission on the Status of Women is to create equal employment and educational opportunities for all UNH women by promoting an environment free of sexism and discrimination through policy, advocacy, and education. Established in February, 1972, to serve as a sister organization to the New Hampshire State Commission on the Status of Women, its functions include: collecting information on the status of women in the UNH community; recommending policies to the president and other University administrators; providing education and programs to help women develop their skills; increase networking among women; and inform the community of issues relating to the status of women. The commission reports annually to the president on its activities and findings. Commission membership consists of a chairperson, educational program coordinator, and volunteer representatives from University students, faculty, and staff. Candidates for membership are recommended by the commission and appointed by the UNH president. The commission comprises several working committees, which are open to non-commission members. Located in Batcheller House, the commission also maintains an e-mail discussion list for those interested in its activities. Call (603) 862-1058, send e-mail to womens.commission@unh.edu, or visit the commission's Web page at www.unh.edu/womens-commission for more information.

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. As an advocacy group, the commission identifies, recommends, and supports creative strategies for promoting and supporting campus diversity; it responds to issues, needs, and concerns identified within the community; it works to establish effective and collaborative working relationships between departments, offices, committees, commissions, and special programs that play a role in fostering diversity on campus and ensuring that the environment is supportive of the minority populations. A central resource for people of color on campus is the Office of Multicultural Student Affairs (OMSA). Contact OMSA at (603) 862-2050 or on the Web at www.unh.edu/omsa. The commission is located in Batcheller House on Rosemary Lane. The office is open Monday through Friday, 9:00 A.M. to 5:00 P.M., (603) 862-1058 or visit the commission's Web page at www.unh.edu/cspc for more information.

President's Commission on the Status of Gay, Lesbian, Bisexual, and Transgender Issues

The mission of the UNH President's Commission on the Status of Gay, Lesbian, Bisexual, and Transgender Issues is to facilitate the development of a university community that is equitable and inclusive of all sexual orientations and gender expressions. The commission assists the president in monitoring the campus climate for gay, lesbian, bisexual, and transgender faculty, staff, and students reviewing policies and programs and making recommendations on improving campus climate.

Established in 1992, the commission meets monthly during the academic year. Its membership includes gay, lesbian, bisexual, transgender, and allied University faculty, staff, and students who are appointed by the president. Students from the gay, lesbian, bisexual, transgender, and ally community who are interested in participating on the commission are encouraged to contact the chair. Call (603) 862-1058, or visit the commission's Web page at www.unh.edu/gbt.

Police, University

The University Police Department, which is committed to the enforcement of laws and University policies supportive of the rights and dignity of all persons, seeks to maintain a campus environment in which learning may thrive. Officers, professionally trained in their respective areas, staff both the police and Security Services units.

Police department staff members participate in a number of programs for the UNH community including adopt-a-dorm and a women's self-defense program. The department also provides literature regarding crime prevention. On request, staff members will meet with groups to share precautions for increasing personal safety and protection of personal property. A walking patrol provides an escort service for students, faculty, and staff. Engraving pencils to inscribe identification numbers on property in case of theft are loaned free of charge to members of the campus community. To take advantage of any of these services, contact the University Police Department, (603) 862-1427.

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 136 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.

The director of residential life also serves as associate vice president for student and academic services. Consequently, all students receive special assistance from the Residential Life Office when seeking medical withdrawals or if they will be out of school for an extended period of time. In addition, Residential Life staff members often initiate responses to individual student emergencies.

The assistant vice president also assumes responsibility for leadership development, establishing joint ventures with academic programs, orienting new students to the University, and educational and social programming.

Students are welcome to stop by the Residential Life Office, located in 13A Hitchcock Hall, or to call for more information at (603) 862-2268.

Sexual Harassment and Rape Prevention Program (SHARPP)

SHARPP is a University of New Hampshire-based crisis intervention center dedicated to providing free and confidential services to survivors of sexual assault, sexual harassment, childhood sexual abuse, incest, intimate partner violence, and stalking, and their allies. In addition, SHARPP's Outreach Program provides education and awareness programs on sexual and interpersonal violence to the greater University of New Hampshire community. SHARPP's services are largely supported by volunteers; volunteering for SHARPP provides many
opportunities for the development of leadership skills.

SHARPP’s Direct Services include a 24-hour crisis line, emergency medical accompaniment, criminal justice and University judicial process advocacy, support in obtaining academic assistance, support groups, and information and referrals. SHARPP also provides crisis services and support for those who are close to the survivor, including roommates, parents, friends, family members, and instructors.

SHARPP’s Outreach program provides the highest quality awareness and educational programming, including campus-wide peer education programs for students in the residential halls, classrooms, and Greek houses, and orientation activities and training for athletic teams, student organizations, and faculty and staff. SHARPP also sponsors awareness events and activities throughout the year.

The SHARPP office is located at 12 Ballard Street. The office is open Monday through Friday, 8:00 A.M.—4:30 P.M. The crisis line and administrative number is (603) 862-3494. SHARPP is also available through a toll free number at 1-888-271-7233 and by TTY at 1-800-735-2964. After hours, all calls will be returned by a trained advocate within 10 minutes. All calls are free and confidential.

Student & Academic Services

The University of New Hampshire has made a commitment to “provide students an innovative, high quality, coherent, and integrated educational experience.” This commitment—outlined in the Academic Plan—obligates us to create a learning environment that offers students the greatest opportunity to grow and that provides sufficient connection to the “outside world” for the opportunity to test the relevance and the effectiveness of what they are learning. Such an approach to higher education also requires that we provide the support and direction necessary for the success of our students’ endeavors.

The Division of Student & Academic Services seeks to forge integral links between the academic and non-academic aspects of student life, to create better connections between curriculum and co-curricular experiences, and to foster high expectations for academic and personal excellence for all students. The focus of this division is on assisting students to be successful at UNH, contributing to a process of intellectual, personal, and social development that produces graduates who are well-educated, adjusted, and prepared to realize their goals and contribute to their communities and society with intellect, professional competence, social awareness, the capacity for effective civic engagement, and respect and understanding for the diversity of people and the world around them.

The Office of the Vice President for Student & Academic Services provides students with information, assistance in problem resolution, and referrals. For more information or assistance, call the office at (603) 862-2053.

University Advising and Career Center

The University Advising and Career Center, Hood House, (603) 862-2064, provides academic advising to undeclared students in the College of Liberal Arts and career development support to students and alumni from the University’s schools and colleges on campus. 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, offer opportunities to explore career possibilities, and aid in securing employment. Vocational assessments (Myers-Briggs type indicator and Jackson Vocational Interest Survey) are offered to help individuals to identify potential majors and careers. A career library, a nationwide parent/alumni career mentors network comprised of more than 1,000 members, and an internship office help students explore career possibilities. Job opportunities are offered through W.O.R. (Wildcat Online Recruiting), the interactive Web-based on-campus recruiting program. Specific job notices are also offered on the center’s Web site. Additionally, the center sponsors a variety of fairs and activities that bring students into contact with prospective employers and internship opportunities, and help to prepare students for careers.

The center is also the campus resource for students seeking admission to medical and related health profession schools and law school. More broadly, the center assists students considering graduate education, sponsors a graduate and professional school fair, administers national tests for post-baccalaureate study, and guides individuals to resources across the University.

Internships

Supported by the federally funded Job Locator Development Program, the internship office in University Advising and Career Center helps students locate preprofessional 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 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 W.O.R.K. Program link on the center’s Web site. Postings are also listed in the center. Several academic departments also have internship listings posted. For more information regarding internships, consult the center’s Web site at www.unh.edu/ucc or contact the center at (603) 862-2064.

Veterans Information

The UNH veterans’ coordinator, located in the Registrar’s Office at (603) 862-1595, provides counseling on all aspects of veterans' benefits and assistance in procuring and completing the required forms and certifications for veterans’ benefits. The veterans’ coordinator maintains a comprehensive directory to assist veterans in contacting state, local, and University resources for housing, day care, career planning, employment, financial aid, tutorial assistance, remedial training, handicapped services, and Vietnam Veterans Outreach. The coordinator also provides a framework for networking among campus veterans. For further information, send e-mail to Lonn.Sattler@unh.edu.

Writing Center

The Robert J. Connors Writing Center, 7 Hamilton Smith, provides individual help from trained consultants on all issues involving writing: subject choice, composing processes, genre, organization, structure, grammar and formal conventions, and ESL (English as a second language). All these services are available without charge to any member of the University community. The center offers consulting on writing to faculty, staff, and students. Students need not be enrolled in any specific course to use its services.

Although the center does not offer an editing or proofreading service, its consultants will work with those who need help in learning to use grammar, punctuation, and writing conventions. The highly skilled staff works with undergraduates on papers and projects, with graduate students on their essays and theses, and with staff and faculty members on projects ranging from grant proposals to journal articles. The Writing Center operates on both a referral basis and a walk-in basis. For further information or to make an appointment, call (603) 862-3272.
Health Services

The University has a state-licensed and nationally-accredited (aaahc.org) health and wellness program.

Medical Services

Health Services provides comprehensive, student-focused, primary medical care, laboratory testing, radiology, and pharmacy services. During the regular academic year, the clinical staff consists of board-certified physicians, nurse practitioners, nurses, and medical assistants who have experience working with adolescents and young adults and are committed to prevention and holistic care. They work in teams, three of which focus on general medicine services, commonly seen, for example, infectious diseases, injuries, and mental health concerns.

The fourth team focuses on women’s health and provides annual exams, PAP tests, and numerous other services for women. There is also a travel clinic providing clearances and immunizations for foreign travel and an allergy clinic providing allergy shots. One may speak by telephone with a triage nurse for advice at any time. Limited services are available in the Office of the Student Health Information Center.

General medical appointments may be made by calling (603) 862-2856, and women’s health appointments by calling (603) 862-1806.

Office of Health Education and Promotion

The Office of Health Education and Promotion (Room 203, Health Services Center) offers a variety of educational workshops and facilitates ongoing educational groups on a variety of physical and emotional health issues. Confidential assessment and referral are also available. The office offers alcohol and other drug counseling, nutritional counseling services, tobacco cessation services, and anonymous and confidential HIV counseling and testing. A health educator/nurse provides education and support to students living with chronic illnesses. Massage therapy is also available. The resource library (Room 218) contains information on physical and emotional health issues, including mental health issues, including HIV/AIDS, alcohol, tobacco, and other drugs, men’s and women’s health issues, holistic health, wellness, stress management, sexuality, nutrition, and eating concerns.

These services and programs reflect Health Services’s commitment to assisting students in achieving optimal health and well-being. Appointments are made at the Office of Health Education and Promotion, or by calling (603) 862-3823.

Health and Counseling Fee

All undergraduate- and graduate-degree candidates and all full-time non-degree candidates pay a mandatory health and counseling fee. For the academic year 2003-2004, the health and counseling fee was $498. The mandatory student health fee covers many outpatient care needs that are available at Health Services. However, charges not covered by the health fee are the responsibility of the student. Students should check with the Health Services business office at (603) 862-2840 with any questions.

Health Insurance

A student health insurance policy is available to students. Please contact Health Services at (603) 862-1530 or (603) 862-4089 for current information.

Health Record Requirement

In order to provide effective care, Health Services requires that students who have been formally accepted for a bachelor’s or associate’s degree candidature, and who register for five or more credits, must have health information on file with Health Services. This information will include three forms provided by Health Services on its Web site at www.unh.edu/health-services. These include a physical assessment and immunization form, to be completed by a medical provider and mailed to Health Services, and a health history form, to be completed by the student on-line. Proof of immunity to measles is mandatory (UNH Academic Policy 02.14). Students must meet one of the following criteria for proof of immunity to measles: have received two live-virus measles vaccinations at least one month apart after 12 months of age, a positive measles titer (blood test), health provider documentation of past history of measles, or have been born before 1957. Students requesting a religious exemption from measles vaccinations must submit a formal exemption form from their religious affiliation or complete the UNH Health Services Request for Exemption, form 202.5. 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 complete the forms before the beginning of classes. Any student failing to complete these requirements may not be cleared to register for future classes.

Fees and Expenses*

The cost for 2004-2005 at the University averages about $19,000 for residents of New Hampshire and about $30,000 for nonresidents. See the following chart for a breakdown of these costs.

UNH bills are sent electronically only. Bills are posted to student IT ID accounts. Students are notified through UNH assigned e-mails addresses when new bills are posted.

Fees and Expenses (2004-2005)**

<table>
<thead>
<tr>
<th></th>
<th>In-state</th>
<th>Non-residents</th>
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</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$7,210</td>
<td>$18,240</td>
</tr>
<tr>
<td>Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity fee</td>
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<tr>
<td>Recreational fee</td>
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<td>Memorial Union fee</td>
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<td>Health and counseling fee</td>
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<tr>
<td>Technology fee</td>
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<tr>
<td>Transportation fee</td>
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<tr>
<td>Subtotal of Required Expenses</td>
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<tr>
<td>Room and Board</td>
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<td></td>
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<tr>
<td>Double room</td>
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<td>Silver Meal Plan</td>
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<td>Subtotal</td>
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<td>Estimated Expenses (to cover books, supplies, transportation, misc.)</td>
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<tr>
<td>Approximate Costs</td>
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<td>Optional Fees</td>
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<td>Health Insurance</td>
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<tr>
<td>Parents Association Sponsorship</td>
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<td>35</td>
</tr>
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</table>

*All charges quoted in this section reflect 2004-2005 rates.
**The University reserves the right to adjust charges for such items as tuition, board, student fees, and room rent. Such charges will be announced as far in advance as possible.

General Information
Tuition*
Tuition for the academic year 2004–2005 was $7,210 for N.H. residents and $18,240 for nonresidents. The rates per credit hour in 2004–2005 were $300 for N.H. residents and $760 for nonresidents.

Students are permitted to enroll for more than 20 credits only with the approval of their college or school dean. After midsemester, 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. (See per-credit hour rates above.) No refund will be made 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. 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 Whittemore School of Business and Economics (WSBE) will be charged a tuition differential. The differential is the same rate for both N.H. residents and nonresident students. In 2004–2005 the CEPS differential was $236 per academic year and the WSBE differential was $387 per academic year. CEPS and WSBE students who register for fewer than 12 credits pay a differential per-credit hour ($10 for CEPS and $16 for WSBE per-credit in 2004–2005).

All admitted students must pay an enrollment fee—$300 for residents and nonresidents. The enrollment fee, less $200 (to cover new student services such as orientation, preregistration, and record preparation), will be credited to the tuition bill. If a student decides not to attend the University, these payments may be refunded on a pro-rated basis until August 15, according to the guidelines set by the Office of Admissions

Three-fourths of tuition charges will be refunded to students withdrawing or dropping courses within one week of the first day of classes; one-half after one week and within 30 days; and none thereafter (see the University Calendar). Mandatory fees are not refundable. 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.

A $25 fee must be paid by all students dropping courses after the third Friday of classes. The $25 fee will not be charged to persons changing to a reduced load or withdrawing; in both of these cases, the regular tuition rebate policy will apply. If a student has received permission to add a course after the third Friday of classes, a $25 fee will be assessed for each course added. A change of section within the same course is accomplished by a “drop” of one section and an “add” of another; however, only one $25 fee is assessed under these circumstances.

Fees
Required fees for 2004–2005 included a Memorial Union fee ($278) for the use and administration of the student union; a recreational fee ($237) for support of recreational facilities; a student activity fee ($90) for support of the undergraduate newspaper, yearbook, student government, student lawyer, student radio station, and other student organizations; a technology fee ($103); a student athletic fee ($671) to provide support for athletic programs; a health and counseling fee ($498) to provide general health care through University Health Services; and a Transportation fee ($49) to provide student transportation services.

There are no waivers or refunds 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 not eligible for full or partial refund of fees.

Participants in intercollegiate athletics are required to purchase the student accident and sickness insurance or demonstrate proof of comparable insurance to the respective athletic department. The 2004–2005 cost for student accident and sickness insurance was $1,117 for a full calendar year.

A $35 contribution may be included to sponsor the Parents Association.

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 Services Fee
For information on health services, see page 13.

Memorial Union Fee
For more information on the Memorial Union Building see page 7.

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 lawyer
- Student radio station
- Movies at reduced rates
For more information, check the Get Involved guide available at the Memorial Union Building.

Technology Fee
Support for the following:
- Student computing clusters
- Walk-in Help Desk services
- Technology-enhanced classrooms
- 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

Room and board charges average $6,612 for the 2004–2005 academic year for a double room with a mandatory meal plan.

New students accepting a space on campus must include a $200 housing deposit with a signed application; for returning students, the deposit is $500. Written notification of cancellation of the room application or assignment received before August 15 will result in forfeiture of the deposit only. Written notification of cancellation after August 15 and before Friday of the first week of class will result in a charge of one-fourth of the full semester’s housing fee.

If the student fails to occupy the assigned room by Friday of the first week of class 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 classes and before thirty days after registration will result in a 50 percent refund of the semester’s housing fee. Cancellation thirty 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, the total amount of the housing deposit will be applied against any unpaid University charges.

Refunds on the board plans will be granted only on approval waivers or withdrawal from the University. If approved, Unlimited Meal Plans will be prorated by the number of weeks attended and Block Plans will be prorated by the number of meals consumed. Unused Dining Dollar balances will be credited for any dollars left less any applicable bonus. In the case where the student has spent any or the entire bonus, that amount will be debited to the student account.

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 charge will be made for individual lessons in music, as noted in the description of applied music courses. 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 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 that 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’ UNH Webcat 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 student’s UNH-assigned e-mail addresses notifying students when new bills have been posted.

Through the online system students can view a history of electronic bills and payments and access a real-time view of their accounts. Students may also set up accounts to allow payments from parents or other authorized payers. Payment may be made online by check, or the bill may be printed and mailed with payment. UNH does not accept credit card payments from Durham undergraduates.
To graduate from the University of New Hampshire, baccalaureate and associate in arts students must fulfill four types of University requirements: writing, general education, degree, and major. For associate in applied science degree requirements, see page 142.

University Writing Requirement

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, 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.

Writing Intensive Courses

All bachelor’s degree candidates are required to complete four “writing intensive” courses, which must include English 401 (Freshman Composition) 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. Specific courses that fulfill the writing requirement are listed at unhinfo.unh.edu/registrar/registration.html. Some courses have both writing intensive and non-writing intensive versions, such as HIST 405 and HIST 405W. In those cases, only the sections attached to the “W” courses will be writing intensive.

Please note that some cross-listed courses are also writing intensive. For the most current information on cross-listed courses, visit the Web site listed above.

General Education Program

The general education program is designed to emphasize the acquisition and improvement of those fundamental skills essential to advanced college work, especially the abilities to think critically, to read with discernment, to write effectively, and to understand quantitative data. It aims to acquaint the student with some of the major modes of thought necessary to understanding oneself, others, and the environment. It seeks to develop a critical appreciation of both the value and the limitations of significant methods of inquiry and analysis. Its goal, moreover, is the student's achievement of at least the minimal level of literacy in mathematics, in science and technology, in historical perspectives and the comprehensions of our own and other cultures, in aesthetic sensibility, and in the diverse approaches of the humanities and the social sciences to understanding the human condition.

General education is intended to serve as a foundation for any major. It aims to go beyond the mastery of job-related skills and educate students so that they learn how to learn. The program is based on the premise that change is the dominant characteristic of our times and that the truly useful education stresses intellectual adaptability and the development of those problem-solving abilities, cognitive skills, and learning techniques vital to lifelong learning.

General Education Requirements

Students must fulfill the following general education requirements:

1. one course in writing skills, which must be taken during a student's first year. This course will satisfy the English 401/Freshman Composition component of the writing requirement;
2. one course in quantitative reasoning, which must be taken during a student's first year;
3. three courses in biological science, physical science, or technology, with no more than two courses in any one area;
4. one course in historical perspectives;
5. one course in foreign culture (may also be satisfied by approved study abroad programs);
6. one course in fine arts;
7. one course in social science; and
8. one course in works of philosophy, literature, and ideas.

General education 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. The required courses cannot be taken on a pass/fail basis. No single course may be counted in more than one general education category. Academic departments may or may not permit general education courses to count toward requirements for a major. Each course must carry at least 3 credits to qualify for general education consideration.

The specific courses that fulfill each category of the general education requirements are printed below. Any course appearing in this list will fulfill a general education requirement if taken after September 1, 2005. For the most current listing of general education courses, go to: unhinfo.unh.edu/registrar/geneduc/gedreq.html.

1. Writing skills
ENGL 401

2. Quantitative reasoning
ADM 430
ADMN 420
BIOL 528
CIS 425
CS 405, 407, 410
EREC 525
HHS 540
INCO 404B
MATH 419, 420, 424, 425
PHIL 412, 550
PSYC 402
SOC 502

3. Biological science, physical science, and technology

Biological science
ANSC 401
BIOL 407, 411, 412, 413, 414
BSCI 405, 406, 431
HMP 501
INCO 404C
KIN 527, 607
MICR 501
MLS 444
NR 410, 433
NUTR 400
PBIO 400, 412, 421, 582
ZOOL 401, 402, 412, 474, 507, 508
Physical science
CHEM 401, 402, 403, 404, 405, 409
ESCI 401, 402, 405, 409, 420, 450, 501
GEOG 473
INCO 404D*
NR 504
PHYS 401, 402, 406, 407, 408

Technology
BIOL 404, 520
BCSI 421+, 422‡
CHE 410
CIS 411+, 515+
CS 401, 403
ENE 410
HHS 450
HMP 444
INCO 404E*
NR 415, 435, 444, 502
PHI 405
PHIL 447, 450
PHYS 444
TECH 444, 583

4. Historical perspectives
CHEM 444
CLAS 405, 406, 550
ENGL 515
GEOG 586
HIST 405, 406, 410, 421, 422, 435, 436,
483, 497, 505, 506, 511, 512, 521, 522, 523,
531, 532, 565, 567
HMP 505
HUMA 510C†, 511C†, 512C†, 513C†, 514C†,
515C
INCO 404F*, 404G*
ITAL 481A***, 682A***
KIN 561
POLT 403, 508
RS 483

5. Foreign culture
ANTH 411, 500, 512, 515, 650
ARTS 695I
CHIN 425, 503, 504
ENGL 581
FREN 425, 426, 503, 504, 525, 526
GEOG 401, 402, 520, 541
GERM 503, 504, 523, 524, 525
GREK 503, 504, 505, 506
HIST 425, 563
INCO 404H*, 404J*, 404K*
INTR 438‡

ITP 425, 503, 504, 525
JPN 425, 503, 504
LATN 503, 504
NR 660
POLI 553, 555, 556
PORT 503, 504
RUSS 425, 502, 503, 504
SPAN 503, 504, 525, 526

6. Fine arts
ARTS 431, 480, 487, 532, 570, 571, 572, 573,
574, 580, 581
FREN 522
HUMA 480A**, 510A†, 511A†, 512A†, 513A†,
514A 515A
INCO 404L*, 404M*, 404N*, 480
MUSI 401, 402, 501, 502, 511
PHIL 421
SOC 580
THDA 435, 436, 438, 450, 459, 461, 462, 463,
487, 546, 548, 583

7. Social science
ANSC 405
ANTH 412, 625
CD 415
CLAS 506, 550
CMN 402, 455, 457
ECN 411+, 412+
ECON 401, 402
EDUC 444
ENGL 444A, 505
EREC 411
FS 525, 545
GER 581, 582
GERO 600
HHS 510
HMP 401
HUMA 510D†, 511D†, 512D†, 513D†, 514D†,
515D†
INCO 401, 402, 404O*, 404P*, 404R*,
404S*
KIN 560
LING 444B, 505, 506
NURS 535
NUTR 405
POLT 402, 444, 504, 505, 560, 564, 565,
566, 567
PSYC 401, 444
RMP 444, 490, 550, 570
SOC 400, 500, 520, 530, 540
SW 444, 525, 550
WS 401, 444

8. Works of literature, philosophy, and ideas
AMST 444A, 501, 502
ANTH 450
BIOL 444
CLAS 401, 402, 421, 422, 500
CMN 456
ECS 400
ENGL 444A, 511, 513, 514, 516, 517, 518,
519, 521, 522, 523, 533, 555, 585, 586, 630,
631, 632, 651, 657, 681, 685
FREN 500, 521, 651, 652
GEOG 587
GERM 500, 520, 521
HIST 484
HUMA 441†, 412†, 480B**, 500, 510B†,
512B†, 513B†, 514B, 515B†, 519†,
520†, 650, 651
INCO 404T*, 404U*, 404W*, 404Y*, 450
ITAL 500, 521, 522, 651, 652, 681B***,
682B**
LLC 440, 444
PHIL 401, 417, 424, 430, 435, 436, 444, 520,
525, 530, 540, 560, 570, 630, 660
POLT 401, 407, 520, 521, 522, 523, 524
PORT 500
PSYC 571
RMP 511
RS 484
RUSS 426, 500, 521, 522, 593
SPAN 500, 521, 522, 650, 651, 652, 653,
654

*Available only to honors program students and others who have obtained special permission.

**Students may take either HUMA 480A or 480B but not both.

***Students may not receive credit for both ITAL 681A and 681B or 682A and 682B.

†For students who complete the entire sequence of HUMA 510, 511, 512, and 513, enrolling in different discussion sections each time, a fifth general education requirement (in foreign culture) will be waived, although additional credit hours will not be granted.

‡Offered only at UNHM (Manchester).
Degree Requirements

Requirements in this catalog apply to students who enter the University between July 1, 2005 and June 30, 2006. (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. Students are each provided one free copy of the catalog that is in effect at the time of their entry to the University. They are expected to keep that copy for the duration of their time at the University. Any other copies must be purchased, and availability cannot be guaranteed.

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.

Bachelor of Arts

1. At least 128 credits in courses numbered 200–799, with a cumulative grade-point average of 2.00 for all courses taken at the University in which a grade is given.
2. Completion of the University general education requirements.
3. Completion of the University writing requirement.
4. Proficiency in a foreign language at the level achieved by satisfactory work in a one-year, college-level course. This requirement may be fulfilled by taking a College Board foreign language achievement test, or by completing a full-year elementary course in any foreign language, or by completing a semester of a course in a foreign language beyond the elementary year, or by completing a one-year college-level course in American Sign Language (must be 8 UNH credits or equivalent). This 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.

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 the Access Office, 118 Memorial Union Building, (603) 862-2607 (Voice/TDD).

Bachelor of Fine Arts, Bachelor of Music

Requirements for the B.F.A. degree are on page 31; for the B.M. degree, on page 51.

Bachelor of Science

1. At least 128 credits in courses numbered 200–799, with a cumulative grade-point average of 2.00 for all courses taken at the University in which a grade is given.
2. Completion of the University general education requirements.
3. Completion of the University writing requirement.
4. For specific requirements, check individual departmental or program listings.

See also pages 63, 85, 98, 121, and 152.

Associate in Arts

1. Completion of at least 64 credits with a minimum grade-point average of 2.00.
2. Completion of two “writing intensive courses,” one of which must be ENGL 401, Freshman Composition.
3. Completion of general education requirements as follows (no pass/fail allowed):
   a. one course in writing skills. This course will satisfy the ENGL 401, Freshman Composition, component of the writing requirement;
   b. one course in quantitative reasoning;
   c. one course in the biological sciences, or physical sciences, or technology;
   d. three courses chosen from the following, with no more than one from each category: historical perspectives; foreign culture; fine arts; social science; works of philosophy, literature, and ideas.

Up to four of the six required courses used to satisfy the general education requirements may be prescribed. A list of courses that may be used to meet these requirements will be available from an adviser.

4. A minimum of four courses freely selected by the student.
5. The remaining courses or credits may be earned in elective general education courses.
6. The last 16 credits must be University of New Hampshire courses completed at UNH following admission and matriculation, unless permission is granted to transfer part of this work from another institution.

Associate in Applied Science

For degree requirements, see page 142.

Dual Degrees

The opportunity to pursue simultaneously two undergraduate degrees 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 (page 22), a student may not pursue two different degree levels simultaneously.

Requirements

1. Students desiring dual degrees must petition the college dean or deans involved for permission.
2. Students must have a minimum 2.30 cumulative grade-point average.
3. Students planning to take one degree in a highly prescribed curriculum should register as freshmen in the appropriate school or college for that curriculum.
4. It is expected that candidates for two degrees will complete 32 credits beyond those required for the first degree.
5. 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.
6. 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 2.00 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 2.00 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.

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.

**Leave of Absence or Withdrawal from the University**

Students who leave the University are required to file formal notification with the registrar.

**Majors, Minors, and Options**

Majors and some interdisciplinary minors are described under their various schools and colleges; other interdisciplinary and intercollege minors are described in the section on Special University Programs.

**Student-Designed Majors**

See page 133 for requirements for a student-designed major.

**Second Majors**

Bachelor’s degree students may choose to fulfill the requirements of two dissimilar major programs, provided they obtain the approval of their principal adviser and the dean(s) of the college(s) in which the programs are offered, and comply as follows:

1. If the two majors are offered in different schools or colleges within the University, the admissions requirements of each must be satisfied.
2. 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.
3. 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 2.00 grade-point average in courses that the minor department approves. Courses taken on the 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. Students should declare an 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.

**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 concentrations 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.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
<td>Intermediate</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Superior</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
<td>Intermediate</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
<td>Marginal</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>Satisfactory, competent</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
<td>Intermediate</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
<td>Intermediate</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
<td>Marginal</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
<td>Intermediate</td>
</tr>
<tr>
<td>D-</td>
<td>0.67</td>
<td>Intermediate</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
<td>Failure; academic performance so deficient in quality as to be unacceptable for credit</td>
</tr>
<tr>
<td>AF</td>
<td>0.00</td>
<td>Administrative F (usually indicates student stopped attending without dropping the course); is included in grade-point average</td>
</tr>
<tr>
<td>CR</td>
<td></td>
<td>Credit: given in specific courses having no letter grades, designated credit/fail</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td>Passing grade in a course taken under the student pass/fail grading alternative</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td>Withdrawal—assigned if withdrawal is later than fifth Friday of classes (but not after midterm); is not included in grade-point average</td>
</tr>
<tr>
<td>WP</td>
<td></td>
<td>Withdrawal—assigned if withdrawal is after mid-semester and if student is passing; is not included in grade-point average</td>
</tr>
</tbody>
</table>
Withdrawal—assigned if withdrawal is after mid-semester and if student is failing; is included in grade-point average

Audit—no credit earned

Grade report notation for student's incomplete coursework

Indicates “incomplete” in a thesis or continuing course of more than one semester; the grade earned will replace “IA” assigned in previous semesters

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 general education requirements, for writing intensive courses, for courses required by a student's major or second major, for option or minor requirements, for ENGL 401, 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 Whittemore School 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 page 18.

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 (a) completed at least 12 graded credits for that semester and earned at least a 3.20 semester grade-point average; or (b) earned at least a 3.20 cumulative grade-point average and at least a 3.20 semester grade-point average regardless of the number of graded credits that semester.

These categories are used: 3.20 to 3.49 (honors); 3.50 to 3.69 (high honors); and 3.70 to 4.00 (highest honors).

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.

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.
The teacher education division of the College of Liberal Arts coordinates the five-year undergraduate/graduate teacher education program. See page 34.

**Bachelor of Arts**
- Anthropology
- The Arts
  - Art History
  - Art Studio
- Classics
- Communication
  - Media Practices
- English
- English/Journalism
- English Literature
- English Teaching
- European Cultural Studies
- French
- French Studies
- Geography
- German
- Greek
- History
- Humanities
- Justice Studies
- Latin
- Linguistics
- Music
  - Music History
  - Music Theory
  - Performance Study
  - Preteaching
- Philosophy
- Political Science
- Psychology
- Russian
- Sociology
- Spanish
- Theatre
- Women’s Studies

**Bachelor of Fine Arts**
- Fine Arts

**Bachelor of Music**
- Music Education
- Performance
- Theory

**College of Engineering and Physical Sciences**

**Bachelor of Arts**
- Chemistry
- Chemistry and Physics Teaching
- Earth Science Teaching
- Earth Sciences
  - Oceanography
  - Mathematics
  - Physics

**Bachelor of Science**
- Chemical Engineering*
  - Bioengineering
  - Energy
  - Environmental Engineering
- Chemistry*
- Civil Engineering*
- Computer Engineering*
- Computer Science*
  - Bioinformatics
  - Computer Engineering*
- Electrical Engineering*
- Environmental Engineering*
  - Industrial Processes
  - Municipal Processes
- Environmental Sciences*
  - Hydrology
- Geology*
- Mathematics*
- Mathematics Education*
  - Elementary
  - Middle/Junior High
  - Secondary
- Mathematics, Interdisciplinary
  - Computer Science
  - Economics
  - Electrical Science
  - Physics
  - Statistics
- Mechanical Engineering*
- Physics*
  - Chemical
  - Materials Science

**School of Health and Human Services**

**Bachelor of Arts**
- Social Work

**Bachelor of Science**
- Communication Sciences and Disorders
- Family Studies
  - Child and Family Studies

**Bachelor of Science in Forestry**
- Forestry
  - Forest Management
  - Forest Science

*Designated degree (the name of the specialization is included on the diploma; e.g., B.S. in Chemistry).
**Whittemore School of Business and Economics**

**Bachelor of Arts**
Economics  
Financial and Managerial Economics  
International and Development Economics  
Public Policy Economics

**Bachelor of Science**
Business Administration  
Accounting  
Entrepreneurial Venture Creation  
Finance  
Information Systems Management  
International Business and Economics  
Management  
Marketing  
Student-Designed  
Economics  
Hospitality Management

**Thompson School of Applied Science**

**Associate in Applied Science**
Applied Animal Science  
Applied Business Management  
Civil Technology  
Community Service and Leadership  
Food Services Management  
Forest Technology  
Horticultural Technology

**University of New Hampshire at Manchester**

**Associate in Arts**
General Studies

**Associate in Science**
Biological Sciences  
Business Administration

**Bachelor of Arts**
Business  
Communication Arts  
English  
History  
Humanities  
Political Science  
Psychology

**Bachelor of Science**
Computer Information Systems  
Electrical Engineering Technology*  
Mechanical Engineering Technology*  
Nursing  
Sign Language Interpretation

**Five-Year Degree Programs**
Bachelor of Arts and Master of Education**  
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

**Interdisciplinary Majors**

**Bachelor of Arts/Bachelor of Science**
International Affairs

**Bachelor of Science**
Environmental Sciences  
Hydrology

**Interdisciplinary Minors**
Adolescent and Youth Development  
African American Studies  
Agribusiness  
American Studies  
Animal Behavior  
Architectural Studies  
Asian Studies  
Canadian Studies  
Cinema Studies  
Community Planning  
Environmental Engineering  
Genetics  
Gerontology  
History and Philosophy of Science  
Humanities  
Hydrology  
Illumination Engineering  
Justice Studies  
Latin American Studies  
Marine Biology  
Materials Science  
Ocean Engineering  
Oceanography  
Plant Pest Management  
Race, Culture, and Power  
Religious Studies  
Russian Studies  
Sustainable Living  
Technology, Society, and Values  
War and Peace Studies  
Wetland Ecology  
Women's Studies

*Designated degree (the name of the specialization is included on the diploma; e.g., B.S. in Chemistry).

**Also Master of Arts in Teaching.
The following abbreviations are used to identify undergraduate and graduate courses offered at the University. An asterisk (*) preceding the letters identifies those disciplines offering graduate-level coursework.

**College of Liberal Arts**
- ANTH Anthropology
- ARTS Art and Art History
- *ARTS Painting*
- CHIN Chinese
- CLAS Classics
- CMN Communication
- *EDUC Education*
- *ENGL English*
- ECS European Cultural Studies
- FREN French
- GEOG Geography
- GERM German
- *GERK Greek*
- *HIST History*
- HUMA Humanities
- ITAL Italian
- JPN Japanese
- *JUST Justice Studies*
- LLC Languages, Literatures, and Cultures
- LATN Latin
- LING Linguistics
- *MUSI Music*
- MUED Music Education
- PHIL Philosophy
- *POLT Political Science*
- PORT Portuguese
- *PSYC Psychology*
- RS Religious Studies
- RUSS Russian
- SCSC Social Science
- *SOC Sociology*
- *SPAN Spanish*
- THDA Theatre and Dance
- WS Women's Studies

**College of Engineering and Physical Sciences**
- CHE Chemical Engineering
- *CHEM Chemistry*
- CIE Civil Engineering
- *CS Computer Science*
- ESCI Earth Sciences
- ECE Electrical and Computer Engineering
- *ENGRI Engineering*
- ENE Environmental Engineering
- MATH Mathematics and Statistics
- ME Mechanical Engineering
- *MS Material Science*
- OE Ocean Engineering
- PHYS Physics
- TECH Technology (nondepartmental)

**School of Health and Human Services**
- *COMM Communication Sciences and Disorders*
- *FS Family Studies*
- *HHS Health and Human Services*
- *HMP Health Management and Policy*
- *KIN Kinesiology*
- *NURS Nursing*
- *OT Occupational Therapy*
- *PHP Public Health*
- *RMP Recreation Management and Policy*
- *SW Social Work*

**College of Life Sciences and Agriculture**
- *ANSC Animal Sciences*
- *BCHM Biochemistry*
- BIOL Biology
- CD Community Development
- *EREC Environmental and Resource Economics*
- *GEN Genetics*
- LSA Life Sciences and Agriculture
- *MICR Microbiology*
- MLS Medical Laboratory Science
- *NR Natural Resources*
- *NUTR Nutritional Sciences*
- *PBIO Plant Biology*
- *RAM Resource Administration and Management*
- *RECO Resource Economics*
- TOU Tour Tourism Planning and Development
- *ZOOL Zoology*

**Whittemore School of Business and Economics**
- *ACFI Accounting and Finance*
- *ADMN Business Administration*
- *DS Decision Sciences*
- *ECON Economics*
- HMGTHospitality Management
- *MGT Management*
- MKTG Marketing

**Thompson School of Applied Science**
- AAS Applied Animal Science
- ABM Applied Business Management
- AM Agricultural Mechanization
- CT Civil Technology
- COM TSAS Communication
- CSL Community Service and Leadership
- FORT Forest Technology
- FSM Food Services Management
- HT Horticultural Technology
- MTH TSAS Mathematics
- SSCS TSAS Social Science

**University of New Hampshire at Manchester**
- ADM Business Administration
- ASL American Sign Language
- BSCI Biological Science
- CA Communication Arts
- CIS Computer Information Systems
- ECN Economics
- ET Engineering Technology
- INTR Sign Language Interpretation

**Colleges and Schools**
- COLA College of Liberal Arts
- CEPS College of Engineering and Physical Sciences
- SHHS School of Health and Human Services
- COLSA College of Life Sciences and Agriculture
- WSBE Whittemore School of Business and Economics
- TSAS Thompson School of Applied Science
- UNHM University of New Hampshire at Manchester
- GRAD Graduate School

**Additional Programs**
- AERO Aerospace Studies
- AMST American Studies
- Outreach Education and Summer Session
- *ENED Environmental Education*
- EOS Earth, Oceans, and Space
- GERO Gerontology
- IA International Affairs
- INCO Intercollegiate
- LS Liberal Studies
- MILT Military Science
- *NRES Natural Resources and Earth Systems Sciences*
College of Liberal Arts

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

The College of Liberal Arts offers three degrees: bachelor of arts, bachelor of fine arts, and bachelor of music.

Bachelor of Arts

These programs primarily provide a broad liberal education along with a major in one of the fields listed on this page. Requirements for the bachelor of arts degree and information regarding these majors are presented on pages 18 and 30.

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 on page 31.

Bachelor of Music

This curriculum provides professional training in performance, in musical theory, and in music education, and it 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 on page 51.

Combined Programs of Study

In addition to pursuing a single major, students may combine programs of study as follows:

Minors: See page 19; see also interdisciplinary minors, page 22 and below.

Second Majors: See page 19.

Dual-Degree Programs: See page 18.

Student-Designed Majors: See page 133.

Other combined programs and interdisciplinary opportunities: See page 130.

Interdisciplinary Minors

African American Studies

www.unh.edu/afamstudies/

(For course descriptions, go to www.undergradcat.unh.edu.)

The African American studies minor provides students with an interdisciplinary approach to a central dimension of United States history, literature, and culture. 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 to the sciences. 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 African American experience.

African American studies consists of five 4-credit courses, including an introductory course, a required history course, and three other approved offerings. Students must take at least one course at the 600 or 700 level. The required core courses provide students with a general understanding of the broad and diverse spectrum of African American history, literature, and culture. Electives enable students to develop that understanding by way of special topics courses in their major fields of study, including some that provide students with an opportunity to relate African American issues to African history and culture. Students must earn a C- or better in each course, and maintain a 2.00 grade-point average in courses taken for the minor. Electives may include a senior seminar.

Students interested in minoring in African American studies should contact the coordinator, John Ernest, Department of English, Hamilton Smith Hall, (603) 862-
American Studies (AMST)

www.unh.edu/amstudies

American studies is the interdisciplinary study of United States culture in all its varied aspects. Students learn to connect history, art, politics, religion, popular culture, literature, and other features of American life, and to examine both the differences and the similarities among, for example, different racial and ethnic groups, historical periods, and media. We are an intercollege minor drawing courses from fifteen departments, courses emphasizing the interrelationship among current methodologies, thought, and scholarship concerning the study of American culture and society. We offer the opportunity to concentrate in Native American Studies. We encourage students to take advantage of the rich resources of the New England region, through internships and independent studies at local museums, libraries, historical societies, and other institutions dedicated to the study and preservation of American culture. Students can also participate in exchange programs at universities with other regional or ethnic studies programs. Independent study, field work projects, and exchanges must be approved by the faculty member supervising the work and by the coordinator of the American studies minor.

The American studies minor consists of five courses. Students must take American Studies 501 as early in their careers as possible, preferably before the senior year. In addition, students must take at least one other American studies course (preferably more), and at least one course concentrating on issues of race, gender, or ethnicity in America (starred [*] courses). No more than two courses of the five may be at the 500 level (departmental prerequisites may be waived for American studies students at the discretion of the instructor). Students must earn a C- or better in each course, and maintain a 2.00 grade-point average in courses taken for the minor.

Because of the range and breadth of possible American studies concentrations, students are urged to see the coordinator and fill out an intent to minor form as soon as they become interested in the minor, preferably by the beginning of their junior year. Students may wish to focus their coursework in the minor around a coherent topic, either chronologically or thematically. Examples include, but are not limited to: a specific historical period, (for example, the twentieth century); race, ethnicity, gender, or class in America; popular culture; the arts; Native American studies; regional studies; urban, rural, and natural environments; American institutions (education, sports, religion, etc.). Students might also consider concentrating their major work in courses related to American Studies.

Interested students should contact the coordinators: Monica Chiu, Department of English, 230 Hamilton Smith, (603) 862-0732, e-mail monica.chiu@unh.edu; and Siobhan Senier, Department of English, 225C Hamilton Smith, (603) 862-2466, e-mail ssenier@cisunix.unh.edu or the American Studies office, 329 Huddleston (603) 862-3753; e-mail mimi.winder@unh.edu.

Two Required Courses

AMST 501, Introduction to American Studies, and one of the following:

AMST 502, Introduction to African American Literature and Culture*

AMST 503, Introduction to Native American Studies

AMST 603, Photography and American Culture

AMST 604, Landscape and American Culture

AMST 605, Film in American Culture

AMST 607, Religion in American Life and Thought

AMST 608, Women Artists and Writers, 1850-Present*

AMST 610, New England Culture

AMST 611, Indigenous New England

AMST 612, Periods in American Culture

AMST 613, Regions in American Culture

AMST 614, Native American Studies Topics

AMST 615, Asian American Studies Topics

AMST 616, African American Studies Topics

AMST 617, Film in American Culture

AMST 618, Women Artists and Writers, 1850-Present

AMST 620, Internship

AMST 635, Applied American Environmental Philosophy

AMST 696, Special Topics

AMST 697, Seminar in American Studies

AMST 701, History of American Studies

AMST 750, Applied American Environmental Philosophy

AMST 795, Independent Study

Asian Studies

www.unh.edu/Asian-Studies

(For course descriptions, go to www.undergradcat.unh.edu.)

To appreciate the Asian peoples—their languages, their history, their society, their political/economic systems—and the Asian experiences in the United States, the Asian studies minor is designed to be broadly inclusive. Students are required to choose five courses from a variety of Asian courses offered at UNH, no more than three of which can be from one individual discipline. Students are strongly encouraged to enroll in Asian languages classes at UNH as well as to explore Asian courses at other U.S. and Asian institutions. For further information, please contact Lawrence C. Reardon, coor-
Please consult the Canadian studies Web site regularly for future modifications to these requirements.

**Required Courses**

**Four courses chosen from**

- HIST 567, History of Canada
- GEOG 514, Geography of Canada and the US
- FREN 426, Intro to French Studies
- FREN 526, Intro to Francophone Cultures
- FREN 676, Topics in Francophone Cultures
- FREN 785, Francophone Literatures
- POLT 558, Government and Politics of Canada
- HMP 750, Comparative Health Care Systems

or

Study Abroad Experience for up to 16 credits

or

Combined study abroad, courses, internships (up to 4 cr. equivalent) or independent study (up to 4 cr. equivalent) for a total of 16 credits

**One course/4 cr. Independent study**

This course can be taken in any department, but must be at the 700 level. The student will work with a willing faculty member who will supervise research having 100 percent Canadian content and which will result in a research paper.

**Cinema Studies**

[www.unh.edu/cinema-studies/minor.htm](http://www.unh.edu/cinema-studies/minor.htm)

(For course descriptions, go to [www.undergradcat.unh.edu](http://www.undergradcat.unh.edu))

The minor in cinema studies offers a variety of opportunities to study a predominant contemporary form of narrative, aesthetic, and social discourse: the moving photographic image. Film is the primary medium of study for the minor, but the cinematic practices of video and television may also be included as potential areas of interest. Courses consist of interdisciplinary approaches to the analysis of cinema, covering works from the silent period to the present, from the U.S. and other nations, and from “mainstream” and “alternative” groups. Students learn the art, geography, history, technology, economics, and theory of cinema, while also learning the language for analyzing its forms and practices. The minor allows for organized and meaningful study of the moving photographic image, from a wide range of scholarly interests and approaches which complement the increasingly significant place of cinema in many major disciplines and other programs. Students in this program become keenly aware of themselves as members of a culture of the moving photographic image.

Cinema studies students are required to earn 20 credits. Students must earn at least a C- in each course and maintain a 2.00 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 8 credits, if approved, will “double count.”

Courses in cinema studies should be taken in the following sequence: first, one introductory course, ENGL 533, or CMN 550, followed by one history or theory of film course LLC 540, followed by at least two of the more advanced and/or focused courses, and one of the elective courses.

Interested students should contact the Cinema minor coordinator, Aleksandra Fleszar, Languages, Literatures, and Cultures—Russian, (603) 862-3545.

**Introductory Course (one required)**

- ENGL 533, Introduction to Film Studies
- CMN 550, Cinema and Society

**History and Theory of Film (required)**

LLC 540 History of Film

**Advanced and/or Focused Courses (two required)**

- CMN 650, Critical Perspectives on Film
- ENGL 616 A, Studies in Film: Genre
- ENGL 616 B, Studies in Film: Authorship
- ENGL 616 C, Studies in Film: Narrative and Style
- GERM 523, Women and German Film
- GERM 524, Special Topics in German Film
- ITAL 525, Italian Cinema
- LLC 440, Cultural Approaches to Film and Fascism
- RUSS 426, Film and Communism
- SOC 670, Sociology and Nonfiction Film

**Elective Courses (one required)**

Electives are drawn from an approved list of courses for the minor, which is compiled and announced every semester. Students may also 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.

**History and Philosophy of Science**

[www.unh.edu/golinski/file9.html](http://www.unh.edu/golinski/file9.html)

(For course descriptions, go to [www.undergradcat.unh.edu](http://www.undergradcat.unh.edu))

What is science?

When people ponder this question, they are often led to seek answers outside the
Humanities (HUMA)

www.unh.edu/humanities-program

Coordinator, Humanities Program:
Catherine M. Peebles

(For course descriptions, go to www.unh.edu/humanities-program.)

The Humanities minor studies the fundamental questions and issues of Western civilization. (For a more complete description, see Humanities, page 42.) The minor consists of a minimum of 20 credits of academic work (five courses), with a minimum grade of C from the following courses:

Two courses from the 510/511/512/513/514/515 sequence:

HUMA 510, The Ancient World: An Interdisciplinary Introduction
HUMA 511, The Medieval World: An Interdisciplinary Introduction
HUMA 512, Renaissance and Early Modern: An Interdisciplinary Introduction
HUMA 513, The Modern World: An Interdisciplinary Introduction
HUMA 514, The Twentieth Century, Part I: 1900–1945
HUMA 515, The Twentieth Century, Part II: 1945–1999

Two selected courses from other Humanities Program courses, one of which should be at the 600-level

HUMA 401, Introduction to the Humanities
HUMA 444, Idea of University
HUMA 500, Critical Methods in the Humanities
HUMA 592, The Blues
HUMA 607, The American Character: Religion in American Life and Thought
HUMA 608, Arts and American Society: Women Writers and Artists, 1850–Present
HUMA 609, Ethnicity in America: The Black Experience in the Twentieth Century
HUMA 610, Regional Studies in America: New England Culture in Changing Times
HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
HUMA 651, Humanities and Science: The Nature of Scientific Creativity
HUMA 730, Special Studies in the Humanities

Humanities Program Seminar

HUMA 700, Seminar in the Humanities or another approved course

For more information on the humanities minor, please consult the coordinator, Catherine Peebles, 519 Munkard Hall, (603) 862-3638; e-mail huma@unh.edu.

COURSES

HUMA 401 Introduction to the Humanities 4 cr.
HUMA 401W Introduction to Humanities 4 cr.
HUMA 411 Humanities I 4 cr.
HUMA 412 Humanities II 4 cr.

*with approval
Justice studies 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 (e.g., history, political science), and professionally-oriented departments (education, family studies, social work). Some of the topics studied include courts, family violence, rights, substance abuse, juvenile justice, school law, children as witnesses, hate crimes, and community policing. 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 minor is intended for students who are looking for careers in the justice system but do not have the time in their academic schedule to complete the dual major program.

The minor in justice studies requires students to take a total of five courses each completed with a grade of C- or better in order to complete the program. Students are allowed to “double count” no more than two courses towards their major and minor.

**Required Courses**

POLT 507, Politics of Crime and Justice, and/or SOC 515, Introduction to Criminology

JUST 401, Introduction to Justice Studies

**Elective Courses**

Students are required to select three elective courses from the Justice Studies approved course list. This list is approved and published yearly by the Justice Studies Executive Committee. Departmental offerings that are currently accepted for the minor include:

- CD 717, Law of Community Planning (offered every other year)
- CMN 698, Studying the Police
- DCE 552, Corrections, Treatment and Custody
- DCE 554, Juvenile Delinquency
- EC 718, Law of Natural Resources and Environment
- EDUC 767, Students, Teachers, and the Law
- FS 794, Families and the Law
- FS 797, Children, Adolescents and the Law
- HMP 734, Health Law
- HIST 497W, Crime and Punishment in Modern Society
- HIST 509, Law in American Life
- HIST 559/560, History of Great Britain
- HIST 609, Special Topics: American Legal History
- HMG 625, Hospitality Law (only HMG majors allowed)
- HMG 627, Employment Law
- HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
- JUST 401, Introduction to Justice Studies
- JUST 501, Justice Studies Research Methods
- JUST 550/551, Mock Trial (must take year-long course)
- JUST 601/602, Field Experience
- JUST 650, Special Studies in Comparative Justice Systems
- JUST 651, Field Studies in the Hungarian Justice System
- JUST 655, Family Violence (must have junior/senior status)
- JUST 701, Senior Seminar (writing intensive course)
- KIN 798, Sports Law
- MGT 647, Business Law (only Business Administration, Accounting and Business Administration, and Management allowed)
- MGT 648, Business Law II
- NR 566, Wildlife Enforcement I
- PHIL 436, Social and Political Philosophy
- PHIL 635, Philosophy of Law
- PHIL 660, Law, Medicine and Morals
- PHIL 740, Advanced Topics in Philosophy of Law
- POLT 407, Law and Society
- POLT 507, Politics of Crime and Justice
- POLT 508, Supreme Courts and the Constitution
- POLT 513, Civil Rights and Liberties
- POLT 520, Justice and the Political Community
- POLT 660, Terrorism and Political Violence
- POLT 701, The Courts and Public Policy
- POLT 707, Criminal Justice Administration
- POLT 708, Administrative Law
- PSYC 755, Psychology of Law (Research Methods Prerequisite)
- PSYC 756, Psychology of Crime and Justice (Research Methods Prerequisite)
- PSYC 791, Advanced Topics: Psychology of Hate
- RMP 772, Law and Public Policy in Leisure Services (must have junior/senior status)
- SOC 515, Introductory Criminology (or POLT 507)
- SOC 525, Juvenile Crime and Delinquency
- SOC 620, Drugs and Society
- SOC 650, Family Violence (must have junior/senior status)
- SOC 655, Sociology of Crime and Justice
- SOC 697, Spec. Top. Perspectives on Terrorism
- SOC 715, Criminological Theory
- SOC 720, Sociology of Drug Use
- SOC 780, Social Conflict
- SOC 797, Special Topics: Crime and Justice
- SW 525, Introduction to Social Welfare Policy
- WS 595, Special Topics: Violence Against Women

Students who are interested in minoring in the justice studies program must file an Intent to Minor form. This form is available in the Justice Studies Office or can be downloaded from our website: www.unh.edu/justice-studies. Our offices are located in Room 202, Huddleston Hall, and are open Monday through Friday 9 a.m. to 12 p.m. and 1 p.m. to 4 p.m. For more information please contact Professor Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Debbie Briand at (603) 862-1716, e-mail justice.studies@unh.edu.

**Latin American Studies Minor**

www.unh.edu/amstudies/latam.html

(For course descriptions, go to www.undergradcat.unh.edu.)

The Latin American Studies minor provides an interdisciplinary approach to the study of Latin America. People of Latin American or Latino heritage will soon comprise the largest minority group in the U.S. Knowledge of Latin America is especially valuable for students who plan to work in education, international organizations, government, social services and business, as well as for those who plan to undertake graduate study in Latin America. The minor requires five courses which represent three disciplines. Latin American History (HIST 531 or 532) is required. Spanish or Portuguese language courses through the intermediate level are required (completion of SPAN 304 or PORT 504 at UNH, or equivalent courses or equivalency testing). Academic study in Latin America is strongly recommended. Elective courses must be approved by the Latin American Studies minor coordinator or committee and at least 50 percent of any selected course must focus on Latin America.

ANTH 500B, Peoples and Cultures of the World:

- South America
- ANTH 501, World Prehistory: Meso America
- ANTH 697, Mayan Culture
- AOE 630, Development of Food/Fiber
- EC 535, Environmental Conservation*
- FOR 502, The Endangered Forest
- FS 773, International Perspectives on Children and Families
- HIST 425, Foreign Cultures**
- HIST 532, Modern Latin America

*Course offered occasionally
**Course offered every other year
students 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 program director can aid in advising such a major program.

Courses included in the biannual Religious Studies Bulletin 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 are generally offered at least once every two years:

### Historical-Cultural

- **RS/HIST 483**, History of World Religions
- **HIST 507**, Native Peoples of the Americas
- **PHIL 520**, Introduction to Eastern Philosophy
- **HIST 585**, Middle East History to the Medieval Islamic Era
- **HIST 587**, Africa South of the Sahara
- **HIST 589**, Islam in Africa
- **ENGL/AMSTUD 607**, Religion in American Life and Thought
- **RS/ANTH 617**, Religion and Conflict in South Asia
- **HIST 640**, Holy War-Holy Land: The Crusades
- **HIST 642**, Religious Conflict in Early Modern Europe
- **HIST 688**, African Religions

### Theoretical

- **PHIL 417**, Philosophical Reflections on Religion
- **RS/HIST 484**, Patterns in World Religions
- **ANTH 616**, Religion, Culture, & Society
- **RS/HIST 682**, Cults & Charisma
- **RS 699**, Senior Seminar in Religious Studies
- **RS/ANTH 770**, Anthropology of the Sinister

### Textual

- **ENGL 518**, The Bible as Literature
- **HIST/RS 576**, The Hebrew Bible in Historical Context
- **HIST/RS 601**, Seminar in Religious Texts
- **HIST/RS 689**, The New Testament in Historical Context

Interested students should also be alert for special topics courses in history (HIST 600), English (ENGL 697/698), anthropology (ANTH 500), religious studies (RS 600), and other disciplines that might be relevant to the study of religion. Copies of the Religious Studies Bulletin, which includes all such courses each semester, can be picked up outside the director's office.

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. For more information, consult the director, David Frankfurter, Department of History, 436, Horton Social Science Center, (603) 862-3015; e-mail davidfr@hopper.unh.edu.

### Women's Studies Minor

[www.unh.edu/womens-studies/](http://www.unh.edu/womens-studies/)

The women's studies minor offers students an interdisciplinary introduction to the status and contributions of women in various cultures and historical eras. (For a more complete description, see Women's Studies, page 61.)

For the women's studies minor, students must complete 20 credits of women's studies courses. These must include WS 401, Introduction to Women's Studies, and WS 798, Colloquium in Women's Studies, normally taken at the beginning and end of the course sequence, respectively. In between, students should select other women's studies courses or cross-listed courses from departmental offerings.

Other women's studies courses are WS 595, Special Topics in Women's Studies; WS 632, Feminist Thought; WS 795, Independent Study; WS 796, Advanced Topics in Women's Studies; and WS 797, Internships.

Departmental offerings include the following regularly repeated courses:

- **ARTS 487**, Themes and Images in Art: Major Mythic Images of Women
- **ARTS 690**, Women Artists of the Nineteenth and Twentieth Centuries
- **CMN 567**, Images of Gender in the Media
- **CMN 583**, Gender and Expression
- **ECON 689**, Topics in Economics: Women in Economic Development
- **ENGL 585**, Introduction to Women in Literature
- **ENGL 586**, Introduction to Women Writers
- **ENGL 685**, Women's Literary Traditions
- **ENGL 785**, Major Women Writers
- **FS 545**, Family Relations
- **FS 757**, Race, Class, Gender, and Families
- **HIST 565**, Women in Modern Europe
- **HIST 566**, Women in American History
NURS 595, Women's Health
PHIL 510, Philosophy and Feminism
SOC/ANTH 625, Female, Male, and Society
SOC 630, Sociology of Gender

Students may complete the minor requirements by selecting from other courses that are offered as special topics by the departments. In the past, such offerings have included the following: ANTH 697, Women in the Middle East; FREN 525, French Women: Subject and Object.

Students who wish to minor in women's studies should consult with the coordinator, 203 Huddleston Hall, (603) 862-2194.

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**Special Centers**

**Center for the Humanities**

[www.unh.edu/humanities-center](http://www.unh.edu/humanities-center)

The Center for the Humanities, located in Huddleston Hall, was established in 1986 to support the arts and humanities at UNH. It currently involves approximately twelve departments and more than 125 faculty members from across the University, representing such fields as literature, fine arts, anthropology, philosophy, folklore, history, religious studies, foreign languages, and literature. The Center for New England Culture is a unit of the Humanities Center.

Participation in the activities of the center is open to faculty members from across the University who are interested in the humanities as they are broadly defined. The center acts as a forum for discussion and intellectual cross-fertilization regarding humanistic issues and perspectives; it fosters and supports creative research in the humanities, both within and among disciplines; it assists humanities faculty in their educational and curricular activities in general, and in the development of interdisciplinary courses and programs in particular; it serves the humanities faculty, students, programs, and community by assisting in the development and dissemination of educational and research materials; it fosters and develops outreach activities in the humanities for the state and region; and it is a focus for the humanities within the University, the state, and the region.

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**Programs of Study**

The bachelor of arts programs provide a broad liberal education with a concentration involving a minimum of 32 credits in a major field. Departments may specify certain (but not more than thirteen) required courses. Students must declare a major before the beginning of the junior year. Degree candidates also should satisfy the foreign language proficiency requirements by the start of their junior year. A bachelor of fine arts degree program and a bachelor of music degree program are also available (see Art and Art History, and Music). The objectives, opportunities, and departmental requirements of these programs are described below.

**Anthropology (ANTH)**

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

*(For course descriptions, go to [www.undergradcat.unh.edu](http://www.undergradcat.unh.edu).)*

Chairperson: Stephen P. Reyna
Professors: Joe L. P. Lugalla, Stephen P. Reyna, Nina Glick Schiller
Associate Professors: Deborah Winslow
Assistant Professor: Justus M. Ogembo, William A. Saturno, Robin E. Sheriff
Research Assistant Professor: Thaddeus C. Gulbrandsen

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 advisor, 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.

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

**Required:**

- ANTH 412 or 413
- ANTH 511
- ANTH 701
- ANTH 702
- 2 additional courses numbered below 599 (of which 1 must focus on a specific geographical area)
- 4 additional courses numbered 600 or above (of which 2 must be in designated seminar format, one seminar at the 700-level)

ANTH 411 may not be applied toward the requirement for the major.

Honors in major and senior thesis options are also available.

Students who declare a major in anthropology are expected to make steady progress towards 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 their adviser.

Students wishing to major in anthropology should consult with the anthropology chairperson.

The anthropology minor consists of 20 credits in anthropology courses with a C or better at least one of which must be numbered above 600.

**Courses**

<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 cr.</td>
</tr>
<tr>
<td>ANTH411H</td>
<td>Honors/Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH411W</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 412</td>
<td>Broken Pots and Buried Cities: Adventures in Archaeology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 413</td>
<td>Monkeys, Apes, Stones, and Bones: Introduction to Physical Anthropology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 450</td>
<td>Introduction to Race, Culture, and Power</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH500W</td>
<td>Peoples and Cultures of the World</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 501</td>
<td>World Prehistory</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 511</td>
<td>Core Concepts in Anthropology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 512</td>
<td>Introduction to World Ethnography</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 514</td>
<td>Method and Theory in Archaeology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ANTH 517</td>
<td>Critical Reading and Writing in Anthropology</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>
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 either studio art or art history and a bachelor of fine arts degree in studio art. Certification for art teaching in the public schools is also offered in cooperation with the Department of Education (see Education, page 34).

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

**Bachelor of Arts Curriculum (Studio)**

Students selecting to work toward a bachelor of arts degree in studio art must complete a minimum of nineteen courses (52 credits), with a minimum grade of C- in each course.

The following courses are required:
- ARTS 532, Introductory Drawing
- ARTS 545, Introductory Painting
- ARTS 567, Introductory Sculpture
- ARTS 551, Photography

One of the following
- ARTS 536, Introductory Printmaking: Intaglio
- ARTS 557, Introductory Printmaking: Lithography

One of the following
- ARTS 501, Ceramics
- ARTS 525, Woodworking

Three additional courses in a studio concentration
- Two additional studio electives
- ARTS 580, Survey of Art History I
- ARTS 581, Survey of Art History II
- Two 600-level art history courses

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

**Art History Major**

The art history major provides a comprehensive, in-depth study of Western art from the ancient world to the present and some exposure, as well, 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.

Students must complete a minimum of eleven courses (44 credits). Two introductory-level courses are required from one of the following three sequences: 1) ARTS 580 and 581; 2) ARTS 480 and one other 400-level art history; 3) ARTS 480 and one 500-level art history other than ARTS 580 or 581.

The upper-level requirements for the major include five 600- or 700-level courses (at least one each from the following categories: pre-Renaissance, Renaissance/Baroque, modern, and architectural history); and ARTS 795, Methods of Art History; ARTS 799, Seminar in Art History; ARTS 532, Introductory Drawing; and one other studio course. These courses must be completed with a minimum grade of C-. Art history majors receive preferential placement in ARTS 532. Students contemplating graduate school should learn German, and, if possible, either French, Italian, or another language relevant to their areas of interest.

**Bachelor of Fine Arts Major**

Incoming freshmen 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.) studio arts major. After taking the introductory studio art courses at UNH, interested students can then seek out two faculty members to sponsor their application for the B.F.A. program. Studio majors generally wait until they are well into the intermediate level courses before submitting a portfolio for the B.F.A. review which is held before a full faculty committee twice a year.

The B.F.A. curriculum provides training for students who plan to enter professional graduate school or pursue careers as professional artists. Students selecting to work toward a B.F.A. degree must complete a minimum of 84 credits, with a minimum grade of C- in each course. The following courses are required:
ARTS 532, Introductory Drawing
ARTS 546, Introductory Painting
ARTS 551, Photography
ARTS 567, Introductory Sculpture
ARTS 580, Survey of Art History I
ARTS 581, Survey of Art History II
ARTS 598, Sophomore Seminar
ARTS 632, Intermediate Drawing
ARTS 798, Seminar/Senior Thesis (8 credits)

Six courses in a studio concentration
Three additional art electives
Two 600-level art history courses

The possible areas of concentration within the department are: 1) painting, 2) sculpture, and 3) individualized programs. Individualized programs may be designed in the following subject areas: a) ceramics, b) drawing, c) printmaking, d) photography, and e) 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.

Art Education Curriculum
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 and required education courses and 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.

Art education majors may take accredited crafts courses at other institutions as art electives.

Minors in the Department of Art and Art History
All minors require five courses (20 credits). Students must receive a minimum grade of C- in all required courses. Only two courses from the art and art history major requirements can be applied towards 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 3 credits. Students with transfer courses that are accepted with less than 4 semester credits must still meet the 20 credit requirement for completion of the minor.

Minor in Architectural Studies
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 for their work. It is designed to assist those who a) are contemplating enrollment at a school of architecture; b) are particularly interested in architectural history; c) want to supplement their technical majors (e.g., civil engineering) with strong academic minors; or d) plan to pursue careers in preservation, education, community service, and public relations.

The minor in architectural studies consists of five courses (20 credits) distributed in the following way:

Two courses in architectural history chosen from
ARTS 574, Architectural History
ARTS 654, 17th- and 18th-Century American Architecture
ARTS 655, Early Modern Architecture: Revolution to World War I
ARTS 656, Contemporary Architecture: The Buildings of Our Times
ARTS 799, Seminar in Art History
ARTS 455, Introduction to Architecture
ARTS 532, Introductory Drawing

An elective chosen in consultation with the program coordinator of the architectural studies minor (an additional course in architectural history, a studio course, or some other appropriate elective)

Admission to the architectural studies minor will be authorized by the program coordinator. Interested students should consult with the coordinator in advance of selecting the minor.

Minor in Art History
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.

Minor in Art History
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. The minor consists of five courses (20 credits) with a distribution that includes one introductory course from the 400-500 level and the remaining four courses chosen from the 600 level or above.

Minor in Studio Arts
The minor in studio arts consists of five courses (20 credits) with a distribution that includes Arts 532, Introductory Drawing; two studio courses from the 600 level or above; and two additional studio courses chosen from the offerings of the department.

COURSES

ARTS 431 Visual Studies 4cr.
ARTS 431H Honors/Visual Studies 4cr.
ARTS 455 Introduction to Architecture 4cr.
ARTS 480 Introduction to Art History 4cr.
ARTS 487 Themes and Images in Art 4cr.
ARTS 501 Ceramics 4cr.
ARTS 525 Woodworking 4cr.
ARTS 532 Introductory Drawing 4cr.
ARTS 533H Honors/Introductory Drawing 4cr.
ARTS 536 Introduction to Printmaking: Intaglio 4cr.
ARTS 537 Introduction to Printmaking: Lithography 4cr.
ARTS 544 Water Media I 4cr.
ARTS 546 Introductory Painting 4cr.
ARTS 551 Photography 4cr.
ARTS 567 Introductory Sculpture 4cr.
ARTS 570 Art of the Ancient World 4cr.
ARTS 571 Art of the Middle Ages 4cr.
ARTS 572 Art of the Age of Humanism 4cr.
ARTS 573 Art of the Modern World 4cr.
ARTS 574 Architectural History 4cr.
ARTS 580 History of Art to 1400 4cr.
ARTS 581 History of Art from 1400 to the Present 4cr.
ARTS 585 History of Islamic Art 4cr.
ARTS 598 Sophomore Seminar 4cr.
ARTS 600 Internship 1cr.
ARTS 601 Ceramics Workshop 4cr.
ARTS 608 Arts and American Society: Women Writers and Artists, 1850-Present 4cr.
ARTS 625 Wood/Furniture Design Workshop 4cr.
ARTS 632 Intermediate Drawing 4cr.
ARTS 633 Life Drawing 4cr.
ARTS 636 Printmaking Workshop 4cr.
ARTS 645 Water Media II 4cr.
ARTS 646 Intermediate Painting 4cr.
ARTS 651 Photography Workshop 4cr.
ARTS 654 17th and 18th Century American Architecture 4cr.
ARTS 655 Early Modern Architecture: Revolution to World War I 4cr.
ARTS 656 Contemporary Architecture: The Buildings of Our Times 4cr.
ARTS 667 Sculpture Workshop 4cr.
ARTS 673 Egypt and Nubia: Art, Architecture, and Rediscovery 4cr.
ARTS 674 Greek Art 4cr.
ARTS 675 Roman Art 4cr.
ARTS 676 History of Illuminated Manuscripts 4cr.
ARTS 677 Early Medieval Art 4cr.

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Assistant Professors: Jennifer L. Borda, Carol B. Conaway, Melissa D. Deem, Mardi J. Kidwell
Lecturer: R. Michael Jackson

The Department of Communication offers a major that emphasizes a range of integrative studies in human communication, including rhetorical studies, media studies, and interpersonal/small group studies. Students are taught analysis of communication through historical, critical, and empirical investigations. Students examine verbal, nonverbal, and mediated messages across a wide spectrum of communication interactions: intrapersonal, interpersonal, group, and mass. They explore connections and interrelationships among various types of communication, theoretical perspectives, and methodological approaches.

While the major emphasizes critical analysis and understanding grounded in theory and research, application of understanding to a variety of communication settings and processes is an important dimension of study.

Students wishing to declare communication as a major should contact the director for majors, Professor Sally Jacoby, for application information and requirements.

Majors must complete nine courses (36 credits) with a 2.00 overall average in the major. The distribution of required courses for the major is as follows:

Three introductory courses
CMN 455, 456, and 457 (12 credits). Majors must earn a grade of C or better in all three introductory courses before moving on to the 500-level courses.

Three 500-level courses (12 credits), one from each of the following areas
Media Studies (prerequisite: C or better in all three introductory courses): CMN 515, 519, 550, 567, 596
Rhetorical Studies (prerequisite: C or better in all three introductory courses): CMN 504, 507, 557, 597
Interpersonal Studies (prerequisite: C or better in all three introductory courses): CMN 503, 530, 572, 583, 598

Majors must earn a grade of C or better in all intermediate-level courses. CMN 599 cannot be used to fulfill an intermediate course requirement.

Three advanced 600- and/or 700-level courses (12 credits) from among any of the three areas of study (prerequisites: CMN 455, 456, and 457 with grades of C or better, and at least one area-relevant 500-level course with a grade of C or better).

A maximum of 4 credits of independent study (CMN 795) may be counted. Majors must earn a grade of C or better in all advanced-level courses. CMN 795 (Honors Thesis) and CMN 796 (Commentary) cannot be used to fulfill an advanced course requirement.

Transfer students must complete 18 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.

A minor is confined to coursework in rhetoric and public address. Five courses (20 credits) are required for completion of the minor. Students must complete CMN 456, Propaganda and Persuasion, with a grade of C or better. Any additional four rhetoric courses with a grade of C- or better from the following list will satisfy the minor requirements, however, one of the listed 500-level courses is required prior to enrollment in any 600- or 700-level course: CMN 500, 504, 507, 557, 604, 605, 607, 656, 657 (may be taken more than once, with different topics), 670, 697, 703, and ENGL 503.

COURSES

CMN 455 Introduction to Mass Communication 4 cr.
CMN 456H Honors/Introduction to Mass Communication 4 cr.
CMN 456 Propaganda and Persuasion 4 cr.
CMN 456H Honors/Propaganda and Persuasion 4 cr.
CMN 457 Introduction to Interpersonal Communication 4 cr.
CMN 450 Introduction to Group Processes 4 cr.
CMN 504 Introduction to Argumentation 4 cr.
CMN 507 Introduction to Rhetorical Theory and Analysis 4 cr.
CMN 515 Analysis of News 4 cr.
CMN 519 Advertising as Social Communication 4 cr.
CMN 530 Family Communication 4 cr.
CMN 550 Cinema and Society 4 cr.
CMN 557 Great Speakers and Speeches 4 cr.
CMN 567 Images of Gender in the Media 4 cr.
CMN 572 Language and Social Interaction 4 cr.
CMN 575 Research Practicum 1 to 4 cr.
CMN 583 Gender and Expression 4 cr.
CMN 596 Special Topics in Media Studies 4 cr.
CMN 597 Special Topics in Rhetorical Studies 4 cr.
CMN 598 Special Topics in Interpersonal Studies 4 cr.
CMN 600 Internship 1 to 4 cr.
CMN 601 Public Speaking as a Civic Art 4 cr.
CMN 605 Persuasion in American Politics 4 cr.
CMN 615 Public Opinion and Mass Communication 4 cr.
CMN 630 Psychology of Communication 4 cr.
CMN 632 Communication Theory 4 cr.
CMN 640 Media, Culture, and Society 4 cr.
CMN 645 Rhetorical Criticism of Film 4 cr.
CMN 650 Critical Perspectives on Film 4 cr.
CMN 656 Principles of Rhetorical Criticism 4 cr.
CMN 657 Public Address and the American Experience 4 cr.
CMN 668 Mass Media Analysis and Criticism 4 cr.
CMN 666 Conversation Analysis 4 cr.
CMN 667 Ethnography of Communication 4 cr.
Education (EDUC)

www.unh.edu/education/

(For course descriptions, go to www.undergrad.unh.edu.)

Chairperson: E. Scott Fletcher


Research Professor: David C. Hagner


Assistant Professors: Vincent J. Connelly, Leslie J. Cousse, Mary K. Fries, Suzanne E. Graham, John F. Horrastein, Michael J. Middleton, Justus M. Ogembo, Loan T. Phan, Judy Sharkey

Research Assistant Professors: Cheryl Daly, Cheryl M. Jorgensen, Mary C. Schub

Affiliate Assistant Professor: Nancy Franz, Jeanne Ormrod

Clinical Assistant Professor: Hallie D. D’Agruma

Lecturers: Timothy J. Churchard, Paul M. Loranger

Basic Programs

At the undergraduate level students have the opportunity to participate in teacher preparation programs which lead to teacher licensing in elementary and secondary education and preschool-kindergarten education. Students may also prepare to teach solely at the graduate level.

Elementary teaching and most secondary areas require completion of a one-year graduate program which leads to a master’s degree and teacher licensure. Four-year options are available in music, mathematics, nursery/Kindergarten, and physical education. Students interested in adult and occupational education should contact Professor Michael Andrew in the Department of Education.

Undergraduate preparation in preschool-kindergarten teaching is carried out in the Department of Family Studies in cooperation with the Department of Education (see Family Studies, page 81).

Most students who plan to teach in elementary and secondary schools apply to the five-year program. In the five-year program students begin preparation for teaching at the undergraduate level with a semester of field experience 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 for teaching.

There are also opportunities for study or certification at the graduate level in administration, counseling, elementary and secondary teaching, early childhood, reading, special education, and adult and occupational 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 Education 500. For coursework that can be taken at the undergraduate level, students should see program advisers in the Department of Education.

Students in music, mathematics, nursery school/Kindergarten, and physical education have the option of choosing a basic four-year undergraduate program for licensure. Students in these departments should consult with their advisers.

Program Philosophy and Mission

Unit Mission Statement The following conceptual framework guides all of the programs which 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 which 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

Phase I. Enroll in Exploring Teaching: Education 500.

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

Exploring Teaching is also available through the live, learn, and teach summer program, which is open to juniors and seniors. For information, contact the Department of Education, 203 Morrill Hall. A positive recommendation from the Exploring Teaching instructor is required before further coursework is taken in the teacher education program.

Phase II. Professional Coursework in Education at the Undergraduate Level

Education 500 is a prerequisite to further work in the teacher education program.

* Students in the five-year program may combine their program for teacher licensure with a master’s program in their major field department.
An undergraduate receives a co-adviser in the Department of Education (usually the Exploring Teaching instructor). This co-adviser works with the students, along with the major adviser to plan the undergraduate portion of the five-year teacher education program.

Every student must take 4 credits in each of five areas (EDUC 700, Educational Structure and Change; EDUC 701, Human Development and Learning: Educational Psychology; EDUC 703, Alternative Teaching Models; EDUC 705, Alternative Perspectives on the Nature of Education; EDUC 751, Educating the Exceptional Learner). 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 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.

Phase III. Internship and Graduate Phase of the Teacher Education Program
Undergraduates should apply to the Graduate School early in the first semester of the senior year for the final phase of the teacher education program.

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.

Students with an undergraduate G.P.A. of 3.2 or greater may be allowed to begin the program in the second semester of the senior year, earning a maximum of 8 graduate credits.

The year-long internship (EDUC 900/901) 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/October 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 associate director of field experiences in Durham and the director of teacher education in Manchester play a major role in identifying internship sites and should be consulted regarding placement. 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 or the early childhood special education option 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
Phase I Exploring Teaching is open to all students subject to available space. Approximately 150 students are accepted each semester.

Phase II Continuation in Professional Coursework is dependent upon positive recommendations from Education 500, Exploring Teaching.

Phase III 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 75 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
The undergraduate grade-point average of the middle 50 percent of students admitted to the graduate programs in teacher education falls in the range of 3.15–3.53.

2. The Graduate Record Examination Scores
The Graduate Record Examination (GRE) scores of the middle 50 percent of students admitted to the graduate programs in teacher education fall in the following range: Verbal, 410–550; Quantitative, 450–600; Analytical, 540–650.

3. Recommendations
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. Recommendations from undergraduate subject major professors are also important.

In our admission process, we seek evidence that our students 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.

**Early Admission**

Provision exists for UNH seniors to apply for early admission to the Graduate School, i.e., admission for the second semester of the senior year. Such candidates may petition to have up to 8 credits of graduate coursework simultaneously count toward the bachelor's and master'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. A minimum of a 3.2 cumulative grade-point average is required to qualify for early admission.

Students interested in early admission apply using the regular graduate school application.

**Four-Year, Undergraduate Option**

A bachelor's degree including a one-semester teaching requirement allows students to be recommended for licensure in certain specialized areas. Those areas are: mathematics, music, nursery/Kindergarten Education, and physical education.

These program options include a major appropriate for the licensure being sought, in addition to the following core professional courses or their equivalent: EDUC 500, Exploring Teaching; EDUC 700, Educational Structure and Change; EDUC 701, Human Development and Learning: Educational Psychology; EDUC 703, Alternative Teaching Models; EDUC 705, Alternative Perspectives on the Nature of Education; EDUC 751, Educating the Exceptional Learner; and EDUC 694, Supervised Student Teaching.

The nursery/Kindergarten program, because of its emphasis on the young child, has an equivalent set of core courses. FS 708/709 is the equivalent of EDUC 500; FS 743 is the equivalent of EDUC 700; FS 623, 635, and 525 are the equivalent of EDUC 701; FS 734, MATH 621, EDUC 706, 750, 751, or 760 are the equivalent of EDUC 703; FS 733 is the equivalent of EDUC 705; and FS 785, 786, and 788 are the equivalent of EDUC 694.

For admission to supervised student teaching, a minimum 2.50 overall (2.80 for nursery/Kindergarten) grade-point average at the time of application is required. Applications are due by March 1 of the junior year for the fall semester and October 15 of the senior year for the spring semester. An unofficial transcript and a current résumé must accompany your application. Return applications to the Department of Education Office, 203 Morrill Hall.

In addition to the four-year undergraduate licensure option, the five-year program with full-year internship and master's degree is available in mathematics, music, and physics education. Many students who complete the nursery/Kindergarten program also go on to complete the five-year program in elementary education. This extends the license to teach to grades 1-8.

Students may also become licensed for kindergarten through grade three (early childhood licensure) by completing the master's degree program in early childhood.

**COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDUC 440</td>
<td>Concepts of Career Exploration</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 444</td>
<td>Learning to Learn</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EDUC 451</td>
<td>Welding and Fabrication Technology</td>
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<tr>
<td>EDUC 461</td>
<td>Internal Combustion Engines I</td>
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</tr>
<tr>
<td>EDUC 462</td>
<td>Internal Combustion Engines II</td>
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</tr>
<tr>
<td>EDUC 470</td>
<td>Residential Electricity</td>
<td>2 cr.</td>
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<tr>
<td>EDUC 475</td>
<td>Building Science/Residential Construction</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 501</td>
<td>Occupational Competency Examination and Evaluation</td>
<td>3 cr.</td>
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<tr>
<td>EDUC 506</td>
<td>Service Learning Experiences in Literacy</td>
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<td>EDUC 507</td>
<td>Mentoring Adolescents</td>
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<td>EDUC 630</td>
<td>Development of Food and Fiber in Third World Countries</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 694</td>
<td>Courses in Supervised Teaching</td>
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<tr>
<td>EDUC 694D</td>
<td>Courses in Supervised 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>
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<tr>
<td>EDUC 703</td>
<td>Alternative Teaching Models</td>
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<tr>
<td>EDUC 705</td>
<td>Alternative Perspectives on the Nature of Education</td>
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<td>EDUC 706</td>
<td>Introduction to Reading in the Elementary School</td>
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<tr>
<td>EDUC 707</td>
<td>Teaching Reading through the Content Areas</td>
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<td>EDUC 710A</td>
<td>Concepts of Adult and Occupational Education</td>
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<tr>
<td>EDUC 710B</td>
<td>Microcommunications</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 710C</td>
<td>Youth Organizations</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 710D</td>
<td>Planning for Teaching</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 710E</td>
<td>Workshop in Adult and Occupational Education</td>
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<tr>
<td>EDUC 710F</td>
<td>Investigations</td>
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<tr>
<td>EDUC 710H</td>
<td>Field Experience</td>
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<td>EDUC 711</td>
<td>Youth, Culture, and Society in Comparative Average</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 717</td>
<td>Growing up Male in America</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 720</td>
<td>Introduction to Computer</td>
<td>4 cr.</td>
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<td>EDUC 721</td>
<td>Applications for Education</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 733</td>
<td>Application of Multimedia Technology in Education</td>
<td>2 cr.</td>
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<tr>
<td>EDUC 734</td>
<td>Children's Literature</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 735</td>
<td>Young Adult Literature</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 741</td>
<td>Exploring Mathematics with Young Children</td>
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<tr>
<td>EDUC 750</td>
<td>Introduction to Exceptionality</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 751A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 751B</td>
<td>Educating Exceptional Learners: Secondary</td>
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<tr>
<td>EDUC 751C</td>
<td>Educating Exceptional Learners: Related Services</td>
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<tr>
<td>EDUC 752</td>
<td>Contemporary Issues in Learning Disabilities</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 755</td>
<td>Contemporary Issues in Behavioral Disabilities</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 754</td>
<td>Contemporary Issues in Developmental Disabilities</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 755</td>
<td>Fostering Social Relationships for Students who Experience Significant Disabilities</td>
<td>1 cr.</td>
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<tr>
<td>EDUC 760</td>
<td>Introduction to Young Children with Special Needs</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 767</td>
<td>Students, Teachers, and the Law</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EDUC 776</td>
<td>Reading for Learners with Special Needs</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EDUC 780</td>
<td>Belize/New Hampshire Teacher Program</td>
<td>2 cr.</td>
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<tr>
<td>EDUC 781</td>
<td>Introduction to Statistics: Inquiry, Analysis, and Decision Making</td>
<td>4 cr.</td>
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<tr>
<td>EDUC 785</td>
<td>Educational Assessment</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EDUC 791</td>
<td>Methods of Teaching Secondary Science</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EDUC 795</td>
<td>Independent Study</td>
<td>2 or 4 cr.</td>
</tr>
<tr>
<td>EDUC 796</td>
<td>Independent Study</td>
<td>2 or 4 cr.</td>
</tr>
<tr>
<td>EDUC 797</td>
<td>Seminar in Contemporary Educational Problems</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>EDUC 795</td>
<td>Independent Study</td>
<td>2 or 4 cr.</td>
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<tr>
<td>EDUC 796</td>
<td>Independent Study</td>
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</tr>
<tr>
<td>EDUC 797</td>
<td>Seminar in Contemporary Educational Problems</td>
<td>1 to 4 cr.</td>
</tr>
</tbody>
</table>

**English (ENGL)**

www.unh.edu/english

(For course descriptions, go to www.undergraduat.unh.edu.)

**Chairperson:** Janet Akins


**Associate Professors:** Charlotte M. Bacon, Brigitte Gabcke Bailey, Monica E. Chiu, Margaret-Love G. Denman, Susan Margaret Hertz, James Krasner, Douglas M. Lanier, Lisa C. Miller, Naomi G. Nagy, Petar Ramadanovic, Siobhan Senier, Sarah Way Sherman, Sandhya Shetty, Rachel Trubowitz
The English Major

The English major has two chief objectives: to provide all students with a common core of literary experience and to provide each student with the opportunity of shaping a course of study to suit individual interests.

The flexibility and freedom inherent in the second of these objectives places a responsibility upon students to devise a program that has an intelligent rationale. For example, students with a strong interest in creative writing or linguistics may wish to take only the minimum number of advanced literature courses required for the major and fill their upper-division requirements with courses in the writing of fiction, poetry, creative nonfiction, or in the study of the English language, language formation, and other areas of linguistics. Students who intend to pursue graduate study in literature written in English should choose more than the minimum number of advanced literature courses and should seek a broad historical background. For these students, the "English Literature major" would perhaps be a more appropriate choice than the standard "English major." All students should secure the assistance and approval of their advisers in formulating an early plan for the major program.

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 519 or 529, which must be completed with a grade of C or better. Students must complete ENGL 519 or 529, two additional 500-level courses, and seven courses numbered 600 and above. In selecting these courses, students must be sure to meet the following distribution requirements:

1. Two courses in literature written before 1800: either two advanced courses (numbered 600 or above), or one advanced course and ENGL 513.
2. Two courses in literature written since 1800: either two advanced courses, or one advanced course and one course from the following list: ENGL 514, 515, or 516.

Students interested in majoring in English should consult Susan Dumais, coordinator of the Department of English, (603) 862-1313.

The English Literature Major

The English Literature major offers students the opportunity for a focused and comprehensive study of literature written in the English language. The English Literature major engages students in the range of approaches to literary study that now characterize the field: the historical study of national traditions, literary theory, the study of texts in cultural context, genre studies, and the critical analysis of representations of identity, especially in terms of race, gender, ethnicity, and sexuality. It builds onto the existing English major a series of requirements that ensure students' greater immersion in literature, and it foregrounds research. In these ways, the program will be especially useful to those students who wish to go on to graduate school in English and other fields, as well as various kinds of professional training, including law school.

For students planning other career paths, the English Literature major will help them gain the ability to read critically, write papers that synthesize research results in a sustained analysis, and develop familiarity with the historical and cultural contexts that inform written expression. Beyond these more practical career concerns, this major is ideal for students who are passionate about reading fiction, poetry, creative nonfiction, and other kinds of imaginative literature.

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 519 or 529, which must be completed with a grade of C or better. Additional requirements include two 500-level courses, one of which must be a survey course; ENGL 619; and ENGL 697 or 698. Seven courses must be completed at the 600 level or higher. In selecting courses, students must be sure to meet the following distribution requirements. Please note that, in many cases, a single course may satisfy a requirement in two or more categories.

1. Two courses in literature written prior to 1800. Either two advanced courses (600 level and above) or one advanced course and ENGL 513.
2. Two courses in literature written since 1800. Either two advanced courses or one advanced course and one of the following: ENGL 514, 515, or 516.
3. One American literature course at the 600/700 level.
4. One British literature course at the 600/700 level.
5. Two courses that investigate and question representations of identity (ENGL 517, 581, 585, 586, 681, 685, 690, 739, 775); genre, including film, with the exception of ENGL 533 (616, 630, 631, 632); and/or theoretical positions (ENGL 713, 714). Other courses may count, when relevant and with prior written approval of the adviser.

Students interested in majoring in English Literature should consult Susan Dumais, coordinator of the Department of English, or the director of the English Literature program.

The English Teaching Major

This major is designed for students wishing to teach English in middle or high schools. Completion of this undergraduate major does not in itself, however, meet state certification requirements. To meet these requirements, students should enroll in the undergraduate major and, by September 15 of their senior year, apply for the fifth-year teaching internship and master's degree program. (For a full description of the program, see page 34.) Undergraduate English Teaching majors must pass the following English courses with an average of 2.50 or better: ENGL 514, 516, 519 or 529, 619, 657, 725-726 or 710 and 792, 718 or 791, and two additional literature courses numbered 600 or above. ENGL 513 may be substituted for one of these two courses. A writing portfolio is also required.

Students who are interested in majoring in English Teaching should consult Susan Dumais, coordinator of the Department of English, or the director of the English Teaching program.

The English Journalism Major

The English Journalism major is designed for students considering careers in print journalism or related fields. Students who complete the program are ready for entry-level writing or editing positions on newspapers or magazines.
The program allows students to develop their writing, reporting, and editing skills while developing a strong background in English literature. English Journalism majors must complete ENGL 519 or 529 with a grade of C or better and the literature requirements of the standard English major. In addition, they must complete ENGL 501 (Creative Nonfiction) and ENGL 621 (Newswriting), with a grade of B or better; ENGL 622 (Advanced Newswriting); at least one other on-campus journalism course (ENGL 703, 704, 708, 711, 721, 722); and a newspaper internship (ENGL 720) approved by the director of the journalism program. Except where otherwise noted, major courses must be completed with a C- or better. Many journalism students work for the on-campus student newspaper, The New Hampshire. Many students hold summer jobs in journalism, and some have part-time journalism jobs during the school year.

Students interested in the English Journalism major should see Susan Dumais, coordinator of the Department of English, or the director of the English Journalism program.

Writing Programs

The Department of English offers courses for students interested in becoming writers. Up to four consecutive creative writing workshops can be taken in fiction or in poetry, as well as a course in form and theory of either genre. The instructors for these courses are professional writers. Interested students should inquire at the department office.

COURSES

| ENGL 400 | English as a Second Language 1 to 16 cr. |
| ENGL 401 | Freshman English 4 cr. |
| ENGL 401A | Freshmen English for as a Second Language Students 4 cr. |
| ENGL 401H | Honors/Freshman English 4 cr. |
| ENGL 403 | Introduction to the Study of Literature 4 cr. |
| ENGL 404 | Writing Studio 1 cr. |
| ENGL 405 | Introduction to Linguistics 4 cr. |
| ENGL 405H | Honors/Introduction to Linguistics 4 cr. |
| ENGL 444A | Portable, Exportable Nation 4 cr. |
| ENGL 444B | Secret Lives of Words 4 cr. |
| ENGL 500 | Writing about Reading: Writing About Nonfiction 4 cr. |
| ENGL 500H | Honors/Writing about Reading: Writing About Nonfiction 4 cr. |
| ENGL 501 | Introduction to Creative Nonfiction 4 cr. |
| ENGL 501H | Honors/Introduction to Creative Nonfiction 4 cr. |
| ENGL 502 | Technical Writing 4 cr. |
| ENGL 502H | Honors/Technical Writing 4 cr. |
| ENGL 503 | Persuasive Writing 4 cr. |
| ENGL 511 | Major Writers in English 4 cr. |
| ENGL 513 | Survey of British Literature 4 cr. |
| ENGL 513H | Honors/Survey of British Literature 4 cr. |
| ENGL 514 | Survey of British Literature 4 cr. |
| ENGL 514H | Honors/Survey of British Literature 4 cr. |
| ENGL 515 | Survey of American Literature 4 cr. |
| ENGL 515H | Honors/Survey of American Literature 4 cr. |
| ENGL 516 | Survey of American Literature 4 cr. |
| ENGL 516H | Honors/Survey of American Literature 4 cr. |
| ENGL 517 | Introduction to African American Literature and Culture 4 cr. |
| ENGL 517H | Honors/Introduction to African American Literature and Culture 4 cr. |
| ENGL 518 | Bible as Literature 4 cr. |
| ENGL 518H | Honors/Bible as Literature 4 cr. |
| ENGL 519 | Introduction to Critical Analysis 4 cr. |
| ENGL 519H | Honors/Introduction to Critical Analysis 4 cr. |
| ENGL 521 | Nature Writers 4 cr. |
| ENGL 521H | Honors/Nature Writers 4 cr. |
| ENGL 522 | American Literary Folklore 4 cr. |
| ENGL 523 | Madness in Literature 4 cr. |
| ENGL 529 | Writing about Literature 4 cr. |
| ENGL 529H | Honors/Writing about Literature 4 cr. |
| ENGL 533 | Introduction to Film Studies 4 cr. |
| ENGL 533H | Honors/Introduction to Film Studies 4 cr. |
| ENGL 540 | Introduction to Native American Studies 4 cr. |
| ENGL 555 | Introduction to Irish Studies 4 cr. |
| ENGL 581 | Introduction to Postcolonial Literatures in English 4 cr. |
| ENGL 581H | Honors/Introduction to Postcolonial Literatures in English 4 cr. |
| ENGL 585 | Introduction to Women in Literature 4 cr. |
| ENGL 585H | Honors/Introduction to Women in Literature 4 cr. |
| ENGL 586 | Introduction to Women Writers 4 cr. |
| ENGL 586H | Honors/Introduction to Women Writers 4 cr. |
| ENGL 595 | Literary Topics 1 to 4 cr. |
| ENGL 595H | Honors/Literary Topics 1 to 4 cr. |
| ENGL 600 | English as a Second Language 1 to 16 cr. |
| ENGL 605 | Intermediate Linguistic Analysis 4 cr. |
| ENGL 605H | Honors/Intermediate Linguistic Analysis 4 cr. |
| ENGL 608 | Arts and American Society: Writers and Artists, 1850-present 4 cr. |
| ENGL 608H | Honors/Arts and American Society: Writers and Artists, 1850-present 4 cr. |
| ENGL 609 | Ethnicity in America: The African American Experience in the 20th Century 4 cr. |
| ENGL 616 | Studies in Film 4 cr. |
| ENGL 616A | Studies in Film/Genre 4 cr. |
| ENGL 616B | Studies in Film/Authorship 4 cr. |
| ENGL 616C | Studies in Film/Culture and Ideology 4 cr. |
| ENGL 616D | Studies in Film/Narrative and Style 4 cr. |
| ENGL 618 | Film Theory 4 cr. |
| ENGL 619 | Critical Approaches to Literature 1 to 4 cr. |
| ENGL 620 | Applied Experience 4 cr. |
| ENGL 621 | Newswriting 4 cr. |
| ENGL 622 | Advanced Newswriting 4 cr. |
| ENGL 623 | Essay Writing 4 cr. |
| ENGL 625 | Writing Fiction 4 cr. |
| ENGL 626 | Writing Fiction 4 cr. |
| ENGL 627 | Writing Poetry 4 cr. |
| ENGL 628 | Writing Poetry 4 cr. |
| ENGL 630 | Poetry 4 cr. |
| ENGL 631 | Drama 4 cr. |
| ENGL 632 | Fiction 4 cr. |
| ENGL 649 | Studies in British Literature and Culture 4 cr. |
| ENGL 650 | Studies in American Literature and Culture 4 cr. |
| ENGL 651 | Comparative Literature 4 cr. |
| ENGL 657 | Shakespeare 4 cr. |
| ENGL 657H | Honors/ Shakespeare 4 cr. |
| ENGL 685 | Women's Literary Traditions 4 cr. |
| ENGL 693 | Special Topics in Literature 4 cr. |
| ENGL 694 | Special Topics in Literature 4 cr. |
| ENGL 695 | Senior Honors 4 cr. |
| ENGL 696 | Senior Honors 4 cr. |
| ENGL 697 | English Major Seminar 4 cr. |
| ENGL 698 | English Major Seminar 4 cr. |
| ENGL 701 | Advanced Writing of Fiction 4 cr. |
| ENGL 703 | Advanced Nonfiction Writing 4 cr. |
| ENGL 704 | Advanced Nonfiction Writing 4 cr. |
| ENGL 705 | Advanced Writing of Poetry 4 cr. |
| ENGL 707 | Form and Theory of Fiction 4 cr. |
| ENGL 708 | Form and Theory of Nonfiction 4 cr. |
| ENGL 709 | Form and Theory of Poetry 4 cr. |
| ENGL 710 | Teaching Writing 1 to 6 cr. |
| ENGL 711 | Editing 4 cr. |
| ENGL 713 | Literary Criticism 4 cr. |
| ENGL 714 | Literary Criticism 4 cr. |
| ENGL 715 | Teaching English as a Second Language: Theory and Methods 4 cr. |
| ENGL 716 | Curriculum, Materials and Assessment in English as a Second Language 4 cr. |
| ENGL 717 | World Languages 4 cr. |
| ENGL 718 | English Linguistics and Literature 4 cr. |
| ENGL 719 | Sociolinguistics Survey 4 cr. |
| ENGL 720 | Journalism Internship 1 to 16 cr. |
| ENGL 721 | Advanced Reporting 4 cr. |
| ENGL 722 | Feature Writing 4 cr. |
| ENGL 725 | Seminar in English Teaching 4 cr. |
| ENGL 726 | Seminar in English Teaching 4 cr. |
| ENGL 727 | Issues in Second Language Writing 4 cr. |
| ENGL 728 | Writing Consultation and Assessment 4 cr. |
| ENGL 729 | Special Topics in Composition Studies 4 cr. |
| ENGL 733 | Special Studies in Film 4 cr. |
| ENGL 738 | Topics in Asian American Studies 4 cr. |
| ENGL 739 | American Indian Literature 4 cr. |
| ENGL 740 | Indigenous New England 4 cr. |
| ENGL 741 | Literature of Early America 4 cr. |
| ENGL 742 | American Literature, 1815-1865 4 cr. |
| ENGL 743 | American Literature, 1865-1915 4 cr. |
| ENGL 744 | American Literature, 1915-1945 4 cr. |
| ENGL 745 | Contemporary American Literature 4 cr. |
| ENGL 746 | Studies in American Drama 4 cr. |
| ENGL 747 | Studies in American Poetry 4 cr. |
| ENGL 748 | Studies in American Fiction 4 cr. |
| ENGL 749 | Major American Authors 4 cr. |
| ENGL 750 | Special Studies in American Literature 4 cr. |
| ENGL 751 | Medieval Epic and Romance 4 cr. |
| ENGL 752 | History of the English Language 4 cr. |
| ENGL 753 | Old English 4 cr. |
European Cultural Studies (ECS)
(For course descriptions, go to www.undergradcat.unh.edu.)

European Cultural Studies (ECS) is an interdisciplinary major in which students study the field of cultural analysis in conjunction with an individually designed focus on a European topic. Each student will work with an adviser and the ECS Steering Committee to design a course of study that best suits the student’s interests and goals. The ECS major is driven in part by the belief that language is an integral part of culture and not merely a tool for the study of literature. By the same token, the study of European history, philosophy, politics, and so forth, can only be enriched by the addition of critical perspectives developed in literature and language study.

The ECS major has five objectives:
1. It will introduce students to the major contours of European history, politics, languages and arts.
2. It will introduce students to the social, political, economic, and cultural developments of the new unifying Europe.
3. The cultural studies component of the major highlights the contentious nature of this “unifying Europe.” Thus the major will prepare students for work in fields related to Europe and European/American relations. More generally it will encourage a nuanced perception of cultural differences, which will in turn affect students’ perceptions of themselves and others as participants in an uneasily shared world.
4. Cultural studies skills will facilitate and enable students to consider the past not just as an academic subject but as an unfolding inherited tradition.
5. A B.A. in European cultural studies will be a preparatory degree for graduate study in numerous fields from international relations to the humanities.

European Cultural Studies Major
The ECS major consists of 40 credits to be distributed in the following way:
1. Course on Europe (ECS 400). Course on European topics, covering art, literature, history, political science or other domains. (4 credits)
2. Course on cultural studies (ECS 500). Introduction to the field of Cultural Studies as applied to the study of Europe. In years when ECS 500 is not offered, students may take ENGL 619 (Critical Approaches to Literature) or HIST 625 (Intellectual European History). (4 credits)
3. Foundation Courses (8 credits).
   a. Languages: 504 or equivalent in a European language or an approved alternate course.
   b. Arts/Humanities or Social Sciences: One course from the following offerings: ARTS 580 or 581 (Survey of Art History), ENGL 651 or 652 (Comparative Literatures, when inclusive of European literatures), Humanities 501, 502, 503 (when focused on European topics), Music 402 (Survey of Music History), ECON 630 (Comparative Study of Economic Systems), HIST 435 or 436 (Western Civilization), HIST 565 (Women in European History), HIST 650 (European Socialism), HIST 656 (20th Century Europe), POLT 550 (Major Foreign Governments), POLT 552 (Contemporary European Politics).
4. Focus Courses: The focus of the major consists of an individually designed grouping of five courses that will allow students to pursue their interests and will give coherence to the major. Students will discuss their proposed curriculum with an ECS adviser and submit a proposal to the ECS Steering Committee. Possible foci include: European art and identity; politics and culture in modern Europe; the history of European science and philosophy; or focus by nation. At least two courses for the focus must be at the 600-level or higher (20 credits).
5. Senior Thesis (ECS 799). Students will work together with their advisers to formulate their topic, consider appropriate approaches, locate relevant resources and write a thesis. At the end of the semester, students present their work to a committee of three ECS faculty members (4 credits).

European Cultural Studies Minor
The minor in European cultural studies consists of 20 credits (five courses), including ECS 500, 504-level in a European language, two foundation courses in (one in arts/humanities, one in social sciences), and one elective.

COURSES
ECS 400 Europe 4 cr.
ECS 500 Proseminar 4 cr.
ECS 799 Senior Thesis 4 cr.

French
www.unh.edu/languages/french/
(For program descriptions, see Languages, Literatures, and Cultures/French, page 45. For course descriptions, go to www.undergradcat.unh.edu.)

Geography (GEOG)
www.unh.edu/geography
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Alasdair D. Drysdale
Professor: Alasdair D. Drysdale
Assistant Professors: David P. Brown, Blake Gumprecht

Geography is best defined as the discipline that describes and analyzes the variable character, from place to place, of the Earth as the home of human society. As such, geography is an integrating discipline, studying many aspects of the physical and cultural environment that are significant to understanding the character of areas or the spatial organization of the world.
Geography aims to provide students with a basis for understanding the world in which we live.

Because its integrating character establishes common areas of interest with many other fields of knowledge, geography provides an excellent core discipline for a liberal education. Those who would understand geography must also know something of the earth sciences, as well as economics, cultures, politics, and processes of historical development.

Students who have a strong interest in the spatial organization of the world and the distinctive character of its major regions and who also want a broad educational experience can achieve these goals effectively by majoring in geography.

Students with degrees in geography have found their education valuable in such fields as urban and regional planning, locational analysis for industry and marketing organizations, cartography, geographical information systems (GIS), library work, military intelligence, international studies, the Foreign Service, travel and tourism, and journalism.

Students planning careers as scholars or teachers in the field should concentrate their coursework in geography and appropriate related disciplines and should plan to go on to graduate study after completing an undergraduate major in geography. Students from this department have been admitted to first-rate graduate schools in all parts of the United States.

Students who major in geography are required to take ten courses with a minimum grade of C-

Requirements for the Major

A. All of the following core courses:

- GEOG 401, Regional Geography of the Western World
- GEOG 512, Geography of Canada
- GEOG 513, Geography of United States and Canada
- GEOG 514, Geography of the United States and Canada
- GEOG 520, Geography of Latin America and the Caribbean
- GEOG 531, Geography of Western Europe and Mediterranean
- GEOG 540, Geography of Middle East
- GEOG 541, Geography of Japan
- GEOG 545, Geography of Southeast Asia
- GEOG 610, Geography of New England

B. One of the following regional courses

- GEOG 557, Biogeography
- GEOG 581, Human Geography
- GEOG 582, Economic Geography
- GEOG 583, Urban Geography
- GEOG 584, Political Geography
- GEOG 585, Social Geography
- GEOG 586, Historical Geography of North America
- GEOG 587, Place and Popular Culture
- GEOG 673, Environmental Geography
- GEOG 685, Population and Development
- GEOG 686, World Economy and Globalization

C. Three of the following systematic courses

- GEOG 573, The Weather
- GEOG 570, Climatology

D. One of the following physical courses

- GEOG 473, The Weather
- GEOG 570, Climatology

E. One of the following technique courses

- GEOG 575, Photo Interpretation and Photogrammetry
- GEOG 757, Photo Interpretation and Photogrammetry

F. One elective course in geography

This may be any geography course. However, students intending to continue to graduate school are strongly encouraged to take GEOG 795, Special Topics, and complete an undergraduate thesis.

A minor consists of five courses (20 credits) in geography with a minimum grade of C-

Students interested in majoring or minoring in geography should consult with the supervisor, Alasdair Drysdale.

COURSES

**GEOG 401** Regional Geography of the Western World 4 cr.
**GEOG 401H** Honors/Regional Geography of the Western World 4 cr.
**GEOG 402** Regional Geography of the Non-Western World 4 cr.
**GEOG 402H** Honors/Regional Geography of the Non-Western World 4 cr.
**GEOG 473** Elements of Weather 4 cr.
**GEOG 514** Geography of the United States and Canada 4 cr.
**GEOG 520** Geography of Latin America and the Caribbean 4 cr.
**GEOG 540** Geography of the Middle East 4 cr.
**GEOG 541** Geography of Japan 4 cr.
**GEOG 545** Geography of Southeast Asia 4 cr.
**GEOG 570** Climatology 4 cr.
**GEOG 572** Physical Geography 4 cr.
**GEOG 573** Biogeography 4 cr.
**GEOG 581** Human Geography 4 cr.
**GEOG 582** Economic Geography 4 cr.
**GEOG 583** Urban Geography 4 cr.
**GEOG 584** Political Geography 4 cr.
**GEOG 585** Social Geography 4 cr.
**GEOG 586** Historical Geography of North America 4 cr.
**GEOG 587** Place and Popular Culture 4 cr.
**GEOG 658** Introduction to Geographic Information Systems 4 cr.
**GEOG 673** Environmental Geography 4 cr.
**GEOG 685** Population and Development 4 cr.
**GEOG 686** World Economy and Globalization 4 cr.
**GEOG 687** Place and Popular Culture 4 cr.
**GEOG 757** Photo Interpretation and Photogrammetry 4 cr.
**GEOG 759** Digital Image Processing for Natural Resources 4 cr.
**GEOG 760** Geographical Information Systems in Natural Resources 4 cr.
**GEOG 795** Special Project 2 or 4 cr.
**GEOG 796** Special Topics 4 cr.
**GEOG 797** Seminar 4 cr.

**German**

www.unh.edu/languages/german/
(For program descriptions, see Languages, Literatures, and Cultures/German, page 46. For course descriptions, go to www.undergradcat.unh.edu.)

**Greek**

www.unh.edu/languages/greek/
(For program descriptions, see Languages, Literatures, and Cultures/Greek, page 47. For course descriptions, go to www.undergradcat.unh.edu.)

**History (HIST)**

www.unh.edu/history
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Janet L. Polasky

Professors: Jeoffrey M. Dieffenbark, Ellen Fitzpatrick, David Frankfurter, Cathy A. Frierson, Jan V. Golinski, J. William Harris, Francis D. McCann, Jr., Robert M. Mennel, Janet L. Polasky, Harvard Sitkoff

Affiliate Professors: Stephen H. Hardy, Laurel Ulrich, William R. Woodward

Associate Professors: Funso Afolayan, W. Jeffrey Bolster, Kurk Dorsey, Eliga H. Gould, Nicoletta E. Guccione, Yan Lu, Gregory McMahon, Lucy E. Salyer, Marc L. Schwartz, Jennifer D. Selwyn, Ethel Sara Wolper

Assistant Professors: David Backer, Julia E. Rodriguez, Cynthia J. Van Zandt, Amanda Wunder

Research Assistant Professor: Judith N. Moyer

The study of history is an essential element of the liberal 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 which 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 which may be studied. The interdisciplinary nature of the field makes it a natural focus for study which may encompass a variety of other fields.

To complete a major in history, students must take the required courses or their equivalent. Students who enter the University as history majors should plan to take the first required course, HIST 500 (Introduction to Historical Thinking) as soon as possible. To declare a major in history, students must have taken HIST 500 or have registered for it and have completed ten other history courses with a C- or better. The second required course, HIST 797 (Colloquium in History), is usually taken during the senior year. Students should consult the list of topics for HIST 797 and may choose to complete HIST 797 in their junior year. Besides HIST 500 and HIST 797, a major must take at least eight courses, of which a minimum of three must be at the 600 level or above. Only one HIST 695 (Independent Study) may be used to fulfill the 600-level requirement, and no more than two independent study courses may count toward the ten-course requirement. No more than two 400-level courses may be counted toward the major requirements. Students must receive at least a C in HIST 500 and HIST 797, and at least a C- in the other eight courses. They must maintain a 2.00 or better in all history courses. General education courses offered by the department may be counted for major credit or for general education credit, but not for both.

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 4 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 the student’s adviser.

The program must be planned in consultation with an adviser. A copy of the program, signed by one’s adviser, must be placed in one’s file no later than the second semester of one’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 or its equivalent and HIST 797.

A minor in history consists of 20 semester credits with C- or better and at least a 2.00 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, a minimum of two of the semester courses, or 8 credits, must be taken at the University of New Hampshire with a grade of C- or better.

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 secretary in Horton 405. Suggested programs for students with special interests or professional plans are available in the department office.

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 3.20 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 3.20 and a grade-point average of 3.20 or better in history courses.

COURSES

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE NAME</th>
<th>CREDITS</th>
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</thead>
<tbody>
<tr>
<td>HIST 405</td>
<td>History of Early America</td>
<td>4 cr.</td>
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<tr>
<td>HIST 406</td>
<td>History of the Modern United States</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HIST 410</td>
<td>Historical Survey of American Civilization</td>
<td>4 cr.</td>
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<tr>
<td>HIST 421</td>
<td>World History to the 16th Century</td>
<td>4 cr.</td>
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<td>HIST 422</td>
<td>World History in the Modern Era</td>
<td>4 cr.</td>
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<tr>
<td>HIST 425</td>
<td>Foreign Cultures</td>
<td>4 cr.</td>
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<tr>
<td>HIST 435</td>
<td>Western Civilization</td>
<td>4 cr.</td>
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<tr>
<td>HIST 436</td>
<td>Western Civilization</td>
<td>4 cr.</td>
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<tr>
<td>HIST 483</td>
<td>History of World Religions</td>
<td>4 cr.</td>
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<tr>
<td>HIST 484</td>
<td>Patterns in World Religions</td>
<td>4 cr.</td>
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<tr>
<td>HIST 497</td>
<td>Explorations in Historical Perspectives</td>
<td>4 cr.</td>
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<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4 cr.</td>
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<tr>
<td>HIST 501</td>
<td>Medieval Military History</td>
<td>4 cr.</td>
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<td>HIST 502</td>
<td>Latin Readings in Medieval History</td>
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<td>HIST 503</td>
<td>Soviet Dreamers, Despots, and Dissidents</td>
<td>4 cr.</td>
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<tr>
<td>HIST 505</td>
<td>African American History</td>
<td>4 cr.</td>
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<tr>
<td>HIST 506</td>
<td>African American History</td>
<td>4 cr.</td>
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<tr>
<td>HIST 507</td>
<td>Native Peoples of the Americas</td>
<td>4 cr.</td>
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<td>HIST 509</td>
<td>Law in American Life</td>
<td>4 cr.</td>
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<tr>
<td>HIST 511</td>
<td>History of New Hampshire</td>
<td>4 cr.</td>
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<tr>
<td>HIST 512</td>
<td>Historical Geography of North America</td>
<td>4 cr.</td>
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<tr>
<td>HIST 521</td>
<td>Origins of Modern Science</td>
<td>4 cr.</td>
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<tr>
<td>HIST 522</td>
<td>Science in the Modern World</td>
<td>4 cr.</td>
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<tr>
<td>HIST 523</td>
<td>Introduction to the History of Science</td>
<td>4 cr.</td>
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<tr>
<td>HIST 531</td>
<td>Americas; Introduction to Latin America and the Caribbean</td>
<td>4 cr.</td>
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<tr>
<td>HIST 532</td>
<td>Modern Latin America</td>
<td>4 cr.</td>
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<td>HIST 537</td>
<td>Espionage and History</td>
<td>4 cr.</td>
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<tr>
<td>HIST 540</td>
<td>Foundations of Medieval History: 300-1300 CE</td>
<td>4 cr.</td>
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<td>HIST 559</td>
<td>History of Great Britain</td>
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<td>HIST 560</td>
<td>History of Great Britain</td>
<td>4 cr.</td>
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<td>HIST 563</td>
<td>Introduction to Russian Culture and Civilization</td>
<td>4 cr.</td>
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<tr>
<td>HIST 565</td>
<td>Women in Modern Europe</td>
<td>4 cr.</td>
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<tr>
<td>HIST 566</td>
<td>Women in American History</td>
<td>4 cr.</td>
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<tr>
<td>HIST 567</td>
<td>History of Canada</td>
<td>4 cr.</td>
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<tr>
<td>HIST 575</td>
<td>Ancient Near East</td>
<td>4 cr.</td>
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<tr>
<td>HIST 576</td>
<td>Hebrew Bible in Historical Context</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HIST 579</td>
<td>History of China in Modern Times</td>
<td>4 cr.</td>
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</tbody>
</table>
The humanities program examines the fundamental questions and issues of Western 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.

Humanities Major

The humanities major consists of a minimum of 40 credits of academic work, with a minimum grade of C, including the following core requirements:

- Critical Methods in the Humanities (HUMA 500). Students will be made acquainted with the methods and technology required for research in the humanities. Students should take this 4-credit course during the sophomore or junior year.
- Integrated Core Courses (HUMA 510, 511, 512, 513, 514, 515). Each student takes at least two courses (8 credits) from the 510-515 sequence, preferably in the freshman and/or sophomore year.
- Seminar in the Humanities (HUMA 700). Each student takes at least one offering (4 credits) of the Seminar in the Humanities, preferably during the junior or senior year. 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.
Additional Requirements. Beyond the 20 credits of core requirements, each student must fulfill the following requirements: 1) a minimum of 8 additional credits from other humanities program courses; 2) an additional 12 credits from humanities program offerings and from the offerings of other departments and programs, 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.

Humanities Minor

The humanities minor consists of the following courses: 1) two courses (8 credits) from the 510/511/512/513/514/515 sequence; 2) two courses (8 credits) from other humanities program courses, one of which should be at the 600-level; and 3) seminar in the humanities (HUMA 700) or another approved course.

Inquiries about the humanities major and minor should be directed to Catherine Peebles, coordinator of the Humanities Program, 919 Murkland Hall, (603) 862-3638; e-mail huma@unh.edu.

Elective Courses

Students are required to select three elective courses from the Justice Studies approved course list. This list is approved and published yearly by the Justice Studies Executive Committee.

International Affairs (dual major)

(For program descriptions, see page 131.)

Italian

www.unh.edu/languages/italian/
(For program descriptions, see Languages, Literatures, and Cultures/Italian, page 47. For course descriptions, go to www.undergradcat.unh.edu.)

Justice Studies Dual Major

www.unh.edu/justice-studies/
(For course descriptions, go to www.undergradcat.unh.edu.)
HMGT 625, Hospitality Law (only HMGT majors allowed)
HMGT 627, Employment Law
HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
JUST 401, Introduction to Justice Studies (required course)
JUST 501, Justice Studies Research Methods (required course)
JUST 550/551, Mock Trial (must take year-long course)
JUST 601/602, Field Experience (required course)
JUST 650, Special Studies in Comparative Justice Systems
JUST 651, Field Studies in the Hungarian Justice System
JUST 695, Special Topics in Justice Studies
JUST 701, Senior Seminar (required course, writing intensive course)
KIN 796, Sports Law
MGT 647, Business Law (only Business Administration, Accounting and Business Administration and Management allowed)
MGT 648, Business Law II
NR 566, Wildlife Enforcement I
PHIL 436, Social and Political Philosophy
PHIL 635, Philosophy of Law
PSYC 756, Psychology of Crime and Justice (Research Methods Prerequisite)
PSYC 756, Psychology of Crime and Justice (Research Methods Prerequisite)
PSYC 791, Advanced Topics: Psychology of Hate
RMP 772, Law and Public Policy in Leisure Services (must have junior/senior status)
SOC 515, Introductory Criminology
SOC 525, Juvenile Crime and Delinquency
SOC 620, Drugs and Society
SOC 650, Family Violence (must have junior/senior status)
SOC 655, Sociology of Crime and Justice
SOC 697, Special Topics: Perspectives on Terrorism
SOC 715, Criminological Theory
SOC 720, Sociology of Drug Use
SOC 797, Special Topics: Crime and Justice
SW 525, Introduction to Social Welfare Policy
WS 595, Special Topics: Violence Against Women

Students who are interested in becoming 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 our Web site at www.unh.edu/justice-studies. Our offices are located in Room 202 of Huddleston Hall and are open Monday through Friday from 9 a.m. to 12 p.m. and 1 p.m. to 4 p.m. For more information please contact Professor Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Debbie Briand at (603) 862-1716, e-mail justice.studies@unh.edu.

For program information on the justice studies minor, see page 28.

**Courses**

<table>
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<tr>
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<tr>
<td>JUST 401</td>
<td>Introduction to Justice Studies</td>
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<tr>
<td>JUST 501</td>
<td>Research Methods</td>
<td>4 cr.</td>
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<tr>
<td>JUST 550</td>
<td>Mock Trial</td>
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<td>JUST 601</td>
<td>Field Experience</td>
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<tr>
<td>JUST 650</td>
<td>Special Studies in Comparative Justice Systems</td>
<td>4 cr.</td>
</tr>
<tr>
<td>JUST 651</td>
<td>Field Studies in the Hungarian Justice System</td>
<td>6 cr.</td>
</tr>
<tr>
<td>JUST 695</td>
<td>Special Topics</td>
<td>4 cr.</td>
</tr>
<tr>
<td>JUST 701</td>
<td>Senior Seminar</td>
<td>4 cr.</td>
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**Languages, Literatures, and Cultures (LLC)**

[www.unh.edu/languages/home.htm](http://www.unh.edu/languages/home.htm)

(For course descriptions, go to www.undergradcat.unh.edu.)

**Chairperson:** Edward T. Larkin, German

**Professors:** Barbara T. Cooper, French; F. William Forbes, Spanish; Ronald D. LeBlanc, Russian; Nancy Lukens, German; Claire L. Malarte-Feldman, French

**Associate Professors:** Nadine S. Bérenguier, French; Arna Beth Bronstein, Russian; Roger S. Brown, German; Stephen Andrew Brunet, Classics; John M. Chaston, Spanish; Aleksandra Fleszar, Russian; Janet Gold, Spanish; Lori Hopkins, Spanish; Edward T. Larkin, German; Linda Lee, Spanish; Mary E. Rhiel, German; Juliette M. Rogers, French

**Assistant Professors:** Grace H. Chang, French; Richard E. Clairmont, Classics; Marco L. Dorfsman, Spanish; Carmen Garcia de la Rasilla, Spanish; Piero Garofalo, Italian; Jaume Martí-Ollevira, Spanish; Robert Scott Smith, Classics; Stephen M. Trzaskoma, Classics

**Affiliate Faculty:** Richard C. House, Director, Parker Language Resource Center

**Lecturers:** Samira C. Artur, Spanish; Mary Kathleen Belford, Spanish; Claire-Hélène S. Gaudissart, French; Darby Trench Leicht, Italian; Carol M. Mathews, Spanish; Cindy Pulkkinen, Spanish; Anna K. Sandstrom, French; Henry M. Smith, French; Katharine E. Stansfield, French; Elisa F. Stoykovich, Spanish; Linda J. Thomsen, Spanish

The Department of Languages, Literatures, and Cultures offers undergraduate majors in Classics, French, and German, Greek, Latin, Russian, Spanish, and European Cultural Studies, plus a minor in Italian and coursework in Chinese, Hittite, Sanskrit, Japanese, and Portuguese. A combined B.A. in French/M.B.A. degree and an M.A. in Spanish are also offered through the department.

In addition, the department sponsors several study abroad programs (see page 136) 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, page 18.

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.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LLC 440</td>
<td>Cultural Approaches to Film and Fascism</td>
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<td>LLC 444</td>
<td>Walls: Mortar and Metaphor</td>
<td>4 cr.</td>
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<td>LLC 540</td>
<td>Film History</td>
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<td>LLC 791</td>
<td>Methods of Foreign Language Teaching</td>
<td>4 cr.</td>
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**Chinese (CHIN)**

[www.unh.edu/languages/japanese](http://www.unh.edu/languages/japanese)

(For course descriptions, go to www.undergradcat.unh.edu.)

**Courses**

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<td>CHIN 402</td>
<td>Elementary Chinese</td>
<td>4 cr.</td>
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<tr>
<td>CHIN 425</td>
<td>Introduction to Chinese Culture and Civilization</td>
<td>4 cr.</td>
</tr>
<tr>
<td>CHIN 503</td>
<td>Intermediate Chinese</td>
<td>4 cr.</td>
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<td>CHIN 504</td>
<td>Intermediate Chinese</td>
<td>4 cr.</td>
</tr>
<tr>
<td>CHIN 521</td>
<td>Chinese Literature in Translation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>CHIN795/96</td>
<td>Independent Study in Chinese</td>
<td>1 to 4 cr.</td>
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**Classics (CLAS)**

[www.unh.edu/languages/classics/](http://www.unh.edu/languages/classics/)

(For course descriptions, go to www.undergradcat.unh.edu.)
While it is true that classical Greek and Latin are no longer spoken languages, the literature and art of the Ancients speak to us still. To study the classics is to come into direct contact with the sources of Western civilization and culture, both pagan and Christian. An intimate knowledge of our Greco-Roman heritage furnishes students of the classics with historical, political, and aesthetic perspectives on the contemporary world. An undergraduate classics major provides excellent preparation for careers not only in academic, but also in nonacademic professions. A background in classics is, moreover, highly advantageous for applicants to graduate and professional schools in English, modern languages, history, philosophy, law, medicine, and theology. Finally, for the qualified student who is undecided about a major but interested in a sound liberal arts education, classics may be the best option.

The classics major is offered by the classics program of the Department of Languages, Literatures, and Cultures. The minimum requirements for a major in classics are 40 credits offered by the classics program. Twenty-four of these must be in Greek and/or Latin. A classics major must complete a minimum of 700-level course in one of the classical languages. A minimum of three courses must be taken at the Durham campus. Students will be encouraged to take courses in related fields such as ancient history, classical art, modern languages, and English, and to take part in overseas study programs in Greece and Italy. For the requirements of the Greek and Latin majors, see pages 47 and 48.

A minor in classics consists of five courses (20 credits) in classics, Greek, and/or Latin. The coordinator is Stephen Trzaskoma, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-3648; e-mail smt3@cisunix.unh.edu.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CLAS 400 Grammar for Students of Latin and Greek</th>
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<td></td>
<td>CLAS 401 Classical Mythology</td>
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<td></td>
<td>CLAS 540H1 Honors/Classical Mythology</td>
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<td>CLAS 405 Introduction to Greek Civilization</td>
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<td>CLAS 406 Introduction to Roman Civilization</td>
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<td>CLAS 411 Elementary Hittite</td>
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<tr>
<td></td>
<td>CLAS 412 Elementary Hittite</td>
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<td>CLAS 413 Elementary Sanskrit</td>
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<td>CLAS 414 Elementary Sanskrit</td>
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<td></td>
<td>CLAS 421 Major Greek Authors in English</td>
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<tr>
<td></td>
<td>CLAS 422 Major Roman Authors in English</td>
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<td>CLAS 500 Classical Mythology: Topics in World Literature</td>
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<tr>
<td></td>
<td>CLAS 525 Greek and Latin Origins of Medical Terms</td>
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</table>

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, Foreign Service, and teaching. Students considering a career in teaching should see page 34. In addition, they should include LING 505 (which also satisfies a general education requirement for group 7) in their overall program and make special note of the FREN 791 requirement (which does not count toward completion of a major in French). Students interested in other types of careers are urged to consult with members of the French faculty and with other appropriate departments early in their studies.

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 FREN 631-632, 651, 652, 575 or 677, 790, and two 700-level courses in French or Francophone literature. In addition, at least three elective courses (12 credits) closely related to French and Francophone cultural studies are required. 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 year-long UNH Junior Year in the Dijon Program is highly recommended. Other options are available, but non-UNH programs must be chosen in close consultation with a major adviser. Students are required to enroll in at least one French course each semester abroad. Transfer students must earn a minimum of 12 credits on the Durham campus. Of these 12 credits, one course must be FREN 790 and at least one 700-level course in French/ Francophone literature.

The French Studies Minor A minor in French consists of 20 credits in French courses numbered 503 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, 526, 527, 621, 622) 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 or higher will be expected to complete FREN 561 or 652. FREN 791 does not count for the minor. Members of the department supervise the work of both majors and minors.

The French Studies Minor The minor in French studies consists of 20 credits numbered FREN 503 or above. No fewer than three courses have to be taken at UNH. No
more than one course conducted in English (FREN 525, 526, 527, 621, 622) will be counted toward the minor. Students entering the minor at FREN 504 or higher will be expected to complete FREN 651 or 652. FREN 791 does not count toward the minor. Members of the department supervise the work of both majors and minors.

Study Abroad The department offers a junior year abroad at the University of Burgundy in Dijon, France (see FREN 685-686). 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 631-632, 651, and 652 by the end of their sophomore year. Early consultation with the director of the program is urged. Attendance at orientation sessions in spring of sophomore year is required.

In addition to its summer school offerings at the Durham campus, the department sponsors a program at the Centre Internationale d'Études des Langues (CIEL) in Brest, France, where students may enroll in courses equivalent to FREN 503, 504, 631, and 632, and above. Students interested in this program should consult the program's on-campus director early spring semester.

Paris Program Students attend the University of Delaware program in Paris where they take one French language course—ranging from intermediate (FREN 503) to advanced (FREN 632)—and three or four other courses taught in English on French topics. Full semester credit, gen. ed. 5 credit. Two courses can be applied toward the French or French studies minor. Students should consult with the program director at the beginning of the fall semester. This program is not for French majors or French Studies majors.

Teaching Assistantship in France Each year the French government offers a teaching assistantship in a French secondary school to a graduating French major nominated by the department. Applications are accepted during the fall semester.

Five-Year, Dual-Degree Program in French and Business Administration The dual-degree program permits students who matriculate with business backgrounds to earn both a B.A. in French and an M.B.A. in five years instead of the normal six. Students must meet all requirements for both the French major and the M.B.A. program offered by the Whittemore School of Business and Economics. A maximum of 16 credits may be counted toward both degrees. Students interested in this program should consult with the departmental adviser to the program early in their freshman year.

<table>
<thead>
<tr>
<th>COURSES</th>
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<tr>
<td>FREN 401</td>
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<td>FREN 503</td>
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<td>FREN 503H</td>
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<tr>
<td>FREN 504</td>
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<tr>
<td>FREN 504H</td>
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<tr>
<td>FREN 522</td>
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<tr>
<td>FREN 525</td>
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<tr>
<td>FREN 526</td>
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<tr>
<td>FREN 527</td>
<td>4 cr.</td>
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<tr>
<td>FREN 582</td>
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<td>FREN 585</td>
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<td>FREN 586</td>
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<td>FREN 595</td>
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</tr>
<tr>
<td>FREN 631</td>
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<td>FREN 632</td>
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<td>4 cr.</td>
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<td>FREN 652H</td>
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<td>FREN 676</td>
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<td>FREN 677</td>
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<td>FREN 684</td>
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<td>FREN 686</td>
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<td>FREN 775</td>
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<td>FREN 785</td>
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<td>FREN 795</td>
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<td>FREN 798</td>
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<tr>
<td>FREN 799</td>
<td>2 cr.</td>
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</table>

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 of the languages and its literature with a minor or at least a meaningful sequence of courses in another subject. Dual majors are also possible. For certification requirements, see the section coordinator.
- Those who intend to pursue graduate study in German language and literature, cross-cultural studies, film, or women's studies, or foreign language education in preparation for teaching careers at the high school or university level.

A major consists of a minimum of 36 credits in German language, literature, and culture beyond GERM 503. Required for the major are GERM 504, 525, 601, 631, 632 (or their equivalents) and 16 other credits, 12 of which must be taken in Durham on the 600 and 700 levels. GERM 520 and 791 do not count for major credit (720 is the equivalent of 520 for majors); 791 is recommended as an elective and required for teacher certification. Majors are required to spend the minimum of one semester in an approved German-speaking study abroad program, or equivalent.

A minor consists of 20 credits in German courses numbered 503 and above. The minor may include one course taught in English (520, 521, 523, or 525) but not 791.

Study Abroad (See also INCO 685, 686, GERM 585.) Students who have completed one year of German at the college level, e.g., GERM 401-402, may participate in the UNH intensive review course in Rosenheim, Germany. The University allows both German majors and minors and other students at levels beyond GERM 504 to attend approved Junior Year Abroad programs for UNH credit. UNH is part

German (GERM)
www.unh.edu/languages/german/
(For course descriptions, go to www.undergradcat.unh.edu.)
Greek (GREK)
www.unh.edu/languages/greek/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Greek major is offered by the classics program of the Department of Languages, Literatures, and Cultures.

The minimum requirements for a major in Greek are: 32 credits in Greek, including GREK 401-402. A Greek major must complete as a minimum a 700-level course in the Greek language. A minimum of three courses must be taken at the Durham campus. A Greek minor requires 20 credits of coursework in Greek. Students are encouraged to take courses in related fields such as Latin, classics, and ancient history, and to take part in overseas study programs in Greece. The coordinator is Stephen Trzaskoma, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-3648; e-mail smt3@cisunix.unh.edu.

COURSES
GREK 401 Elementary Classical Greek 4 cr.
GREK 402 Elementary Classical Greek 4 cr.
GREK 403 Elementary Modern Greek 4 cr.
GREK 404 Elementary Modern Greek 4 cr.
GREK 500 Intermediate Classical Greek 4 cr.
GREK 501 Intermediate Classical Greek 4 cr.
GREK 502 Intermediate Modern Greek 4 cr.
GREK 503 Intermediate Modern Greek 4 cr.
GREK 504 Intermediate Modern Greek 4 cr.
GREK 595 Directed Reading in Greek 2 or 4 cr.
GREK 596 Directed Reading in Greek 2 or 4 cr.
GREK 635 Third Year Modern Greek 4 cr.
GREK 636 Third Year Modern Greek 4 cr.
GREK 751 Homer and the Archaic Period 4 cr.
GREK 752 Homer and the Archaic Period 4 cr.
GREK 753 Advanced Study in Athenian Literature 4 cr.
GREK 754 Advanced Study in Athenian Literature 4 cr.
GREK 791 Methods of Foreign Language Teaching 4 cr.
GREK 795 Special Studies 4 cr.
GREK 796 Special Studies 4 cr.

Italian Studies (ITAL)
www.unh.edu/languages/italian/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Italian Studies minor is offered by the Department of Languages, Literatures, and Cultures. It provides students with the opportunity to explore the language, culture, and society of Italy through an interdisciplinary program. The minor consists of five courses beyond the Elementary Italian (ITAL 401-402) sequence and may include one course from a related field of study (e.g., ARTS 681-682, ECS 400, HIST 641) with a minimum grade of C. In addition, students must demonstrate linguistic proficiency at the level of intermediate Italian (ITAL 504 or an equivalent).

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.

New students will be assigned to the proper course in consultation with the section coordinator.

Study Abroad Students may participate in the UNH-in-Italy Program in the medieval city of Ascoli Piceno for a semester, a year, or a summer (see ITAL 685-686). The program allows students to register for UNH courses taught by UNH faculty. Students with advanced language skills may also enroll in courses at the University of Ascoli Piceno. Internships are also available. There is no language prerequisite.

COURSES
ITAL 401 Elementary Italian 4 cr.
ITAL 402 Elementary Italian 4 cr.
ITAL 425 Introduction to Italian Studies 4 cr.
ITAL 500 Selected Topics in World Literature 4 cr.
ITAL 503 Intermediate Italian 4 cr.
ITAL 504 Intermediate Italian 4 cr.
ITAL 521 Italian Literature in Translation, 13th-16th Centuries 4 cr.
ITAL 522 Italian Literature in Translation, 16th-20th Centuries 4 cr.
ITAL 525 Italian Cinema 4 cr.
ITAL 595 Practicum 2 cr.
ITAL 631 Advanced Italian Conversation and Composition 4 cr.
ITAL 632 Advanced Italian Conversation and Composition 4 cr.
ITAL 651 Introduction to Italian Culture and Civilization I: Middle Ages, Renaissance, Baroque 4 cr.
ITAL 652 Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism 4 cr.
ITAL 681 Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy 4 cr.
ITAL 681A Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy 4 cr.
ITAL 681B Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy 4 cr.
ITAL 682 Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy 4 cr.
Japanese (JPN)
www.unh.edu/languages/japanese/
(For course descriptions, go to www.undergradcat.unh.edu.)

Courses

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<td>JPN 402</td>
<td>Elementary Japanese</td>
<td>4 cr.</td>
</tr>
<tr>
<td>JPN 425</td>
<td>Introduction to Japanese Culture and Civilization</td>
<td>4 cr.</td>
</tr>
<tr>
<td>JPN 503</td>
<td>Intermediate Japanese</td>
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<td>4 cr.</td>
</tr>
<tr>
<td>JPN 631</td>
<td>Advanced Japanese</td>
<td>4 cr.</td>
</tr>
<tr>
<td>JPN 795</td>
<td>Independent Study in Japanese Language and Literature</td>
<td>1 to 4 cr.</td>
</tr>
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<td>JPN 796</td>
<td>Independent Study in Japanese Language and Literature</td>
<td>1 to 4 cr.</td>
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</tbody>
</table>

Latin (LATN)
www.unh.edu/languages/latin/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Latin major is offered by the classics program of the Department of Languages, Literatures, and Cultures.

The minimum requirements for a major in Latin are 32 credits in Latin, excluding LATN 401-402. A Latin major must complete a minimum of 700-level course in the Latin language. A minimum of three courses must be taken at the Durham campus. A Latin minor requires 20 credits of coursework in Latin. Students are encouraged to take courses in related fields such as Greek, classics, and ancient history, and to take part in overseas study programs in Italy. The coordinator is Stephen Trzeskoma, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-3648; e-mail smt3@cisunix.unh.edu.

Courses

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<tr>
<td>LATN 401</td>
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<td>LATN 502</td>
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<td>LATN 751</td>
<td>Ciceronian and the Roman Republic</td>
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<tr>
<td>LATN 752</td>
<td>Ciceronian and the Roman Republic</td>
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<td>Advanced Studies in the Literature of the Golden Age</td>
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<td>LATN 755</td>
<td>Advanced Studies in the Literature of the Silver Age</td>
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Portuguese (PORT)
www.unh.edu/languages/spanish/
(For course descriptions, go to www.undergradcat.unh.edu.)

Courses

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<td>PORT 500</td>
<td>Selected Topics in World Literature</td>
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<tr>
<td>PORT 595</td>
<td>Portuguese Practicum</td>
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Russian (RUSS)
www.unh.edu/languages/russian/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Russian major 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 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.

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 401-790 range, a grade of C or better is required to advance to the next course in the language series (401, 402, 503, 504, 631, 632, 790).

The Russian major consists of a minimum of 40 credits above RUSS 504. Specific course requirements are RUSS 425, 521, 522, 601, 631-632, 691, and 790 and two or three electives depending upon choice of option and concentration. Majors are required to spend a semester or summer on an approved study abroad program in Russia. Majors are required to take RUSS 631-632 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.

The minor in Russian consists of a minimum of 20 credits above RUSS 402; it must include RUSS 503-504 and at least one of the following: RUSS 631, 632, 691, 721, 725, or 790.

Students wishing to major in Russian should contact the program coordinator in Murkland Hall.

Russian Studies Minor

The Russian studies minor offers students an opportunity to pursue area study of Russia and the new states through an interdisciplinary program. The minor consists of a minimum of 20 credits (5 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 or an equivalent.

Students wishing to minor in Russian studies should consult with any faculty member in Russian studies.

Courses

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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>RUSS 402</td>
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<tr>
<td>RUSS 425</td>
<td>Introduction to Russia: Contemporary Society and Culture</td>
<td>4 cr.</td>
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<tr>
<td>RUSS 426</td>
<td>Film and Communism</td>
<td>4 cr.</td>
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<td>RUSS 500</td>
<td>Selected Topics in World Literature</td>
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<td>RUSS500W</td>
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<td>RUSS 503</td>
<td>Intermediate Russian</td>
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<td>RUSS 504</td>
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<tr>
<td>RUSS 521</td>
<td>Devils, Deities, and Madness in Russian Literature</td>
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Spanish (SPAN)

www.unh.edu/languages/spanish/

The major in Spanish is offered by the Department of Languages, Literatures, and Cultures. It is designed for students who wish to acquaint themselves more thoroughly with the language, culture, and literature of the Spanish-speaking peoples. In addition, the department offers courses in Portuguese. Students also have the option to complete honors in major.

Students who major in Spanish may prepare themselves for a variety of fields in which proficiency in the Spanish language and knowledge of Hispanic cultures are desirable. Such fields might include international relations, business administration, government work, social service, and communications. In addition, students can prepare to teach Spanish at the elementary and secondary levels and in bilingual education programs through the 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.

The UNH study abroad program in Granada, Spain, open to majors and nonmajors, offers students the opportunity to live and study abroad for a semester or a full academic year. A six-week summer immersion program in Puebla, Mexico is also available to students. Financial aid is available for eligible students. Contact the departmental program directors for further information.

The major consists of a minimum of 40 credits. All coursework required for the Spanish major or minor must be completed with a grade of C or better. Specific course requirements are 1) language and culture: 525 or 526, 601, 631, and 632; 2) three of the following 600-level courses: 650, 651, 652, 653, 654 or equivalent; 3) three courses taught in Spanish at the 700 level. 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 Spanish minor consists of 20 credits above 501, including 631 and 632.

For more information on the major, the minor, and options for the study abroad experience, please see the coordinator of Spanish.

<table>
<thead>
<tr>
<th>COURSES</th>
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<tr>
<td>SPAN 401 Elementary Spanish</td>
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<td>SPAN 402 Elementary Spanish</td>
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<td>SPAN 500 Selected Topics in World Literature</td>
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<td>SPAN 501 Review of Spanish</td>
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<td>SPAN 503 Intermediate Spanish</td>
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<td>SPAN503H Honors/Intermediate Spanish</td>
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<td>SPAN 504 Intermediate Spanish</td>
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<td>SPAN504H Honors/Intermediate Spanish</td>
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<tr>
<td>SPAN 522 Latin American and Brazilian Literature in Translation</td>
<td>4 cr.</td>
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<td>SPAN 525 Spanish Civilization and Culture</td>
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<td>SPAN525H Honors/Spanish Civilization and Culture</td>
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<td>SPAN 526 Latin American Civilization and Culture</td>
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<td>SPAN 595 Practicum</td>
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<td>SPAN 601 Spanish Phonetics</td>
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<td>SPAN 631 Advanced Conversation and Composition</td>
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<td>SPAN631H Honors/Advanced Conversation and Composition</td>
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<td>SPAN 632 Advanced Conversation and Composition</td>
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<tr>
<td>SPAN 650 Introduction to Critical Analysis</td>
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<td>SPAN 651 Introduction to Spanish Literature and Thought</td>
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<td>SPAN 653 Introduction to Latin American Literature and Thought</td>
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<td>SPAN 658 Study Abroad</td>
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<td>SPAN 661 Readings in Current Periodicals</td>
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<td>SPAN 692 Readings in Current Periodicals</td>
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<td>SPAN 703 History of the Spanish Language</td>
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<td>SPAN 709 Grammatical Structure of Spanish</td>
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<td>SPAN 795 Independent Study</td>
<td>1 to 4 cr.</td>
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<td>SPAN795K Special Studies in Contemporary Latin American Literature 2 or 4 cr.</td>
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<td>SPAN 797 Special Studies in Spanish Language and Literature</td>
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<td>SPAN 798 Special Studies in Spanish Language and Literature</td>
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<tr>
<td>SPAN 799 Senior Honors</td>
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Linguistics (LING)

www.unh.edu/linguistics/

(For course descriptions, go to www.undergradcat.unh.edu.)

Professors: Thomas Carnicelli, English; Mary Clark, English; Willem deVries, Philosophy; Rochelle Lieber, English

Associate Professors: Aleksandra Fleszar, Russian; Linda Lee, Spanish; Fred C. Lewis, Communication Disorders; John E. Limber, Psychology; Gregory McMahon, History; Paul McNamara, Philosophy; Naomi Nagy, English; Penny Webster, Communication Disorders; James Weiner, Computer Science

Assistant Professors: John Chaston, Spanish; Piero Garofalo, Italian; Mardi Kidwell, Communication; Aya Matsuda, English

Lecturer: Richard Clairmont, Classics

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 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 www.unh.edu/linguistics.

A minor in linguistics is also available and consists of any five linguistics courses, including LING 505 or ENGL 505, approved by the linguistics coordinator.

Requirements for the major

All of the following
LING 505, Introduction to Linguistics
LING 605, Introduction to Linguistic Analysis
LING 793, Phonetics and Phonology
LING 794, Syntax and Semantic Theory

One course in historical linguistics
LING 506, Introduction to Comparative and Historical Linguistics
ENGL 752, History of the English Language
GERM 733, History and Structure of the German Language
ITAL 733, History of Italian
RUSS 733, History and Development of the Russian Language
SPAN 733, History of the Spanish Language

Two years college study (or equivalent) of one foreign language
One of the following cognate specialties
One year college study (or equivalent) of a second foreign language from a different language family or subfamily (Old English may count as the second foreign language if the first foreign language is not in the Germanic family)

PSYC 712, Psychology of Language (with its prerequisite, either PSYC 512, Psychology of Primate or PSYC 513, Cognitive Psychology)
PHIL 745, Philosophy of Language (with its prerequisite PHIL 412, Beginning Logic, or PHIL 550, Logic)
CS 765, Introduction to Computational Linguistics (with its prerequisite)

Two elective courses from the list below
Anthropology: 670, Language and Culture; 795, 796, Reading and Research in Anthropology: B. Anthropological Linguistics
Communication: 572, Language and Behavior; CMN 666, Conversation Analysis; 672, Theories of Language and Discourse
Communication Disorders: 522, The Acquisition of Language
Computer Sciences: 765, Introduction to Computational Linguistics

English: 444B, The Secret Lives of Words; 715, TESL: Theory and Methods; 716, Curriculum, Materials, and Assessment in English as a Second Language; 717, World Englishes; 718, English Linguistics and Literature; 719, Sociolinguistics Survey; 727, Issues in Second Language Writing; 752, History of the English Language; 778, Brain and Language; 790, Special Topics in Linguistics; 791, English Grammar; French, German, Greek, Latin, Russian, Spanish; 791, Methods of Foreign Language Teaching.

German: 733, History and Structure of the German Language
Italian: 733, History of Italian
Latin: 795, 796, Special Studies in Latin (when topic is appropriate)

Linguistics: 444B, The Secret Lives of Words; 506, Introduction to Comparative and Historical Linguistics; 620, Applied Experience in Linguistics; 717, World Englishes; 719, Sociolinguistics Survey; 790, Special Topics in Linguistics; 795, 796, Independent Study

Philosophy: 550, Symbolic Logic; 618, Recent Anglo-American Philosophy; 650, Logic: Scope and Limits; 745, Philosophy of Language

Psychology: 512, Psychology of Primate; 513, Cognitive Psychology; 712, Psychology of Language. (Students may count either PSYC 512 or 513 toward the linguistics major or minor, but not both.)

Russian: 733, History and Development of the Russian Language
Sociology: 797F, Sociolinguistics
Spanish: 601, Spanish Phonetics; 733, History of the Spanish Language; 790, Grammatical Structure of Spanish

Capstone Experience
Either LING 799, Linguistic Field Methods, or LING 695, Senior Thesis.

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.

Courses

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<td>Honors/Introduction to Linguistics</td>
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<td>LING 444B</td>
<td>Secret Lives of Words</td>
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<td>LING 605</td>
<td>Intermediate Linguistic Analysis</td>
<td>4 cr.</td>
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<td>LING 620</td>
<td>Applied Experience in Linguistics</td>
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<td>LING 695</td>
<td>Senior Honors</td>
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<td>LING 717</td>
<td>World English</td>
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<td>LING 779</td>
<td>Linguistic Field Methods</td>
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<td>LING 790</td>
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<tr>
<td>LING 796</td>
<td>Independent Study</td>
<td>1 to 4 cr.</td>
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</tbody>
</table>

Music (MUSI)

www.unh.edu/music/

(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Mark S. DeTurk

Professors: Christopher Kies, Nicholas N. Oroovich, John E. Rogers, David E. Seiler, Robert Stibler, Peggy A. Vagts

Affiliate Professor: Clark Terry

Associate Professors: Michael J. Annicchiarico, Daniel Beller-McKenna, Andrew A. Boyns, Mark S. DeTurk, Robert W. Eshbach, David K. Ripley, Peter W. Urquhart, Larry J. Veal

Assistant Professors: Jenni Carbaugh Cook, Lori E. Dobbins, Robert Haskins, William G. Kemper

Lecturers: Susan Hatfield, Arlene P. Kies, Erika K. Svanoce

Adjunct Faculty: Sharon Baker, Mimi Bravar, Neil Deland, Les Harris, Jr., Margaret Herlehy, John B. Hunter, David Newsam, Janet E. Polk, Mark Shilansky, Jared Sims, Nancy Smith

The Department of Music offers two degree programs: the bachelor of arts and the bachelor of music.

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.

Bachelor of Arts Program

The bachelor of arts 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 the five-year undergraduate-graduate program in teacher education or graduate study leading to the M.A. or Ph.D. degrees.

To be admitted formally to the B.A. program, students must give evidence of satisfactory musical training by taking an audition. Students must declare music as a major before the beginning of the junior year, but it is highly recommended that they declare as early as possible, considering the large number of required courses.

The bachelor of arts degree is offered with four options: music history, performance study, music theory, and preteaching. The B.A. may also be taken as a degree in music with no option specified. We refer to this as the undifferentiated B.A. in music. Students wanting to declare theory as their option must submit a music portfolio in addition to an audition on the major instrument. The following courses are required of all students: Theory I, Ear Training I, and Functional Piano (MUSI 471-472, 473-474, 475-476); Theory II, Ear Training II, and Functional Piano II (MUSI 571-572,
573-574, 575-576); History and Literature of Music (MUSI 501-502); one Advanced Music History (MUSI 703-715); and one course from MUSI 771 (Counterpoint) or MUSI 781, 782 (Analysis: Form and Structure). Students will be given the opportunity to test out of MUSI 475-476 and MUSI 575-576. Additional requirements, grouped by option, are shown below.

B.A. students may use a maximum of 8 ensemble credits toward graduation.

Undifferentiated B.A. in Music
Any combination of advanced theory and history (12 credits); performance and/or ensemble study, any combination from MUSI 536-564 or MUSI 736-764 inclusive and/or MUSI 441-464 inclusive (8 credits).

Option 1, Music History
Advanced theory (3 credits); advanced music history (9 credits); performance study, any one of MUSI 536-564 or MUSI 736-764 inclusive (8 credits); conducting, MUSI 731 (2 credits); ensemble study, any combination from MUSI 441-464 inclusive (4 credits).

Option 2, Music Theory
Advanced theory (12 credits); performance study, any one of MUSI 536-564 or MUSI 736-764 inclusive (8 credits); conducting, MUSI 731 (2 credits); ensemble study, any combination from MUSI 441-464 inclusive (4 credits).

Option 3, Performance Study
Performance study, any one of MUSI 536-564 or MUSI 736-764 (16 credits-2 credits per semester); conducting, MUSI 731 (2 credits); ensemble study, any combination from MUSI 441-464 inclusive (8 credits). Voice students must also complete MUED 520-521 (4 credits).

Option 4, Music Preteaching
EDUC 500; conducting, MUSI 731-732; orchestration, MUSI 779; techniques and methods (9 credits); choral methods, MUED 741 (2 credits); performance study, any one of MUSI 536-564, 736-764 (8 credits); ensemble study (8 credits). Of the 8 credits in ensemble performance (MUSI 441-464) required during the course of study, it is expected that at least 4 credits will be from Concert Choir (MUSI 441), Orchestra (MUSI 450), Wind Symphony (MUSI 452), and/or Symphonic Band (MUSI 453). At least 1 credit of performance in a jazz ensemble (MUSI 460 or 464) and 1 credit of Marching Band (MUSI 454) are highly desirable.

Students in the Bachelor of Music in Music Education and the Bachelor of Music in Theory degree programs may use a maximum of 8 ensemble credits toward graduation.

Students in the Bachelor of Music in Performance degree program are required to perform a junior recital.

All bachelor of music students are required to give a public performance during their senior year. For music education students, a half recital is required; for students in the performance option, a full recital is required; for those in theory, a full lecture, lecture-recital, or recital including at least one original composition is required.

Bachelor of Music Program
The bachelor of music degree program is offered to students who wish to develop their talent in performance, composition, or music education to a high professional level. The program is recommended to those considering graduate study leading to the M.M. or D.M.A. degrees. The music education option is part of the undergraduate certification program (see page 34).

To be admitted to the B.M. 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.

Three degrees are offered in the bachelor of music curriculum: Bachelor of Music in Music Education; Bachelor of Music in Performance; Bachelor of Music in Theory. Students wanting to declare theory as their option must submit a music portfolio in addition to an audition on their major instrument.

Students in music education must maintain an overall minimum 2.50 grade-point average at the time of application for student teaching (February 15 of junior year). Techniques and methods courses must include MUED 745 (strings), 741 (choral), 747 (woodwinds), 749 (brass), 751 (percussion), and 765 (instrumental).

The Bachelor of Music program in Music Education leads 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.

Regarding ensemble requirements for music education students: Of the 8 credits in ensemble performance (MUSI 441-464) required during the course of study, it is expected that at least 4 credits will be from Concert Choir (MUSI 441), Orchestra (MUSI 450), Wind Symphony (MUSI 452), and/or Symphonic Band (MUSI 453). At least 1 credit of performance in a jazz ensemble (MUSI 460 or 464) and 1 credit of Marching Band (MUSI 454) are highly desirable.

The following courses are required of all Bachelor of Music students:
Theory I, Ear Training I, and Functional Piano I (MUSI 471-472, 473-474, 475-476); Theory II, Ear Training II, and Functional Piano II (MUSI 571-572, 573-574, 575-576); History and Literature of Music (MUSI 501-502); Conducting (MUSI 731), and one Advanced Music History (MUSI 703-715). Students will be given the opportunity to test out of MUSI 475-476 and MUSI 575-576. Additional requirements, grouped by option, are shown below.

Bachelor of Music in Music Education
MUED 741, choral methods; MUED 745-751, techniques and methods of the primary instrumental families; MUED 765, instrumental methods; MUED 790-791, elementary and secondary music education; MUSI 732, conducting; one course from MUSI 771, counterpart or MUSI 781 or 782, analysis: form and structure; MUSI 779, orchestration; EDUC 500, exploring teaching, 694, supervised teaching/music, 700, 701, 705, and 751B; performance study; any one of MUSI 536-564 or MUSI 736-764, inclusive (8 credits); ensemble study; MUSI 441-464, inclusive (8 credits, please refer to the paragraph about ensemble requirements for music education majors.)

COURSES
MUED 540 Beginning Techniques in Voice 2 cr.
MUED 595 Special Projects 1 to 4 cr.
MUED 741 Techniques and Methods in Choral Music 2 cr.
MUED 743 Materials and Methods in Piano Music 2 cr.
MUED 745 Techniques and Methods in String Instruments 2 cr.
MUED 746 Techniques and Methods in String Instruments 2 cr.
MUED 747 Techniques and Methods in Woodwind Instruments 3 cr.
MUED 749 Techniques and Methods in Brass Instruments 2 cr.
MUED 751 Techniques and Methods in Percussion Instruments 2 cr.
MUED 755 Vocal Pedagogy 2 cr.
MUED 765 Instrumental Music Methods 2 cr.
MUED 771 Marching Band Methods 2 cr.
MUED 790 Teaching Elementary School Music 3 cr.
MUED 791 Teaching Secondary School Music 3 cr.
MUED 795 Special Studies 1 to 4 cr.
Bachelor of Music in Performance

Voice
MUSI 520-521, diction for singers; ITAL 401-402, GERM 401-402, or FREN 401-402 (8 credits); MUSI 755, vocal pedagogy; MUD 741, choral methods; MUSI 713, the art song or MUSI 715, survey of opera; one course from MUSI 771, counterpoint or MUSI 781 or 782, analysis: form and structure; MUSI 545/745, performance study (25 credits); ensemble study, MUSI 441-442, 448 or 461 inclusive (8 credits). Group 5 general education requirement must be fulfilled with an intermediate level foreign language.

Piano
Two courses from MUSI 771, counterpoint; MUSI 781 or 782, analysis: form and structure; MUSI 771, advanced piano literature (1 to 2 credits); MUSI 795V, advanced piano pedagogy (2 credits); one additional 700-level advanced music theory or one additional advanced music history; MUSI 703-715; MUSI 541/741, ensemble study (25 credits); MUSI 455, piano ensemble (4 credits) and MUSI 441-464 inclusive (4 credits).

All Other Instruments
One course from MUSI 771, counterpoint or MUSI 781 or 782, analysis: form and structure; one methods class in the appropriate instrumental family, MUSI 745-751 (2 or 3 credits); one additional 700-level advanced music theory or one additional advanced music history, MUSI 703-715; performance study, MUSI 546-564/746-764 inclusive (25 credits); ensemble study, MUSI 448-460 and MUSI 463-464 inclusive (12 credits).

Bachelor in Music Theory
GERM 401-402; MUSI 771-772, counterpoint; MUSI 781-782, analysis: form and structure; MUSI 777, advanced composition (6 credits); MUSI 779, orchestration; one additional 700-level advanced music theory class; one additional advanced music history, MUSI 703-715; performance study, MUSI 541-564/741-764 inclusive (8 credits); ensemble study, MUSI 441-464 inclusive (4 credits).

Minor in Music
All students minoring in music must complete a minimum of 20 credits of coursework in music, of which the following are required: MUSI 471-474 or MUSI 411-412; and MUSI 501-502, or MUSI 401 or 402 and 511.

COURSES

MUSI 401 Introduction to Music 4 cr.
MUSI401H Honors/Introduction to Music 4 cr.
MUSI 402 Survey of Music History 4 cr.
MUSI402H Honors/Survey of Music History 4 cr.
MUSI 411 Fundamentals of Music Theory 4 cr.
MUSI 412 Fundamentals of Music Theory 4 cr.
MUSI 441 Concert Choir 1 cr.
MUSI 442 Chamber Singers 1 cr.
MUSI 443 Women's Chorus 1 cr.
MUSI 448 Opera Workshop 1 cr.
MUSI 450 Symphony 1 cr.
MUSI 452 Wind Symphony 1 cr.
MUSI 453 Symphonic Band 1 cr.
MUSI 454 UNH Marching Band 1 cr.
MUSI 455 Piano Ensemble 1 cr.
MUSI 456 String Ensemble 1 cr.
MUSI 457 Woodwind Ensemble 1 cr.
MUSI 458 Brass Ensemble 1 cr.
MUSI 459 Percussion Ensemble 1 cr.
MUSI 460 Jazz Band 1 cr.
MUSI 461 Vocal Jazz Ensemble 1 cr.
MUSI 462 Pep Band 1 cr.
MUSI 463 Jazz Combo 1 cr.
MUSI 464 Guitar Ensemble 1 cr.
MUSI 468 Voice Class 1 cr.
MUSI 471 Theory I 1 cr.
MUSI 472 Theory I 1 cr.
MUSI 473 Ear Training I 1 cr.
MUSI 474 Ear Training I 1 cr.
MUSI 475 Functional Piano I 1 cr.
MUSI 476 Functional Piano I 1 cr.
MUSI 501 History and Literature of Music 3 cr.
MUSI 502 History and Literature of Music 3 cr.
MUSI 511 Survey of Music in America 4 cr.
MUSI 515 Survey of World Music 4 cr.
MUSI 520 Diction for Singers I 2 cr.
MUSI 521 Diction for Singers II 2 cr.
MUSI 536 Early Wind Instruments 1 to 4 cr.
MUSI 541 Piano 1 to 4 cr.
MUSI 545 Voice 1 to 4 cr.
MUSI 546 Violin 1 to 4 cr.
MUSI 547 Viola 1 to 4 cr.
MUSI 548 Violoncello 1 to 4 cr.
MUSI 549 String Bass 1 to 4 cr.
MUSI 551 Flute 1 to 4 cr.
MUSI 552 Clarinet 1 to 4 cr.
MUSI 553 Saxophone 1 to 4 cr.
MUSI 554 Oboe 1 to 4 cr.
MUSI 555 Bassoon 1 to 4 cr.
MUSI 556 French Horn 1 to 4 cr.
MUSI 557 Trumpet 1 to 4 cr.
MUSI 558 Trombone 1 to 4 cr.
MUSI 559 Euphonium 1 to 4 cr.
MUSI 560 Tubas 1 to 4 cr.
MUSI 561 Percussion 1 to 4 cr.
MUSI 562 Jazz Piano 1 to 4 cr.
MUSI 563 Jazz Guitar 1 to 4 cr.
MUSI 564 Drum Set 1 to 4 cr.
MUSI 571 Counterpoint 3 cr.
MUSI 572 Counterpoint 3 cr.
MUSI 577 Advanced Composition 3 cr.
MUSI 579 Orchestration 3 cr.
MUSI 581 Analytical Form and Structure 3 cr.
MUSI 587W Analytical Form and Structure 3 cr.
MUSI 582 Analytical Form and Structure 3 cr.
MUSI 585 Electronic Synthesis 4 cr.
MUSI 595 Special Studies 1 to 4 cr.
MUSI795Y Independent Study 1 to 4 cr.
MUSI 705 Music of the Baroque 3 cr.
MUSI 706 Music of the Classical Period 3 cr.
MUSI 709 Music of the Romantic Period 3 cr.

MUSI 711 Music of the 20th and 21st Centuries 3 cr.
MUSI 713 Art Song 3 cr.
MUSI 715 Survey of Opera 3 cr.
MUSI 731 Conducting 2 cr.
MUSI 732 Conducting 2 cr.
MUSI 736 Early Wind Instruments 1 to 4 cr.
MUSI 741 Piano 1 to 4 cr.
MUSI 745 Voice 1 to 4 cr.
MUSI 746 Violin 1 to 4 cr.
MUSI 747 Viola 1 to 4 cr.
MUSI 748 Violoncello 1 to 4 cr.
MUSI 749 String Bass 1 to 4 cr.
MUSI 751 Flute 1 to 4 cr.
MUSI 752 Clarinet 1 to 4 cr.
MUSI 753 Saxophone 1 to 4 cr.
MUSI 754 Oboe 1 to 4 cr.
MUSI 755 Bassoon 1 to 4 cr.
MUSI 756 French Horn 1 to 4 cr.
MUSI 757 Trumpet 1 to 4 cr.
MUSI 758 Trombone 1 to 4 cr.
MUSI 759 Euphonium 1 to 4 cr.
MUSI 760 Tuba 1 to 4 cr.
MUSI 761 Percussion 1 to 4 cr.
MUSI 762 Jazz Piano 1 to 4 cr.
MUSI 763 Jazz Guitar 1 to 4 cr.
MUSI 764 Drum Set 1 to 4 cr.
MUSI 771 Counterpoint 3 cr.
MUSI 772 Counterpoint 3 cr.
MUSI 777 Advanced Composition 3 cr.
MUSI 779 Orchestration 3 cr.
MUSI 781 Analytical Form and Structure 3 cr.
MUSI781W Analytical Form and Structure 3 cr.
MUSI 782 Analytical Form and Structure 3 cr.
MUSI 785 Electronic Synthesis 4 cr.
MUSI 795 Special Studies 1 to 4 cr.
MUSI795Y Independent Study 1 to 4 cr.

Philosophy (PHIL)
www.unh.edu/philosophy/
(For course descriptions, go to www.undergradcat.unh.edu.)

Each semester, detailed course descriptions are posted in the department office and on the department Web page.

Professors: Willem A. de Vries, R. Valentine Dusek, David R. Hiley, Robert C. Scharff, Duane H. Whitier, Charlotte Elizabeth Witt
Associate Professors: Drew Christie, Paul McNamara, Ruth J. Sample, Timm A. Triplett
Assistant Professors: Kathy Miriam, Nicholas J. Smith
Lecturer: Jennifer K. Armstrong

Philosophy has always been 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 dreamt 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 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 immoral? 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 Vedic Scriptures. Philosophy has also always 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?

Career Opportunities
Philosophy offers excellent 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), 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 pre-law 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 reflected on, provide the philosophy major with an extremely adaptive and resilient mind-set. Philosophy provides superior preparation for a variety of vocational and professional endeavors, and perhaps more importantly, for being a professional.

The Philosophy Major
Majors must take a total of ten philosophy courses. The following courses constitute a core required of all majors: PHIL 412, 500, 530, 570, 580, and one additional course in the history of philosophy (525, 571, 616, 618, 620, or an approved seminar). Majors must also take two seminars (i.e., courses at the 700 level). At least one course must concentrate on major works of 20th-Century European philosophy (525, 620, or an approved seminar) and one course must concentrate on major works of 20th-Century Anglo-American philosophy (618 or an approved seminar). Please note that a single course can satisfy multiple requirements for the major. Courses used to satisfy requirements for the major may be used to satisfy general education requirements. PHIL 495, 795, and 796 normally do not count toward fulfilling major requirement credits; exceptions may be granted by special permission.

Special-Interest Program
Students may add to the above major a special-interest program of value in planning for postgraduate education or entry into such areas as law, medicine, business, education, theology, or social work. Special advisers are prepared to provide informal counsel to philosophy majors interested in these areas.

Graduate Preparatory Emphasis
This emphasis is strongly recommended for students who plan to do graduate work in philosophy. Beyond the ten program courses, such students should select, with their advisers' approval, two additional philosophy courses above the 400 level, for a total of twelve courses. One of these should be PHIL 550.

**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.

**Philosophy Minor**
A philosophy minor consists of five philosophy courses, one of which must be at the 500-level or higher (PHIL 495, 795, 796 with special approval only).

**COURSES**

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>PHIL 401 General Introduction to Philosophy</td>
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<tr>
<td>PHIL 401H Honors/General Introduction to Philosophy</td>
<td>4cr.</td>
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<tr>
<td>PHIL 401W General Introduction to Philosophy</td>
<td>4cr.</td>
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<tr>
<td>PHIL 402 Concepts of the Self</td>
<td>4cr.</td>
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<tr>
<td>PHIL 412 Beginning Logic</td>
<td>4cr.</td>
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<tr>
<td>PHIL 412H Honors/Beginning Logic</td>
<td>4cr.</td>
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<tr>
<td>PHIL 417 Philosophical Reflections on Religion</td>
<td>4cr.</td>
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<tr>
<td>PHIL 421 Philosophy and the Arts</td>
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<tr>
<td>PHIL 421H Honors/Philosophy and the Arts</td>
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<tr>
<td>PHIL 424 Science, Technology, and Society</td>
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<td>PHIL 430 Society and Morals</td>
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<tr>
<td>PHIL 430H Honors/Society and Morals</td>
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<td>PHIL 430W Society and Morals</td>
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<td>PHIL 435 Human Nature and Evolution</td>
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<td>PHIL 436 Social and Political Philosophy</td>
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<tr>
<td>PHIL 436W Social and Political Philosophy</td>
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<td>PHIL 444 Remaking Nature/The Ethics and Politics of Genetic Engineering</td>
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<td>PHIL 447 Computer Power and Human Reason</td>
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<tr>
<td>PHIL 447H Honors/Computer Power and Human Reason</td>
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<td>PHIL 450 Ecology and Values</td>
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<td>PHIL 450H Honors/Ecology and Values</td>
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<tr>
<td>PHIL 495 Tutorial Reading</td>
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<td>PHIL 496 Topics</td>
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<td>PHIL 500 Workshop</td>
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<td>PHIL 510 Philosophy and Feminism</td>
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<td>PHIL 520 Introduction to Eastern Philosophy</td>
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<td>PHIL 525 Existentialism</td>
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<td>PHIL 530 Moral Philosophy</td>
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<td>PHIL 540 Philosophy of Race and Racism</td>
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<td>PHIL 550 Symbolic Logic</td>
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<td>PHIL 550H Symbolic Logic</td>
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<td>PHIL 560 Philosophy Through Literature</td>
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<td>PHIL 570 Ancient Philosophy</td>
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<td>PHIL 571 Medieval Philosophy</td>
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<td>PHIL 570H Honors/Ancient Philosophy</td>
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<td>PHIL 580 Modern Philosophy from Descartes to Kant</td>
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<td>PHIL 616 19th Century Philosophy</td>
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<td>PHIL 618 20th Century Anglo-American Philosophy</td>
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<tr>
<td>PHIL 620 20th Century European Philosophy</td>
<td>4cr.</td>
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<td>PHIL 630 Philosophy of the Natural Sciences</td>
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<td>PHIL 635 Philosophy of Law</td>
<td>4cr.</td>
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<tr>
<td>PHIL 650 Logic: Scope and Limits</td>
<td>4cr.</td>
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<tr>
<td>PHIL 660 Law, Medicine, and Morals</td>
<td>4cr.</td>
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<tr>
<td>PHIL 683 Technology: Philosophical and Ethical Issues</td>
<td>4cr.</td>
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</tbody>
</table>
PHIL 701 Topics in Value Theory  
PHIL 702 Topics in Metaphysics and Epistemology  
PHIL 710 Philosophy of Religion  
PHIL 720 Philosophical Psychology  
PHIL 725 Philosophy of the Social Sciences  
PHIL 735 Major Figures in Philosophy of Law  
PHIL 740 Advanced Topics in the Philosophy of Law  
PHIL 745 Philosophy of Language  
PHIL 750 Philosophy of History  
PHIL 755 Environmental Ethics  
PHIL 780 Special Topics  
PHIL 795 Independent Study  
PHIL 796 Independent Study  
PHIL 798 Senior Thesis  
PHIL 799 Senior Thesis

Political Science (POLT)

www.unh.edu/political-science/
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: John R. Kayser
Professors: Marilyn Hoskin, B. Thomas Trout
Associate Professors: Marla A. Brettschneider, Warren R. Brown, John R. Kayser, Aline M. Kuntz, Lawrence C. Reardon, Susan J. Siggelakis, Stacy D. Vandeveer, Clifford J. Wirth
Assistant Professors: Domonic Bearfield, Alyna J. Lyon, Bernard T. Schuman, J. Mark Wrighton

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. 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 will also be valuable for students seeking careers in journalism, international organizations, and the public affairs and administrative aspects of labor, financial, and business organizations.

The major program in political science consists of at least nine courses (36 credits) and not more than twelve 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:

1. Two 400-level courses. These introductory courses should be completed by majors by the end of the sophomore year.
2. Six 500- and/or 600-level courses. Of these, at least one shall be chosen from each of the four fields in which the department's courses are organized: American politics, political thought, comparative politics, and international politics.
3. One 700-level course.

The Department of Political Science will not allow the use of 400-level courses to "double count" as a major requirement and a general education requirement. However, if a student has successfully completed three or more 400-level courses, special permission can be obtained to use one of the 400-level introductory political science courses as a general education requirement.

Minor in Political Science

The political science minor consists of five courses (20 credits total). These courses may be taken in any combination of the four fields 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 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 a political science adviser to determine eligibility toward the minor.

Internships and Advanced Study

In addition to the courses regularly offered, the department will have available selected topics, advanced study in political science, and internships. Interested students should check with the department office to learn of the offerings for a given semester.

The department also offers several internship opportunities giving students experience in various aspects of government, policy making, and the legal system at the local, state, and national levels. Students need not be political science majors, but a 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. 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.

COURSES

POLT 401 Politics and Society  
POLT 401H Honors/Politics and Society  
POLT 402 Introduction to American Government  
POLT 402H Honors/Introduction to American Government  
POLT 403 United States in World Affairs  
POLT 403H Honors/United States in World Affairs  
POLT 403W United States in World Affairs  
POLT 407 Law and Society  
POLT 407H Honors/Law and Society  
POLT 444 Science, Society and Politics  
POLT 500 American Public Policy  
POLT 502 State and Local Government  
POLT 504 American Presidency  
POLT 505 American Congress  
POLT 506 Parties, Interest Groups, and Voters  
POLT 507 Politics of Crime and Justice  
POLT 508 Supreme Court and the Constitution  
POLT 509 Bureaucracy in America  
POLT 510 Mass Media in American Politics  
POLT 512 Public Opinion in American Politics  
POLT 513 Civil Rights and Liberties  
POLT 520 Justice and the Political Community  
POLT 521 Rights and the Political Community  
POLT 522 Dissent and the Political Community  
POLT 524 Politics and Literature  
POLT 545 People and Politics in Asia  
POLT 550 Comparative Government and Society  
POLT 551 Global Urban Politics  
POLT 552 Contemporary European Politics  
POLT 555 Politics in Russia  
POLT555W Politics in Russia  
POLT 556 Politics in China  
POLT 558 Government and Politics of Canada  
POLT 560 World Politics  
POLT 562 Strategy and National Security Policy  
POLT 565 United States/Latin American Relations  
POLT 566 Foreign Policies of Asia and the Pacific  
POLT 567 Politics of Global Resources
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 2.00 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 must pass a competency exam in order to apply to the major and/or register for PSYC 502. Students with a first major in psychology may not use any psychology courses to fulfill general education requirements.

Requirements for the Major

A. Three core courses—PSYC 401, 402, and 502.
B. Four breadth (500-level) courses as follows

Group I: two courses from two different tracks
- Sensory track: PSYC 511
- Cognitive track: PSYC 512 or 513
- Behavioral track: PSYC 521
- Biological track: PSYC 531

Group II: Two courses from two different tracks
- Social/Personality track: PSYC 552 or 553
- Abnormal/Counseling track: PSYC 561
- History track: PSYC 571
- Developmental track: PSYC 581 or 582

C. Four depth (700-level) courses as follows

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 4 credits each must make up for any credit deficit created by acceptance of transfer credits 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 a petition to the department.

Psychology majors planning to go on to graduate study in psychology are advised to include PSYC 702 and/or 705 among their courses.

The minor in psychology consists of five psychology department courses (20 credits), including PSYC 401. No more than 4 credits of PSYC 795 may be applied to the minor. A maximum of 12 psychology transfer credits can be applied to the psychology minor at UNH.

See the department student services assistant for further details on the major or minor in psychology.
Advising System
Students who enter the University as psychology majors are considered "provisional majors" and are advised in the University Advising Center until they complete PSYC 401 and 402, at which time they can confirm their major. "Provisional majors" are accorded all the rights and privileges of any psychology major. Undergraduate advising in the department is conducted jointly by the department's academic counselor and the full-time faculty. The academic counselor has primary responsibility for advising confirmed and newly declared freshman and sophomore psychology majors and is the initial contact for all majors in a state of transition (readmitted, transfer, newly declared students, etc.). The academic counselor assists students in all phases of educational planning and decision making, including preregistration, long-range academic planning, degree and program requirements, and career selection and planning. 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 3.20 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 3.20 or above and 3.4 in major courses
2. Completion of PSYC 401, 402, and 502 with a grade of B or above in each

Requirements of the program include
1. Three 700-level psychology honors courses 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's academic counselor.

Undergraduate Research Conference
The Department of Psychology sponsors the annual George M. Haslerud Undergraduate Research Conference each spring. Undergraduates are invited to submit empirical or theoretical papers for presentation at the conference. Contact the department's academic counselor for more information.

COURSES
PSYC 401 Introduction to Psychology 4 cr.
PSYC 401H Honors/Introduction to Psychology 4 cr.
PSYC 402 Statistics in Psychology 4 cr.
PSYC 402H Honors/Statistics in Psychology 4 cr.
PSYC 444 Scientific Perspectives on Belief in Alleged Paranormal Phenomena 4 cr.
PSYC 502 Research Methods in Psychology 4 cr.
PSYC 511 Sensation and Perception 4 cr.
PSYC 512 Psychology of Primates 4 cr.
PSYC 513 Cognitive Psychology 4 cr.
PSYC 521 Behavior Analysis 4 cr.
PSYC 523 Behavior Modification 4 cr.
PSYC 531 Psychobiology 4 cr.
PSYC 552 Social Psychology 4 cr.
PSYC 553 Personality 4 cr.
PSYC 561 Abnormal Behavior 4 cr.
PSYC 571 Great Psychologists 4 cr.
PSYC 581 Child Development 4 cr.
PSYC 582 Adult Development and Aging 4 cr.
PSYC 591 Special Topics 4 cr.
PSYC 595 Applications of Psychology 1 to 4 cr.
PSYC 702 Advanced Statistics and Research Methodology 4 cr.
PSYC 705 Tests and Measurement 4 cr.
PSYC 710 Visual Perception 4 cr.
PSYC 712 Psychology of Language 4 cr.
PSYC 713 Psychology of Consciousness 4 cr.
PSYC 722 Behaviorism, Culture, and Contemporary Society 4 cr.
PSYC 731 Brain and Behavior 4 cr.
PSYC 733 Drugs and Behavior 4 cr.
PSYC 735 Neurobiology of Mood Disorders 4 cr.
PSYC 737 Behavioral Medicine 4 cr.
PSYC 741 Advanced Topics 4 cr.
PSYC 752 Advanced Social Psychology 4 cr.
PSYC 755 Psychology and Law 4 cr.
PSYC 756 Psychology of Crime and Justice 4 cr.
PSYC 758 Health Psychology 4 cr.
PSYC 762 Counseling 4 cr.
PSYC 763 Community Psychology 4 cr.
PSYC 770 History of Psychology 4 cr.
PSYC 771 Psychology in 20th Century Thought and Society 4 cr.
PSYC 780 Prenatal Development and Infancy 4 cr.
PSYC 783 Cognitive Development 4 cr.
PSYC 785 Social Development 4 cr.
PSYC 791 Advanced Topics 4 cr.
PSYC 793 Externship 4 to 8 cr.
PSYC 795 Independent Study 1 to 4 cr.
PSYC 797 Senior Honors Tutorial 4 cr.
PSYC 799 Senior Honors Thesis 4 cr.

Russian
www.unh.edu/languages/russian/
(For course descriptions, see Languages, Literatures, and Cultures/Russian, page 48. For course descriptions, go to www.undergradcat.unh.edu.)

Sociology (SOC)
www.unh.edu/sociology/
(For course descriptions, go to www.undergradcat.unh.edu.)

Professors: Melvin T. Bobick, Cynthia M. Duncan, David Finkelhor, Lawrence C. Hamilton, Murray A. Straus, Sally Ward, Kirk Williams

Associate Professors: Linda M. Blum, Benjamin C. Brown, Michele Dillon, Sharyn J. Potter, James Tucker, Heather A. Turner

Research Associate Professors: Glenda Kaufman Kantor, John T. Kirkpatrick

Assistant Professors: Cesar Rebellon, Karen VanGundy

Research Assistant Professor: Wendy A. Walsh

Lecturers: Jean Elson, Catherine L. Moran, Anne D. Nordstrom, Priscilla S. Reindersen

Sociology focuses on how society works. Sociology majors study human behavior at the micro level of small groups, the macro level of social movements and comparative development, and the intermediate level of neighborhoods or organizations like corporations and schools. Sociology emphasizes links between the individual and the larger social processes and structures in society, and the sociologists conduct empirical analysis of the social world.

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 sociology department includes courses concentrating on family
and work; environmental sociology; social policy; inequalities of race, class, and gender; and 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, or government or private services, where a major might work in education, health services, social welfare, criminal justice, or research. An undergraduate degree in sociology is also excellent preparation for graduate work in law, social work, counseling, public administration, public health, business administration, urban planning or further studies in sociology.

To declare a major in sociology, students must have completed Introductory Sociology (SOC 400) with a grade of C- or better. New students who declare the major upon admission to UNH must fulfill this requirement during their first semester. The major consists of a minimum of 40 semester credits; SOC 400, 402 (or acceptable substitutes), 599, 601, and 611 are required. Sociology majors may not use SOC 502 (or equivalent) for the general education quantitative reasoning requirement. Majors must earn a grade of C- or better in each course and must achieve a grade-point average of 2.00 in all sociology courses. At least two of the additional five electives in the major must be at the 600- or 700-level. SOC 502 and 599 are prerequisites for 601; SOC 599 must be completed no later than the junior year and is a prerequisite for majors taking 600- and 700-level courses.

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. There is also the possibility of second majors. 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 3.20, and especially for those anticipating graduate study.

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. 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 2.00 or better in these courses.

**Spanish**

www.unh.edu/languages/spanish/

(For program description, see Languages, Literatures, and Cultures/Spanish, page 49. For course descriptions, go to www.undergradcat.unh.edu.)

**Theatre and Dance (THDA)**

www.unh.edu/theatre-dance/

(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Deborah A. Kinghorn
Professors: Carol Lucha-Burns, David M. Richman, Charles L. Robertson
Associate Professors: Joan W. Churchill, David J. Kaye, Deborah A. Kinghorn, H. Gay Nardon, David L. Ramsey
Assistant Professor: Raina S. Ames
Lecturers: Carol J. Fisher, Sarah Jane Marschner, Daniel J. Raymond

The Department of Theatre and Dance has one of the largest and most varied undergraduate theatre programs in the Northeast, with concentrations in acting, musical theatre, design and technical theatre, dance, secondary education, youth drama, and youth drama for special education. Performance opportunities include six mainstage faculty-directed productions, three touring productions, and over 20 student-directed productions including plays, musical theatre, dance, puppetry, improvisation, comedy, and creative drama.

The award-winning faculty provides theatre majors with superior training within a broad liberal arts context. Students may take courses in acting, directing, choreography, design and technical theatre, dance, secondary school certification, youth drama, and special education, playwriting, storytelling, puppetry, ballet, theater dance (jazz and tap), aerial dance, musical theatre, and touring theatre. Students interested in performance, technical, and historical aspects will be well trained to step into professional careers. The program affords means for independent study and internships, special projects, and for 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 incoming freshman and undergraduates each spring.

**Requirements for the Major**

In addition to general liberal arts preparation, seven specific course sequences are available within the theatre major:
1. 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 Masters of Arts in Teaching (MAT) program, to prepare students for secondary school certification with an undergraduate specialization in secondary theatre education;

2. 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 Masters in Education (M.Ed.) program to prepare students for elementary school certification with an undergraduate specialization in youth drama;

3. courses leading to a theatre major that, if so desired, may be combined with requirements of the Department of Education, in conjunction with a fifth year Masters in Education (M.Ed.) program to prepare students for elementary school certification with an undergraduate specialization of youth drama for special education;

4. courses leading to a theatre major with an emphasis in dance (ballet, tap, jazz, and theatre dance);

5. courses leading to a theatre major with an emphasis in musical theatre;

6. courses leading to a theatre major with an emphasis in design and technical theatre;

7. courses leading to a theatre major with an emphasis in acting.

The general theatre major allows students to explore a variety of areas. In the freshman and sophomore years, the student should enroll for at least two theatre courses per semester and two general education courses per semester. Students meet with the chair of the department, until they are assigned advisers appropriate to the individual’s area of interest. The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the major. All UNH B.A. degrees require a minimum of 128 credit hours. Within those 128 credit hours, the theatre major offers seven specific course sequences:

**THEATRE (B.A.)**

**General Theatre**

I. 22 credits required

THDA 435, Introduction to Theatre; 436 or 438, History of Theatre I or II; 459, Stagecraft; 551, Acting I; 689 A-D, Theatre/Dance Practicum; 798 or 799, Senior Thesis or Capstone Project

II. 4 credits from theory/history

THDA 436 or 438, History of Theatre I or II; 450, History of Musical Theatre in America; 520, Creative Drama; 541, Arts and Theatre Administration; 632, Interpretation of Shakespeare in the Theatre; 638, American Theatre 1920-1970; 656, Musical Theatre Repertoire and audition; 657, Play Reading; 721, Education Through Dramatization; 727, Methods of Teaching Theatre; 750, Writing for Performance; 762, Women in 20th and 21st Century American Theatre

III. 4 credits from design/technical

THDA 458, Costume Construction; 475, Stage Make-Up; 532, The London Experience; 546, Costume Design for the Theatre; 547, Stage Properties; 548, Stage Lighting Design and Execution; 583, Introduction to Puppetry; 641, Stage Management; 650, Scene Painting for the Theatre; 651, Rendering for Theatre; 652, Scene Design; 683, Advanced Puppetry

IV. 4 credits from performance

THDA 470, Movement and Vocal Production; 552, Acting II; 555, Exploring Musical Theatre; 592A, Special Topics; 622, Storytelling, Story Theatre, and Involvement Dramatics; 624A, Theatre for Young Audiences — Acting; 624B, Theatre for Young Audiences — Directing; 655, Musical Theatre Styles; 741, Directing; 755, Advanced Musical Theatre; 756, Producing and Directing the Musical; 758, Acting III

V. 8 credits from any 600-800 level course, including those in sections II, III, IV

THDA 691, Internship in Theatre and Dance; 781, Theatre Workshop for Teachers; 782, Advanced Theatre Workshop for Teachers; 791, Internship in Theatre and Dance; 795, Independent Study; 798, Senior Thesis; 799, Capstone Project

Total: 42 cr.

Contact Deborah Kinghorn, Paul Creative Arts, (603) 862-1963, e-mail deb.kinghorn@unh.edu.

**The Secondary Theatre Education Emphasis**

High school theatre teachers are often responsible for directing plays and musicals (the latter in collaboration with a music teacher). This is an extensive training program for secondary education theatre teachers meant to fully prepare students for the rigorous task of high school teaching.

**THEATRE (B.A.)**

Emphasis in Secondary Theatre Education

I. 54 credits from theatre area

THDA 435, Introduction to Theatre; 436 or 438, History of Theatre I or II; 459, Stagecraft; 463 Theatre Dance I; 551, Acting I; 555, Exploring Musical Theatre; 624A, Theatre for Young Audiences — Acting; 624B, Theatre for Young Audiences — Directing; 689, Theatre/Dance Practicum A-D; 721, Education Through Dramatization; 727, Methods of Teaching Theatre (must be taken before student internship); 729, Community-Oriented Drama Programs; 760, History and Play Analysis for Teachers; 799, Capstone Project

II. 4 credits from design/technical theatre

THDA 458, Costume Construction; 546, Costume Design for the Theatre; 548, Stage Lighting Design and Execution; 782, Set, Lighting, and Costume Design

III. 20 credits from education*

EDUC 500/535, Exploring Teaching; EDUC 700/800, Educational Structure and Change; EDUC 701/801, Human Development and Learning; Educational Psychology; EDUC 705/805, Alternative Perspectives on the Nature of Education (must be taken before student teaching internship); EDUC 751/851B, Educating Exceptional Learners: Secondary Education (must be taken before student teaching internship).

Total: 78 cr.

**THDA Electives**

Students should take at least 12 credits from the following courses:

THDA 436 or 438, History of Theatre I or II; 450, History of Musical Theatre in America; 475, Stage Makeup; 547, Stage Properties; 583, Introduction to Puppetry; 622, Storytelling, Story Theatre, and Involvement Dramatics; 641, Stage Management; 652, Scene Design; 653, Performance Project or 654, Scenic Arts Project; 683, Advanced Puppetry; 727, Methods of Teaching Theatre (Musical Theatre); 750, Writing for Performance; 782A, Improv and Theatre Games.

NOTE: It is understood that students will fulfill 20 internship contact hours with theatre students in their emphasis area: elementary, middle, or high school. Projects for 653A and 729 cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the TRY program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing, or in some other capacity as specifically arranged with the student’s theatre adviser.

It is also understood that students involved in the above course curriculum in order to get state theatre arts certification 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 Masters of Education (M. Ed.) degree program which fulfills state requirements for certification.

Contact Raina Ames, Paul Creative Arts, (603) 862-3044, e-mail raina.ames@unh.edu.

**The Youth Drama Emphasis**

Students considering a career in elementary education may be interested in an undergraduate specialization in youth drama. When coupled with a Master’s Degree in Education (M.Ed.), the student is well equipped to succeed in the classroom. Many of the graduates of this particular
program in theatre are presently employed as teachers of elementary school-aged children. The theatrical and practical experience they obtained as undergraduates prepared them to secure teaching positions and guaranteed success in the classroom. The energy, concentration, and immediacy of drama produce excellent results. The course sequence for the major option in Youth Drama is included here.

THEATRE (B.A.)

Emphasis in Youth Drama

I. 34 credits required
THDA 435, Introduction to Theatre; 459, Stagcraft; 520, Creative Drama; 583, Introduction to Puppetry; 622, Storytelling, Story Theatre and Involvement Dramatics; 624A or 624B, Theatre for Young Audiences—Acting or Directing; 689 A-D, Theatre/Dance Practicum; 721, Education Through Dramatization; 799, Capstone Project

II. 4 credits from the dance area
THDA 463, Theatre Dance I

III. 8 credits in practicum (must be taken before internship)
EDUC 500/935, Exploring Teaching; EDUC 705/805, Alternative Perspectives on the Nature of Education

IV. 20 credits from education
EDUC 700/800, Educational Structure and Change; EDUC 701/801, Human Development and Learning; EDUC 703/803F, Teaching Science; EDUC 703M/803M, Teaching Elementary Science and Social Studies; EDUC 706/806, Introduction to Reading Instruction (must be taken before internship); EDUC 751A/851A, Educating Exceptional Learners: Elementary (must be taken before internship)

V. 4 credits from math education (must be taken before internship)
MATH 601 or 602, Exploring Mathematics for Teachers I or II; MATH 621, Number Systems for Teachers; MATH 622, Geometry for Teachers; EDUC 741/841, Exploring Mathematics with Young Children

Total: 70 cr.

NOTE: It is understood that students will fulfill 20 internship contact hours with theatre students in their emphasis area: elementary, middle, or high school. Projects for 653A and 729 cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the TRY program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing or in some other capacity as specifically arranged with the students theatre adviser.

Contact Raina Ames, Paul Creative Arts, (603) 862-3044, e-mail raina.ames@unh.edu.

Youth Drama in Special Education
Students considering a career in special education may be interested in an undergraduate specialization using youth drama as a methodology in their future classrooms. When coupled with a Master's Degree in Special Education, the student is well-equipped to succeed in the classroom.

Students who want specific instruction in special/exceptional populations will be provided the practical training to prepare them to obtain teaching positions and to have classroom successes. The energy, concentration, and immediacy of drama produce excellent results. The course sequence for the education and/or theatre major option in youth drama in special education is included here.

THEATRE (B.A.)

Emphasis in Youth Drama in Special Education

I. 38 credits required from Theatre and Dance
THDA 435, Introduction to Theatre; 459, Stagcraft; 463, Theatre Dance I; 520, Creative Drama; 583, Introduction to Puppetry; 622, Storytelling; Story Theatre and Involvement Dramatics; 624A or 624B, Theatre for Young Audiences—Acting or Directing; 689 A-D, Practicum; 721, Education Through Dramatization; 799, Capstone Project

II. 28 credits required from Education*
EDUC 500/935, Exploring Teaching**; EDUC 700/800, Educational Structure and Change; EDUC 701/801, Human Development and Learning; EDUC 703/803F, Teaching Science; EDUC 703M/803M, Teaching Elementary Science and Social Studies; EDUC 706/806, Introduction to Reading Instruction (must be taken before internship); EDUC 751A/851A, Educating Exceptional Learners: Elementary (must be taken before internship)

V. 4 credits from math education (must be taken before internship)
MATH 601 or 602, Exploring Mathematics for Teachers I or II; MATH 621, Number Systems for Teachers; MATH 622, Geometry for Teachers; EDUC 741/841, Exploring Mathematics with Young Children

Total: 114 cr.

NOTE: It is understood that students will fulfill 20 internship contact hours with theatre students in their emphasis area: elementary, middle, or high school. Projects for 653A and 729 cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the TRY program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing or in some other capacity as specifically arranged with the students theatre adviser.

Contact Raina Ames, Paul Creative Arts, (603) 862-3044, e-mail raina.ames@unh.edu.

Students may wish to contact the Department of Education to learn more about teacher certification and Master of Education (M. Ed.) that can be accomplished at UNH in the five-year program.

Contact Raina Ames, Paul Creative Arts, (603) 862-3044, e-mail raina.ames@unh.edu.

The Dance Emphasis
A diverse program in dance is offered as an emphasis within the Department of Theatre and Dance. This area of emphasis is designed to give the dance teacher, choreographer and/or performer the skills needed to embark on a successful career. Technique courses in ballet, point, 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 directions in the dance field. In addition, dancers are introduced to the technical aspects involved in bringing a performance to fruition. Performance opportunities include yearly faculty-directed dance concerts and student-created dance showcases each semester. Dancers may focus on one or all dance forms.

THEATRE (B.A.)

Emphasis in Dance

I. 16 credits required
THDA 435, Introduction to Theatre; 459, Stagcraft; 463, Theatre Dance I; 466, Theatre Dance II; 467, Theatre Dance III (may be repeated); 662, Ballet II (may be repeated to 4 credits); 663, Theatre Dance IV (may be repeated); 676, Theatre Dance V (may be repeated) to 4 credits); 576, Pointe; 597, Dance Theatre Composition; 598, Dance Theatre History

II. 8 credits from theory
THDA 487, The Dance; 586, Dance Pedagogy; 633, Dance Composition; 732, Choreography

III. 8 credits from fine arts
THDA 546, Costume Design for the Theatre; 548, Stage Lighting and Design and Execution; 551, Acting I; 555, Exploring Musical Theatre; 655, Musical Theatre Theory; 798, Senior Thesis
ARTS 431, Visual Studies; 572, Art of the Age of Humanism; 573, Art of the Modern World
MUSI 411-412, Fundamentals of Music Theory; 709, Music of the Romantic Period; 711, Music of the 20th Century

PHIL 421, Philosophy of the Arts

IV. 16 credits from performance
THDA 461, Modern Dance I (as funding becomes available); 462, Ballet I; 463, Theatre Dance I; 562, Ballet II (may be repeated to 4 credits); 563, Theatre Dance II (may be repeated to 4 credits); 576, Pointe; 597, Dance Theatre Performance (may be repeated); 662, Ballet III (may be repeated); 663, Theatre Dance III (may be repeated); 665, Aerial Dance; 684, Special Topics

Total 48 cr.

Contact Larry Robertson, Newman Dance Studio, (603) 862-3032.
The Musical Theatre Emphasis
A balanced program in Musical Theatre is offered as an emphasis within the Department of Theatre and Dance. This area of emphasis within the major focuses on dance, music, and theatre. It is assumed that students considering the Musical Theatre Emphasis will have a certain amount of proven ability in at least one of the “triple threat” disciplines. After four years of study it is hoped that the student will have a solid background in vocal techniques, and part singing (usually obtained through choral work). Students in the major are given vocal study awards to offset the cost of private lessons from a teacher of their choice.

THEATRE (B.A.)
Emphasis in Musical Theatre

I. 20 credits required
THDA 435, Introduction to Theatre; 436 or 438, History of Theatre I or II; 459, Stagecraft; 470, Movement and Vocal Production; 551, Acting I; 552, Acting II; 689 A-D, Practicum; 799, Capstone Project

II. 12 credits from 400-500 level courses listed below
THDA 470, Movement and Vocal Production; 551, Acting I; 552, Acting II; 555, Exploring Musical Theatre

III. 12 credits from 600-700 level courses listed below
THDA 655, Musical Theatre Styles; 656, Musical Theatre Repertoire & Audition; 755, Advanced Musical Theatre; 756, Producing and Directing the Musical

IV: 6 credits from dance
THDA 462, Ballet I or 463, Theatre Dance I; 562, Ballet II; 563, Theatre Dance II (may be repeated); 662, Ballet III; 663, Theatre Dance III (may be repeated)

V: 10 credits from specialty area
The student and the adviser will select courses in Music, Theatre and Dance appropriate to the needs of the student.
Total: 60 cr.

Contact Carol Lucha-Burns, Paul Creative Arts, (603) 862-3288, luchaburns@comcast.net.

The Acting Emphasis
The Acting Emphasis was created for students with an intense interest in acting and/or directing. The emphasis was designed to help develop all aspects of the actor and the director as both an interpretive and creative artist. This program gives students the rigorous training of a B.F.A. styled program while maintaining all the advantages of a fully rounded liberal education. Students in the acting emphasis program are expected to strive for excellence in all areas of the art and craft of acting, through highly challenging coursework, special workshops with guest artists and instructors, productions and performance-based projects.

THEATRE (B.A.)
Emphasis in Acting

I. 38 credits required
THDA 435, Introduction to Theatre; 436 or 438, History of Theatre I or II; 459, Stagecraft; 470, Movement and Vocal Production; 551, Acting I; 552, Acting II; 689 A-D, Practicum; 758, Acting III; 759, Acting: Period and Style; 799, Capstone Project

II. 4 credits from theory/history
THDA 436 or 438, History of Theatre I or II; 450, History of Musical Theatre in America; 633, The Interpretation of Shakespeare in Theatre; 638, American Theatre, 1920-1970; 657, Play Reading; 750, Writing for Performance; 762, Women in 20th and 21st Century American Theatre

III. 4 credits from design/technical theatre
THDA 458, Costume Construction; 475, Stage Make-up; 541, Arts and Theatre Administration; 546, Costume Design for the Theatre; 547, Stage Properties; 548, Stage Lighting Design and Execution; 583, Introduction to Puppetry; 650, Stage Painting for the Theatre; 651, Rendering for the Theatre; 652, Scene Design

IV. 4 credits from musical theatre/dance
THDA 463, Theatre Dance I; 555, Exploring Musical Theatre or 655, Musical Theatre Styles

V. 8 credits from
THDA 462, Ballet I or 463, Theatre Dance I; 562, Ballet II; 563, Theatre Dance II (may be repeated); 662, Ballet III; 663, Theatre Dance III (may be repeated)

V: 10 credits from specialty area
The student and the adviser will select courses in Music, Theatre and Dance appropriate to the needs of the student.
Total: 58 cr.

Contact David Kaye, Paul Creative Arts, (603) 862-0667, djk@unh.edu.

The Design and Technical Theatre Emphasis
The Design and Technical Theatre Emphasis prepares students for both practical and aesthetic work in the theatre through class work, production assignments, and the everyday work of problem solving. UNH’s Theatre Technicians and Designers are in demand throughout the country, utilizing transferable skills not only in the theatre but in the allied arts and beyond. Our trained students work in theatrical productions across the nation as lighting, scenic and costume designers, technical directors, property masters, head electricians, and scene painters, all stemming from their preparation in the design and technical areas at UNH.

THEATRE (B.A.)
Emphasis in Design and Technical Theatre

I. 22 credits required
THDA 450, History of Musical Theatre in America; 555 or 655, Exploring Musical Theatre or Musical Theatre Styles; 658, Performance Project/Musical Theatre

II. 4 credits from
THDA 546, Costume Design for the Theatre; 548, Stage Lighting Design and Execution; 652, Scene Design; 654, Scenic Arts Project

III. 16 credits from
THDA 458, Costume Construction; 475, Stage Make-up; 541, Arts and Theatre Administration; 546, Costume Design for the Theatre; 547, Stage Properties; 548, Stage Lighting Design and Execution; 641, Stage Management; 650, Scene Painting for the Theatre; 651, Rendering for the Theatre; 652, Scene Design

IV. 8 credits from
THDA 462, Ballet I or 463, Theatre Dance I; 532, The London Experience; 583, Introduction to Puppetry; 624, Theatre for Young Audiences—Acting; 624B, Theatre for Young Audiences—Directing; 633, The Interpretation of Shakespeare in Theatre; 657, Play Reading; 691, Internship in Theatre; 741, Directing; 750, Writing for Performance; 798, Senior Thesis

ARTS 455, Introduction to Architecture; 480, 580/518, Art History; 532, Introduction to Drawing; 546, Introduction to Painting

CS 780, Special Topics in Computer Science (1) AutoCad, (2) 3-D Studio

ENGL 631, 657, 746, 758, 780, 781, 782

FREN 522

GERM 640

SPAN 752, 757, 771

Total: 50 cr.

Contact Joan Churchill, Paul Creative Arts, (603) 862-4445; e-mail joan@cisunix.unh.edu.

Minor in Theatre and Dance
The general theatre minor consists of 20 credits in theatre. Listed below are a variety of specialized minors that have mandatory requirements.

Musical Theatre Minor
10 credits required
THDA 450, History of Musical Theatre in America; 555 or 655, Exploring Musical Theatre or Musical Theatre Styles; 658, Performance Project/Musical Theatre

6 credits from dance
THDA 463, Theatre Dance I; 563, Theatre Dance II; 663, Theatre Dance III
Women's studies provides students with an understanding of the status of women in various cultures and historical eras. 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.

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 communications, education, affirmative action, and personnel.

Women's Studies Major
For the women's studies major, students must complete 40 credits of women's studies courses (or 32 in the case of a second major) with grades of C- (1.67) or better and an overall grade-point average of 2.00 or better. These courses must include the following three: 1) WS 401, Introduction to Women's Studies, normally taken at the beginning of the course sequence; 2) WS 632, Feminist Thought; and 3) a 700-level WS-designated course (for instance, WS 795, 796, 797, 798, or 799). Electives are chosen in consultation with the department.
with a faculty adviser principally from other women's studies courses including WS 595 (Special Topics in Women's Studies) and cross-listed departmental offerings.

Departmental offerings include the following regularly repeated cross-listed courses:

**ARTS 487**, Themes and Images in Art: Major Mythic Images of Women  
**ARTS 690**, Women Artists of the Nineteenth and Twentieth Centuries  
**CMN 567**, Images of Gender in the Media  
**CMN 583**, Gender and Expression  
**ECON 698**, Topics in Economics: Women in Economic Development  
**EDUC 507**, Mentoring Adolescents  
**ENGL 585**, Introduction to Women in Literature  
**ENGL 685**, Women's Literary Traditions  
**ENGL 785**, Major Women Writers  
**FS 545**, Family Relations  
**FS 757**, Race, Class, Gender, and Families  
**GERM 520**, Women in German Literature and Society  
**GERM 524**, Topics in German Film  
**HIST 565**, Women in Modern Europe  
**HIST 566**, Women in American History  
**NURS 595**, Women's Health  
**PHIL 510**, Philosophy and Women  
**PSYC 711**, Psychology in 20th Century Thought and Society  
**SOC/ANTH 625**, Female, Male, and Society  
**SOC 630**, Sociology of Gender

Students may also select from other courses that are offered as special topics by the departments. In the past, such offerings have included the following: ANTH 697, Women in the Middle East; CMN 616, Women and Film; FREN 525, French Women: Subject and Object.

Electives must show a balance between arts and humanities/social sciences and be distributed between upper (600 and 700) and lower (400 and 500) level courses; no more than four electives may be from the same department. No fewer than five courses should be taken at the upper level. Strongly recommended are a practicum or internship course and a course that focuses on women of color or cross-cultural perspectives.

**Women's Studies Minor**

The minor consists of 20 credits of women's studies courses. These must include WS 401, Introduction to Women's Studies, and WS 798, Colloquium in Women's Studies, normally taken at the beginning and end of the course sequence, respectively. In between, students should select other women's studies courses or cross-listed courses from departmental offerings. (For a more complete description of the women's studies minor, see page 29.)

Students who wish to major or minor in women's studies should consult with the coordinator, 203 Huddleston Hall, (603) 862-2194.

**COURSES**

- **WS 401** Introduction to Women's Studies 4 cr.
- **WS 595** Special Topics 1 to 4 cr.
- **WS 595W** Special Topics 1 to 4 cr.
- **WS 632** Feminist Thought 4 cr.
- **WS 795** Independent Study 1 to 4 cr.
- **WS 796** Advanced Topics 1 to 4 cr.
- **WS 797** Internship 4 cr.
- **WS 798** Colloquium 4 cr.
- **WS 799** Honors Thesis 4 to 8 cr.

**Queer Studies Emphasis**  
[www.unh.edu/queerstudies/index.html](http://www.unh.edu/queerstudies/index.html)

The queer studies emphasis provides students with opportunities to research and understand the history, status, challenges, contributions, and changes in the lives of gay, lesbian, bisexual, and transgendered individuals and movements. This emphasis enables students to explore the relationship between gender and sexual orientation, and to understand queer discourse across the intellectual landscape, in the humanities, the arts, and the social sciences. The increasingly public face of queer life has generated new fields of study in the academy. As this new area evolves it provides a framework to address the phenomena of queer life and intellectual developments through the exploration of the ideas, social pressures, historical circumstances, constraints, and powers that guide queer communities.

The emphasis consists of interdisciplinary coursework in queer studies and is open to all students. Students who wish to pursue the queer studies emphasis should consult with the queer studies adviser in the women's studies office, (603) 862-2194.
The College of Engineering and Physical Sciences provides an opportunity for students to achieve educational objectives appropriate to their interests in engineering, computer science, mathematics, the physical sciences, and the teaching of mathematics and the 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 are available. Special programs can be developed to meet the specific interests of individual students.

Degree Requirement
MATH 425 and 426 (Calculus I and 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 for their majors. Prerequisites for calculus are three years of college-preparatory mathematics, including a half-year of trigonometry. Before students can register for MATH 425, they are required to take the Mathematics Placement Test.

Mathematics Placement
First-year students arrive with a wide range of mathematical skills based on high school preparation. The college wants you to have a solid mathematics foundation, so that you will enjoy an enriched first-semester experience. We will assess your mathematics development during June Orientation and enroll you in the class that will allow you to continue that development. The initial entry course is Analysis and Applications of Functions (MATH 418). However, a placement test will be given to allow a student to place out of MATH 418 into MATH 425 (Calculus I). If you have received AP credit for Calculus I and/or Calculus II, you may elect to accept those credits and continue with a math course at the next level.

Accreditation
The baccalaureate-level programs in chemical, civil, electrical, environmental, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. The baccalaureate-level program in computer science is accredited by the Computing Accreditation Commission of ABET, Inc. The Department of Chemistry's undergraduate bachelor of science program is approved by the American Chemical Society.

Tech Courses
The following courses offered by the college are designed for students both within the college and for other majors in the University. These courses are administered by the Dean's Office.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 400 Introduction to CEPS Programs</td>
<td>1 cr.</td>
</tr>
<tr>
<td>TECH 564 Fundamentals of CAD</td>
<td>3 cr.</td>
</tr>
<tr>
<td>TECH 583 Technology: Cultural Aspects</td>
<td>4 cr.</td>
</tr>
<tr>
<td>TECH 583H Honors/Technology: Cultural Aspects</td>
<td>4 cr.</td>
</tr>
<tr>
<td>TECH 601 Fundamentals Examination Review Course</td>
<td>1 cr.</td>
</tr>
<tr>
<td>TECH 685 Budapest Program</td>
<td>20 cr.</td>
</tr>
<tr>
<td>TECH 696 Independent Study</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>TECH 797 Undergraduate Ocean Research Project</td>
<td>2 cr.</td>
</tr>
</tbody>
</table>

Degrees

Bachelor of Science
The programs leading to the bachelor of science degree, offered in each of the departments of the college, emphasize the preparation of students for a professional career and continuing or graduate education.

The degree requirements for the bachelor of science include the University general education requirements (page 16) and the specific departmental requirements for graduation. A minimum grade-point average of 2.00 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.

**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. The University requirements for the bachelor of arts degree are on page 18.

**Interdisciplinary Programs**

**Majors**

**Bachelor of Science in Environmental Engineering**

The environmental engineering program consists of two emphases: industrial processes (IP) and municipal processes (MP) (see page 76).

**Bachelor of Science in Environmental Sciences**

Minors

Interdisciplinary minors enable students to obtain experience in a specialized area and to retain identification with their major professional area. The college's interdisciplinary minors are:

- Environmental engineering, see page 78.
- Materials science, see page 82.
- Ocean engineering, see page 132.
- Oceanography, see page 132.

For University requirements as regards minors, see page 19.

**Other Programs**

**Independent Study and Projects**

All departments within the college offer independent study and/or projects. The content of these courses varies with the current scientific and technological needs and with student and faculty interest.

Permission of the instructor and/or department chairperson is required. (See the course descriptions for the independent study and project courses and for specific requirements.) Students interested in working with a faculty member on a project or independent study should discuss this with their academic adviser.

**Special Provisions**

The requirement of a given course in any prescribed curriculum may be waived by the faculty of a student's college. The student's petition must be approved by his/her major adviser and the dean of the college. This power will usually be delegated by the faculty to the dean or to a committee. (Senate Rule 05.21(s); Waiver of Requirements in a Prescribed Curriculum.)

This rule offers students the opportunity to develop a somewhat individualized plan of study with intellectual incentives and opportunities in addition to those in a regular curriculum.

A student with senior status and a grade point average of 3.2 can 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.

**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 of discovering and fostering their creative talents. In funded research projects, students may have an opportunity to receive pay while learning.

A multiplicity of research programs is reflected in special facilities: Bioelectronics Laboratory, Fluid Mechanics Laboratory, Solid State Laboratory, Space Science Center, Wind Tunnel and Water Tunnel Facilities, Structural Biology Laboratory, X-ray Diffraction Laboratory, Data Visualization Laboratory, Nano-Manufacturing Laboratory, Chaos and Dynamic Systems Laboratory, Structural Engineering High Bay, Xeon Magnetic Resonance Imaging Laboratory, Jere A. Chase Ocean Engineering Laboratory, Water Treatment Technology Center, Recycled Materials Research Center, and Center for Contaminated Sediment Research.

Students have the opportunity to acquire applied experience by working with faculty members who undertake clientsponsored professional projects in technical and managerial areas for business and industry and for federal, state, and local governments.

**Study Abroad Programs**

www.unh.edu/cie/studyabroad/sap.html

**Hungary**

The College of Engineering and Physical Sciences has arranged an opportunity for its students to spend the fall semester of their junior year at the Budapest University of Technology and Economics (BUTE) in Budapest, Hungary. Courses at BUTE are taught in English and receive prior approval for degree credit. Students studying in Budapest, therefore, can graduate on schedule at UNH. A general education course on the language, geography, and culture of Hungary, taken at BUTE, is strongly suggested. The foreign student office at BUTE will appoint a Hungarian adviser for each student and will assist in obtaining housing either in dormitories or apartments. Further information is available from Donna Verschueren, academic counselor, CEPS Dean's Office, or Marina Markot, educational program coordinator, Center for International Education, Hood House; or the college's foreign exchange program coordinator, Professor Andrzej Rucinski.

**Puerto Rico**

Students may spend one or two semesters at the University of Puerto Rico (UPR) at Mayaguez, the second largest of the three major campuses in the UPR system. While having the opportunity to learn in a Latin American 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 and faculty members from all UNH majors. Since eighty percent of all courses at UPR are taught in Spanish, participants must be proficient in Spanish. Interested CEPS students should contact Paula DiNardo, National Student Exchange Office, Hood House.

**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 Marina Markot, Educational Program Coordinator, Center for International Education, Hood House.
Preparing for Teaching

Students interested in mathematics education (elementary, middle/junior high, or secondary), chemistry and physics teaching, earth science teaching, or general science teaching should refer to the Department of Education section (page 34) and to the appropriate department for a description of the requirements.

Combined Programs of Study

In addition to pursuing a single major, students may combine programs of study as follows:

Minors: See page 19; see also pages 22 and 53 and Departmental Programs of Study in this section.

Second Majors: See page 19.

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 page 18.

Student-Designed Majors: See page 133.

Other combined and interdisciplinary opportunities: See page 130.

Programs of Study

In addition to the following departmental majors and options, departmental minors are offered in chemical engineering, chemistry, electrical engineering, geology, hydrology, mathematics, applied mathematics, mechanical engineering, physics, and statistics.

Chemical Engineering (CHE)

www.chemengunh.com/

(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Stephen S.T. Fan


Assistant Professor: Nivedita R. Gupta

The Department of Chemical Engineering currently offers the undergraduate degree program in chemical engineering with options in bioengineering, energy and environmental engineering. In addition, the College of Engineering and Physical Sciences offers an interdisciplinary B.S. program in environmental engineering with the participation of the chemical engineering and civil engineering departments. See page 76.

Bachelor of Science in Chemical Engineering

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 our students for productive careers in industry or government and provides a foundation for graduate studies. Our 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 are also 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 130 credits is required for graduation with the degree of bachelor of science in chemical engineering. There are nine electives in the chemical engineering curriculum. Five of these are for the general education requirements. The remaining four electives should consist of three chemical engineering electives and one additional technical elective.

Students are required to obtain a minimum 2.00 grade-point average in CHE 501-502 and in overall standing at the end of the sophomore year in order to continue in the major.

Junior Year

CHEM 651-652, Organic Chemistry 3 3
CHEM 653, Organic Chemistry Laboratory 2 2
MATH 527, Differential Equations with Linear Algebra 4 4
PHYS 407, General Physics I 4 4
PHYS 408, General Physics II 4 4
CHE 601-602, Introduction to Chemical Engineering I and II 3 3
CHE 603-604, Introduction to Chemical Engineering Laboratory I and II 4 4
CHE 605, Chemical Engineering Thermodynamics 4 4
CHE 612, Chemical Engineering Laboratory II 3 3
Electives (2) 8 8

Total 16 16

Senior Year

CHE 605, Mass Transfer and Stagewise Operations 3 3
CHE 606, Chemical Engineering Thermodynamics 3 3
CHE 608, Chemical Engineering Thermodynamics 3 3
CHE 613, Chemical Engineering Engineering Laboratory II 3 3
CHE 752, Process Dynamics and Control 4 4
Electives (4) 8 8

Total 17 16

Bioengineering Option

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 products, food and beverage, pharmaceutical, biomedical, genetic engineering products, 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 3 credits each should be selected from the electives list. Students interested in the bioengineering option should declare their intention during the sophomore year to the department chair.

### Environmental Engineering Option

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 3 credits. Students interested in the environmental engineering option should declare their intention during the sophomore year to the department faculty. They may consult with Stephen S. T. Fan.

#### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 761, Biomedical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CHE 762 Biomedical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>BTEC 220 Biotech Experience: Manufacturing (NHBET, Pease) Cross-listed as MICR 651</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

#### Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 695, Chemical Engineering Project</td>
<td>3–4</td>
</tr>
<tr>
<td>CHE 696, Independent Study</td>
<td>3–4</td>
</tr>
<tr>
<td>BIOL 404, Biotechnology and Society</td>
<td>4</td>
</tr>
<tr>
<td>BCHM 751, Principles in Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BCHM 752, Principles in Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BCHM 750, Physical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BTEC 210, Biotech Experience: Research (NHBET, Pease) Cross-listed as MICR 655</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6–8</strong></td>
</tr>
</tbody>
</table>

#### Energy Option

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 during the sophomore year to the department faculty. They may consult with Stephen S. T. Fan.

#### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 705, Natural and Synthetic Fossil Fuels</td>
<td>4</td>
</tr>
<tr>
<td>CHE 712, Introduction to Nuclear Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ME 705, Thermal System Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

#### Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 695, Chemical Engineering Project</td>
<td>3–4</td>
</tr>
<tr>
<td>CHE 696, Independent Study</td>
<td>3–4</td>
</tr>
<tr>
<td>ENE 772, Physicochemical Processes for Water and Air Quality Control</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6–8</strong></td>
</tr>
</tbody>
</table>

### Chemistry (CHEM)

www.unh.edu/chemistry/

(For course descriptions, go to www.undergradcat.unh.edu.)


**Associate Professors:** Steven B. Levery, Glen P. Miller, Roy Paul Planalp

“Chemistry is everywhere. From agriculture to health care, chemistry extends life and improves its quality. From disposable diapers to space suits, chemistry provides new materials—for clothing, shelter, and recreation. From computer chips to fiber optics, chemistry is the foundation of today’s high technology.” (American Chemical Society)

A study in chemistry is the pathway to multiple options. These options range from a career 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 three options available to them, which are based on their career plans. These are the bachelor of science degree; a bachelor of arts degree; and a bachelor of arts, chemistry and physics teaching degree. 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.

In general, a first year student should register for the following courses, and this applies to all three programs: First Semester: Freshman Seminar, Chemistry 400; General Chemistry with lab, Chemistry 403; Calculus I, Mathematics 425 Second Semester: Freshman Seminar, Chemistry 400; General Chemistry with lab, Chemistry 404; Calculus II, Mathematics 426; Freshman English, English 401W.

### Bachelor of Science in Chemistry

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 the other degree programs.
This major is designed for students who wish to teach chemistry and physics in secondary schools. The number of positions available for teaching chemistry or physics at the secondary-school level is limited, and there are many opportunities to teach both subjects on the secondary-school level. Chemistry and physics teaching majors will have good preparation for teaching these subjects and will have the necessary mathematics and education background.

**Requirements**
1. Satisfy general education requirements.
2. For specific course requirements, see the accompanying chart.

**Bachelor of Arts, in Chemistry**
This curriculum offers students the opportunity to combine the chemistry major with other interests, for example, preprofessional programs, education, and business.

**Requirements**
1. Satisfy general education requirements.
2. Satisfy the bachelor of arts degree requirements (see page 18).
3. For specific course requirements, see the accompanying chart.

**Chemistry Baccalaureate Degree**

**Requirements**

<table>
<thead>
<tr>
<th>B.S.</th>
<th>B.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemistry Courses</strong></td>
<td></td>
</tr>
<tr>
<td>400, Freshman Seminar</td>
<td>x</td>
</tr>
<tr>
<td>403, 404, General Chemistry</td>
<td>x</td>
</tr>
<tr>
<td>517, 518, Quantitative Analysis</td>
<td>x</td>
</tr>
<tr>
<td>547 &amp; 549, Organic Chemistry I</td>
<td>x</td>
</tr>
<tr>
<td>548 &amp; 550, Organic Chemistry II</td>
<td>x</td>
</tr>
<tr>
<td>574, Introduction to Inorganic Chemistry</td>
<td>x</td>
</tr>
<tr>
<td>683 &amp; 685, Physical Chemistry</td>
<td>x</td>
</tr>
<tr>
<td>684 &amp; 686, Physical Chemistry II</td>
<td>x</td>
</tr>
<tr>
<td>762 &amp; 763, Instrumental Methods of Chemical Analysis</td>
<td>x</td>
</tr>
<tr>
<td>698, Seminar</td>
<td>x</td>
</tr>
<tr>
<td>699, Thesis</td>
<td>x</td>
</tr>
<tr>
<td>755 &amp; 756, Advanced Organic Chemistry</td>
<td>x</td>
</tr>
<tr>
<td>774 &amp; 775, Advanced Inorganic Chemistry</td>
<td>x</td>
</tr>
<tr>
<td>776, Physical Chemistry III</td>
<td>x</td>
</tr>
<tr>
<td>708, Spectroscopic Investigations of Organic Molecules</td>
<td>x</td>
</tr>
<tr>
<td>778, Chemistry of Large Molecules</td>
<td>x</td>
</tr>
</tbody>
</table>

**Other Requirements**
All majors: MATH 425 and 426, Calculus I and II.

B.S. degree: PHYS 407-408, General Physics I and II; BCHM 658 or 751, Biochemistry; one chemistry-related course.

B.A. degree, chemistry major: PHYS 407, General Physics I, or PHYS 401-402, Introduction to Physics I and II; two other CHEM courses, except 698, or two approved chemistry-related courses.

†Suggested courses: MATH 527, 528; PHYS 505; EE 620; BCHM 658, 751.

**Bachelor of Arts, Chemistry and Physics Teaching**
This major is designed for students who wish to teach chemistry or physics in secondary schools. The number of positions available for teaching chemistry or physics alone is limited, and there are many opportunities to teach both subjects on the secondary-school level. Chemistry and physics teaching majors will have good preparation for teaching these subjects and will have the necessary mathematics and education background.

**Requirements**
1. Satisfy general education requirements.
2. Satisfy the bachelor of arts degree requirements (see page 18).
3. Chemistry requirements: 400, Freshmen Seminar; 403-404, General Chemistry; 517, 518, Quantitative Analysis; 545, 546 or 547-548 and 549-550, Organic Chemistry; 683-684 and 685-686, Physical Chemistry I and II.
4. Physics requirements: 407, General Physics I; 408, General Physics II; 505, General Physics III; 605, Experimental Physics I; PHYS 406, Introduction to Modern Astronomy, is strongly recommended.
5. Math requirements: 425, Calculus I, and 426, Calculus II.
6. All education courses in the teacher preparation program (see page 34).

**General Science Certification**
See pages 34 and 98.

**COURSES**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CHEM 400</th>
<th>Freshman Seminar</th>
<th>1 cr.</th>
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</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry</td>
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</tr>
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<td>CHEM 404</td>
<td>General Chemistry</td>
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<td></td>
</tr>
<tr>
<td>CHEM404H</td>
<td>Honors/General Chemistry</td>
<td>4 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 405</td>
<td>General Chemistry</td>
<td>4 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 444</td>
<td>Element of Chemistry</td>
<td>4 cr.</td>
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</tr>
<tr>
<td>CHEM 496</td>
<td>Freshman Independent Study</td>
<td>1 to 8 cr.</td>
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</tr>
<tr>
<td>CHEM 517</td>
<td>Quantitative Analysis</td>
<td>4 cr.</td>
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<tr>
<td>CHEM 518</td>
<td>Quantitative Analysis Laboratory</td>
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<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
<td>2 cr.</td>
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</tr>
<tr>
<td>CHEM 547</td>
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<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 548</td>
<td>Organic Chemistry</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 549</td>
<td>Organic Chemistry Laboratory</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 550</td>
<td>Organic Chemistry Laboratory</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 574</td>
<td>Introduction to Inorganic Chemistry</td>
<td>3 cr.</td>
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</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry</td>
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<tr>
<td>CHEM652A</td>
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<tr>
<td>CHEM 653</td>
<td>Organic Chemistry Laboratory</td>
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</tr>
<tr>
<td>CHEM 654</td>
<td>Organic Chemistry Laboratory</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 681</td>
<td>Physical Chemistry</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 682</td>
<td>Physical Chemistry Lab</td>
<td>1 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 683</td>
<td>Physical Chemistry I</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 684</td>
<td>Physical Chemistry II</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 685</td>
<td>Physical Chemistry Laboratory</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 686</td>
<td>Physical Chemistry Laboratory</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 696</td>
<td>Independent Study</td>
<td>1 to 4 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 698</td>
<td>Seminar</td>
<td>1 cr.</td>
<td></td>
</tr>
<tr>
<td>CHEM 699</td>
<td>Thesis</td>
<td>4 cr.</td>
<td></td>
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<tr>
<td>CHEM 708</td>
<td>Spectroscopic Investigations of Organic Molecules</td>
<td>1 to 4 cr.</td>
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<td>CHEM 755</td>
<td>Advanced Organic Chemistry</td>
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<tr>
<td>CHEM 756</td>
<td>Advanced Organic Chemistry Laboratory</td>
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<tr>
<td>CHEM 762</td>
<td>Instrumental Methods of Chemical Analysis</td>
<td>3 cr.</td>
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<tr>
<td>CHEM 763</td>
<td>Instrumental Methods of Chemical Analysis Laboratory</td>
<td>2 or 3 cr.</td>
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<tr>
<td>CHEM 774</td>
<td>Inorganic Chemistry</td>
<td>3 cr.</td>
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<tr>
<td>CHEM 775</td>
<td>Inorganic Chemistry Laboratory</td>
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<tr>
<td>CHEM 776</td>
<td>Physical Chemistry III</td>
<td>4 cr.</td>
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</tr>
<tr>
<td>CHEM 795</td>
<td>Special Topics</td>
<td>2 to 4 cr.</td>
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</tbody>
</table>

**Civil Engineering (CIE)**
www.unh.edu/civil-engineering/
(For course descriptions, go to www.undergradcat.unh.edu.)

**Chairperson:** Jean Benoit  
**Professors:** Jean Benoit, Michael R. Collins, Pedro A. de Alba, David L. Gress, Nancy E. Kinner, James P. Malley  
**Research Professor:** T. Taylor Eightmy  
**Associate Professors:** Thomas P. Ballester, Raymond A. Cook, Charles H. Goodspeed, Robert M. Henry  
**Research Associate Professor:** Kevin H. Gardner  
**Assistant Professors:** Thomas L. Attard, Erin S. Bell, Jo S. Daniel, Jennifer M. Jacobs  
**Research Assistant Professor:** Jeffrey S. Melton

Civil engineering involves the planning, design, and construction of public works: buildings, bridges, roads, dams, water transmission systems, water treatment systems, tunnels, and more. These facilities must provide efficient service, be cost-effective, and be compatible with the environment. Moreover, civil 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 and environmentally responsible public works.

Civil engineers work as private consultants 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 (e.g., bridges, buildings, roads, water transmission lines, water treatment plants, and power plants).

As civil engineering is such a broad field, it is traditionally divided into several...
subdisciplines. At the University of New Hampshire, five are offered: civil engineering materials, environmental engineering, geotechnical engineering, structural engineering, and water resources engineering. Civil engineering majors may choose the subdiscipline in which to focus their studies during their senior year. Additionally, the College of Engineering and Physical Sciences, through the Departments of Civil Engineering and Chemical engineering, offers a B.S. in environmental engineering (ENE) which is a major for students who choose to specifically focus their attention solely in that area. (See page 76.) (Students who are interested in environmental engineering but who also want a broader or more traditional civil engineering focus should pursue the civil engineering major and elect environmental engineering courses in their senior year.) Students may readily transfer between the civil engineering (CIE) and ENE programs within the first two semesters. Both the B.S. in civil engineering and the B.S. in environmental engineering provide a firm base in mathematics, science, and engineering and all majors are expected to develop excellent communication and computing 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, law, and medicine.

Mission
The mission of the Department of Civil Engineering is to pursue and disseminate knowledge through teaching, research, and public service. As part of its teaching mission, the department provides rigorous, yet flexible, undergraduate and graduate education for both traditional and nontraditional students through classical and creative instruction in the classroom, laboratory, and field. While preparing students for the profession, the department offers an education in civil engineering that includes working in multi-disciplinary teams that critically analyze and formulate solutions to civil engineering problems and apply engineering principles that provide social, economic, and environmental benefits to the public. The department encourages in its students a lifelong desire to keep abreast of new developments in the field and teaches them the skills necessary to continue learning. As part of its research mission, the department maintains a rigorous multidisciplinary program of scholarship advancing the state-of-the-art in civil engineering. As part of its mission in public service, the department enhances the quality of life for people, especially in New England and specifically New Hampshire, by providing expert services; advancing and transferring knowledge and technology; and serving as a resource for information.

Educational Objectives
In accordance with its University, college, and department missions, the faculty of the Department of Civil Engineering have established clear objectives for students to help them become successful professionals after graduation. To assist graduates to become practicing civil engineers, the program helps students achieve a basic competence in math, science, and engineering principles; learn how to apply this knowledge to solve engineering problems; achieve a working knowledge in the basic civil engineering areas of structural engineering, geotechnical engineering, civil engineering materials, water resources, environmental engineering, and project engineering; and extend their knowledge in one or more of these areas. As part of this process, students learn how to critically analyze and design equipment, structures, systems, or processes to meet desired needs; to use current, and be able to independently learn new, engineering software. Engineers also need to be effective communicators. Engineering students learn how to communicate and defend ideas in technical reports and correspondence; how to speak before a group and convey information to technical and non-technical audiences; and how to create and effectively use graphics in support of a presentation or report. Students also learn how to work effectively as good team players who are also capable of being members of multidisciplinary teams.

As part of finding engineering solutions, students learn to locate, compile, and use existing information; design and perform experiments to gather new information; critically analyze information; and draw conclusions. Due to the nature of civil engineering efforts which involve the public, public safety, and significant financing, it is imperative that graduates become good engineering citizens. Students develop an awareness of the interaction between engineering practice and social, economic, and environmental issues; the importance of the ASCE Code of Ethics; an awareness of contemporary issues in their interaction with civil engineering practice; and the importance of broadening their education by being familiar with topics outside of the math, science, and engineering areas. Civil engineers are also professionals who are often licensed practitioners. Students are prepared to take the Fundamentals of Engineering examination (which is required for professional licensure), understand the need for lifelong learning and actively participate in organizations such as ASCE, SWE, SWB, Tau Beta Pi, and the Order of the Engineer.

Bachelor of Science in Civil Engineering
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 which conforms to the guidelines of, and is accredited by, the Accreditation Board for Engineering and Technology (ABET). The civil engineering program has been continuously accredited by ABET at the University of New Hampshire since 1936 when accreditation first began in the U.S.

The first two years of the program provide the necessary technical knowledge in mathematics, chemistry, and physics, while introducing and developing civil engineering problem solving techniques. The junior year provides courses in each of the civil engineering subdisciplines 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 thirty 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 page 16.)

Electives
Approximately one third of the major's total credits and more than half of the senior-level courses are elected by the student. Of these, there are general education electives required by the University and other electives required by the department in order to satisfy ABET requirements.

1. The General Education Program is described on page 16. Courses required by the civil engineering major fulfill the Group 1 through Group 3 general education requirements. Therefore, students select electives to satisfy the Group 4 through Group 8 courses—one elective per group.

2. The civil engineering major also requires students to select one mathematics elective, one professional development elective, and one engineering science elective. Lists of courses that fulfill these electives are available from the department.

3. In the senior year, students take four courses specific to civil engineering subdisciplines. Students can use these electives to focus on a particular civil engineering area or can acquire a broader perspective.
by taking courses in a variety of areas. At least one of these four elective courses must also qualify as a civil engineering design elective. Lists of courses that fulfill these electives are available from the department.

**Additional program policies and requirements**

1. CIE and ENE 600- and 700-level courses are intended for CIE and ENE majors only. All others may enroll in these courses only with the permission of the instructor and may take no more than 20 credits of these courses.

2. To enter the required 600-level courses in the junior year, students:
   a. must have completed CIE 525, CIE 526, CIE 527, MATH 425, MATH 426, PHYS 407, and PHYS 408,
   b. must have an overall grade point average of 2.00 or greater for these courses.

3. To transfer into the civil engineering major, a student must:
   a. have an overall grade point average of 2.30 or greater;
   b. have completed 16 credits or more of MATH, PHYS, CHEM, CIE, and ENE courses;
   c. have an overall grade point average of 2.00 or greater for all MATH, PHYS, CHEM, CIE, and ENE courses taken to date; and
   d. have an overall grade point average of 2.50 or greater for 16 credits of the MATH, PHYS, CHEM, CIE, and ENE courses taken to date.

4. Students who are transferring into the civil engineering major may receive:
   a. a maximum of 20 credits for CIE and ENE 600- and 700-level coursework taken prior to the transfer, and
   b. credit only for CIE and ENE 600- and 700-level courses taken prior to the transfer in which the student has received a grade of C- or better.

5. To continue as a civil engineering major, a student may not:
   a. repeat more than two CIE or ENE courses,
   b. achieve a semester grade point average lower than 2.00 for each of three consecutive semesters, and
c. achieve a cumulative grade point average of less than 2.00 for CIE and ENE courses in any three semesters.

6. To graduate with a bachelor of science in civil engineering, a student must:
   a. earn 133 or more credits,
   b. achieve credit for the civil engineering program's major and elective courses,
   c. satisfy the University's general education requirements,
   d. satisfy the University's writing intensive course requirements,
   e. earn a cumulative grade point average of 2.00 or better for all courses, and
   f. earn a cumulative grade point average of 2.00 or better for all CIE and ENE courses.

---

### Courses

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>CIE 400, 401, CIE Lectures, I, II</td>
<td>1</td>
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<tr>
<td>CHEM 403, 404, General Chemistry I, II</td>
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<td>ENGL 401, Freshman English</td>
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<tr>
<td>MATH 425, 426, Calculus I, II</td>
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<tr>
<td>Elective (1), general education requirement*</td>
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<tr>
<td>CIE 505, Surveying</td>
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</tr>
<tr>
<td>PHYS 407, General Physics I</td>
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<th>Sophomore Year</th>
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<tr>
<td>CIE 525, Statics</td>
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<tr>
<td>MATH 527, Differential Equations with Linear Algebra</td>
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<tr>
<td>PHYS 408, General Physics II</td>
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<td>Elective (1), Engineering Science**</td>
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<td>CIE 526, Strength of Materials</td>
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<td>CIE 527, Dynamics</td>
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<td>MATH 644, Statistics for Engineers and Scientists</td>
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<td>Elective (1), MATH***</td>
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<td>Elective (1), general education requirement*</td>
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<th>Junior Year</th>
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<tr>
<td>CIE 622, Engineering Materials</td>
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<td>CIE 633, Project Engineering</td>
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<tr>
<td>CIE 642, Fluid Mechanics</td>
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<td>ENE 520, Environmental Pollution and Protection</td>
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<tr>
<td>Elective (1), general education requirement*</td>
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<td>CIE 665, Soil Mechanics</td>
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<td>CIE 681, Classical Structural Analysis</td>
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<td>ENE 645, Fundamental Aspects of Environmental Engineering</td>
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<td>Elective (1), Professional Development***</td>
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<tr>
<th>Senior Year</th>
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<tbody>
<tr>
<td>CIE 760, Foundation Design I</td>
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<tr>
<td>CIE 774, Reinforced Concrete Design</td>
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<td>Elective (1), Civil Engineering Design***</td>
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<td>Electives (3), Civil Engineering***</td>
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<td>Electives (2), general education requirement*</td>
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<td>CIE 784 Introduction to Project Planning and Design</td>
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</table>

*See page 16 for general education requirements.

**TECH 564, Fundamentals of CAD, strongly recommended. Approved list of other engineering science electives is available in the CIE office.

*** Approved list available in the CIE office.
Computer Science (CS)
www.cs.unh.edu/

(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Philip J. Hatcher

Professors: R. Daniel Bergeron, Pilar de la Torre, Philip J. Hatcher, Ted M. Sparrow, Colin Ware

Associate Professors: Radim Bartos, Robert D. Russell, Elizabeth Varkey, James L. Weiner


Assistant Professors: Michel Charpentier, Alejandro Hausner, Zachary Rubinstein

Affiliate Assistant Professors: Susan Lander, Matthew D. Plumlee

Instructors: Michael Gildersleeve, Brian L. Johnson, Israel J. Yost

Lecturers: Mark L. Bochert, Ellen M. Hepp, Arvind Narayan, Karl Shump

Computer scientists are concerned with all aspects of the design and implementation of computer software. They are concerned with problem solving in general, with particular emphasis on the design of computer-efficient solutions. This involves detailed understanding of the nature of algorithms (a set of rules for solving a problem), the software implementation techniques necessary to utilize algorithms on computers, and a knowledge of how algorithms can be combined in a structured manner to form highly complex software systems.

The broad objectives for the B.S. in computer science are to produce graduates who:

1. are competent in formulating and solving computer science problems including the development of non-trivial software systems;
2. understand computer science fundamentals along with supporting mathematics and science sufficiently well to be prepared for a wide range of jobs and to pursue advanced degrees;
3. are able to function in the workplace with the necessary technical skills and with appropriate oral and written communication skills; and
4. have a broad education that promotes professional advancement, lifelong personal development, and social responsibility.

Computer science majors must obtain an overall grade-point average of 2.00 or better in all required computer science, mathematics, and electrical engineering courses in order to graduate. If at the end of any semester, including the first, a student's cumulative average in these courses falls below 2.00, the student may not be allowed to continue as a CS major.

All students wishing to transfer into a computer science major must have completed at least one full year of calculus (MATH 425 and MATH 426) and one full year of computer science (CS 415 and CS 416). The student must satisfy the minimum computer science major requirements for these courses, that is, a grade of B- for CS 415 and a grade of C- for MATH 425, MATH 426 and CS 416. The student must also have an overall grade-point average of 2.00 or better in all courses taken at UNH.

If a student wishing to transfer into the computer science major has taken any other coursework that is applicable to the major, the grades in those courses must satisfy the minimum requirements for the B.S. degree in computer science. (A student is not normally expected to have taken such courses prior to requesting the transfer.)

Bachelor of Science in Computer Science

The standard program leads to a B.S. in computer science and is designed to prepare students for both employment and graduate study in the field. The program emphasizes the application of computer science theory and principles but also includes a broad background in basic mathematics and an introduction to computer hardware. Most courses require heavy use of the computer, and the laboratories stress hands-on experience with building software systems.

Requirements

1. Satisfy general education requirements. The following courses are required and may be used to fulfill requirements in the appropriate general education group: PHYS 407-408, General Physics I and II; MATH 425, Calculus I; and PHIL 424, Science, Technology and Society.
2. Two additional technology or science courses, one of which may satisfy a general education requirement, chosen from the following list:

   **Biology**
   - BIOL 411, Principles of Biology I
   - BIOL 412, Principles of Biology II
   - HMP 501, Epidemiology and Community Medicine
   - MICR 501, Public Health Microbiology
   - PBIO 412, Introductory Botany
   - PBIO 421, Concepts of Plant Growth
   - ZOOL 412, Principles of Zoology

   **Physical Science**
   - CHEM 401-402, Introduction to Chemistry
   - CHEM 403-404, General Chemistry
   - CHEM 405, General Chemistry
   - CHEM 406-410, General Chemistry
   - CHEM 411, General Physics
   - CHEM 415, General Chemistry
   - CHEM 416, General Chemistry
   - PHYS 407-408, General Physics I and II
   - PHYS 423, Modern Physics
   - PHYS 426, Quantum Physics
   - PHYS 427, Thermodynamics
   - PHYS 428, Statistical Mechanics
   - PHYS 429, Optics
   - PHYS 430, Electrical and Magnetic Waves
   - PHYS 431, Electromagnetic Theory

   **Mathematics**
   - MATH 425, Calculus I
   - MATH 426, Calculus II
   - MATH 427, Calculus III
   - MATH 428, Calculus IV
   - MATH 429, Calculus V
   - MATH 430, Calculus VI
   - MATH 431, Calculus VII
   - MATH 432, Calculus VIII
   - MATH 433, Calculus IX
   - MATH 434, Calculus X
   - MATH 435, Calculus XI
   - MATH 436, Calculus XII
   - MATH 437, Calculus XIII
   - MATH 438, Calculus XIV
   - MATH 439, Calculus XV
   - MATH 440, Calculus XVI
   - MATH 441, Calculus XVII
   - MATH 442, Calculus XVIII
   - MATH 443, Calculus XIX
   - MATH 444, Calculus XX
   - MATH 445, Calculus XXI
   - MATH 446, Calculus XXII
   - MATH 447, Calculus XXIII
   - MATH 448, Calculus XXIV
   - MATH 449, Calculus XXV
   - MATH 450, Calculus XXVI
   - MATH 451, Calculus XXVII
   - MATH 452, Calculus XXVIII
   - MATH 453, Calculus XXIX
   - MATH 454, Calculus XXX
   - MATH 455, Calculus XXXI
   - MATH 456, Calculus XXXII
   - MATH 457, Calculus XXXIII
   - MATH 458, Calculus XXXIV
   - MATH 459, Calculus XXXV
   - MATH 460, Calculus XXXVI
   - MATH 461, Calculus XXXVII
   - MATH 462, Calculus XXXVIII
   - MATH 463, Calculus XXXIX
   - MATH 464, Calculus XL
   - MATH 465, Calculus XLI
   - MATH 466, Calculus XLII
   - MATH 467, Calculus XLIII
   - MATH 468, Calculus XLIV
   - MATH 469, Calculus XLV
   - MATH 470, Calculus XLVI
   - MATH 471, Calculus XLVII
   - MATH 472, Calculus XLVIII
   - MATH 473, Calculus XLIX
   - MATH 474, Calculus L
   - MATH 475, Calculus LI
   - MATH 476, Calculus LII
   - MATH 477, Calculus LIII
   - MATH 478, Calculus LIV
   - MATH 479, Calculus LV
   - MATH 480, Calculus LV
   - MATH 481, Calculus LV
   - MATH 482, Calculus LV
   - MATH 483, Calculus LV
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   - MATH 492, Calculus LV
   - MATH 493, Calculus LV
   - MATH 494, Calculus LV
   - MATH 495, Calculus LV
   - MATH 496, Calculus LV

2. One core course, CS 415, Introduction to Computer Science I, which must be passed with a grade of C- or better.
3. Ten additional core courses, which must be passed with a grade of C- or better. Before taking a course having any of these ten courses as a prerequisite, the prerequisite course(s) must be passed with a grade of C- or better: CS 416, Introduction to Computer Science II; CS 515, Data Structures; CS 516, Introduction to Software Design and Development; CS 520, Assembly Language Programming and Machine Organization; CS 522, Operating System Fundamentals; CS 527, Programming Language Concepts and Features; MATH 425 and MATH 426, Calculus I and II; MATH 531, Mathematical Proof; MATH 532, Discrete Mathematics.

4. Ten additional courses numbered above 640 for the Bioinformatics Option.

5. One computer science theory course chosen from:
   - CS 416, Introduction to Computer Science II
   - CS 515, Data Structures
   - CS 516, Introduction to Software Design and Development
   - CS 520, Assembly Language Programming and Machine Organization
   - CS 522, Operating System Fundamentals
   - CS 527, Programming Language Concepts and Features
   - MATH 425 and MATH 426, Calculus I and II
   - MATH 531, Mathematical Proof
   - MATH 532, Discrete Mathematics

6. CS 595, Computer Science Seminar (two credits).
7. One computer science theory course chosen from:
   - CS 645, Introduction to Formal Specification and Verification
   - CS 658, Analysis of Algorithms
   - CS 659, Introduction to the Theory of Computation
8. Two approved computer science courses chosen from CS courses numbered above 640 or ECE 777, Collaboration Engineering, or ECE 649, Embedded Microcomputer Based Design.
9. One approved writing intensive course chosen from:
10. One approved design intensive course chosen from:
12. Two approved computer science courses chosen from CS courses numbered above 640 or ECE 777, Collaboration Engineering, or ECE 649, Embedded Microcomputer Based Design.

Bachelor of Science in Computer Science, Bioinformatics Option

The aim of the bioinformatics option is to provide a tailored program for undergraduate students who wish to apply computer science expertise in the life sciences. The bioinformatics field is an increasingly important subdiscipline in computer science. The demand for computer science graduates who can apply their knowledge in the life science is large, and is expected to continue to grow.
The bioinformatics option has the same core as the B.S. program but requires the appropriate coursework in chemistry, biology, biochemistry and statistics. The bioinformatics option of the baccalaureate-level program in computer science is not yet accredited because it has not yet been through the entire review process.

The option requirements are:

1. Satisfy general education requirements. The following courses are required and may be used to fulfill requirements in the appropriate general education group: CHEM 403-404, General Chemistry; BIOL 411, Principles of Biology I; MATH 425, Calculus I; BIOL 604, Genetics; and PHIL 424, Science, Technology and Society.

2. Three science courses: BIOL 412, Principles of Biology II; BIOL 604, Genetics; and BCHM 711, Genomics and Bioinformatics.

3. Two approved courses chosen from the humanities, social sciences, and arts. These courses are in addition to any courses used to satisfy general education requirements.

4. One core course, CS 415, Introduction to Computer Science I, which must be passed with a grade of B- or better.

5. Ten additional core courses, which must all be passed with a grade of C- or better. Before taking a course having any of these ten courses as a prerequisite, the prerequisite course(s) must be passed with a grade of C- or better: CS 416, Introduction to Computer Science II; CS 515, Data Structures; CS 516, Introduction to Software Design and Development; CS 520, Assembly Language Programming and Machine Organization; CS 620, Operating System Fundamentals; CS 671, Programming Language Concepts and Features; MATH 425 and MATH 426, Calculus I and II; MATH 531, Mathematical Proof; MATH 532, Discrete Mathematics.

6. CS 595, Computer Science Seminar (two credits).


8. Two required senior-level courses: CS 719, Object-Oriented Methodology, and CS 775, Database Systems.

9. One additional senior-level course chosen from CS 730, Introduction to Artificial Intelligence; CS 767, Interactive Data Visualization; CS 770, Computer Graphics; or CS 696, Independent Study. The chosen course must include a project that addresses bioinformatics issues.

10. At least one of the three senior-level computer science courses must be writing intensive.

11. Two courses in probability and statistics: MATH 644, Probability and Statistics for Applications, and a follow-up course chosen from MATH 739, Applied Regression Analysis; MATH 742, Multivariate Statistical Methods; or MATH 755, Probability and Stochastic Processes with Applications.

firms, utilities, and nonprofit organizations; and for secondary-school teaching of earth sciences.

The Department of Earth Sciences also offers a minor in geology, as well as interdisciplinary minors in hydrology and oceanography.

Descriptions and requirements for the majors and minors are arranged alphabetically in the following pages.

**Bachelor of Arts in Earth Sciences**
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. By careful choice of electives, students can prepare for graduate school, business, or industry.

**Requirements**
1. Satisfy the general education requirements.
2. Satisfy the bachelor of arts degree requirements (page 18).
3. Complete a minimum of eight courses in the department (with a C- or better), including ESCI 401, Principles of Geology; ESCI 409, Environmental Geology; ESCI 402, Earth History; ESCI 512, Principles of Mineralogy; and four upper-level courses, two of which must be 700 or above. Typically these would be chosen from ESCI 658, Earth, Ocean, and Atmosphere Dynamics; ESCI 750, Biological Oceanography; ESCI 752, Chemical Oceanography; ESCI 758, Physical Oceanography; and ESCI 759, Geological Oceanography.
4. Math requirements: 425, Calculus I, and 426, Calculus II.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

**Oceanography Option**
The bachelor of arts in earth science 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.

Upon graduation from this program, students are prepared to complete a Master's degree in Education with an additional year of graduate study, which includes a year-long internship (EDUC 900/901). After completing this typically five-year program, students receive full teacher certification, which is recognized in most states.

**Requirements**
1. Satisfy the general education requirements.
2. Satisfy the bachelor of arts degree requirements (page 18).
3. Complete the following: ESCI 401, Principles of Geology; ESCI 409, Environmental Geology; ESCI 402, Earth History; ESCI 512, Principles of Mineralogy; and five upper-level ocean related courses, two of which must be 700 or above.
4. Math requirements: 425, Calculus I, and 426, Calculus II.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

**Bachelor of Arts in Earth Sciences, Oceanography Option**
The bachelor of arts in earth sciences, oceanography option, is offered by the Department of Earth Sciences. This program provides students an opportunity to obtain a broad education and a general background in the earth sciences, as well as the flexibility to choose electives in the area of oceanography. A clear, comprehensive understanding of the ocean environment will prepare students for graduate school or for employment opportunities available on our coasts in ocean-related fields such as aquaculture, fishing, tourism, environmental protection, shipping, construction, government regulation, and education.

**Requirements**
1. Satisfy the general education requirements.
2. Satisfy the bachelor of arts degree requirements (page 18).
3. Complete a minimum of eight courses in the department (with a C- or better) including ESCI 401; ESCI 402, Earth History or ZOOL 503, Introduction to Marine Biology; ESCI 501, Introduction to Oceanography; ESCI 512, Principles of Mineralogy; and four upper-level ocean related courses, two of which must be 700 or above. Typically these would be chosen from ESCI 658, Earth, Ocean, and Atmosphere Dynamics; ESCI 750, Biological Oceanography; ESCI 752, Chemical Oceanography; ESCI 758, Physical Oceanography; and ESCI 759, Geological Oceanography.
4. Math requirements: 425, Calculus I, and 426, Calculus II.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

**Oceanography Minor**
See Special University Programs, Interdisciplinary Programs, Marine Sciences section of the catalog, page 132.

**Bachelor of Science in Geology**
The bachelor of science in geology 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 is sufficient flexibility in course selection so that students may, in consultation with their academic advisers, orient the program toward a particular facet of the earth sciences (e.g., mineralogy-petrology, oceanography, hydrogeology, geophysics-structural geology, geomorphology-glacial geology, geochemistry, paleontology-stratigraphy). Students are encouraged to attend an off-campus field camp, for which scholarship funds may be available.

**Requirements**
1. Satisfy the general education requirements and the bachelor of science degree requirements (page 18).
2. Satisfactorily complete MATH 425 and 426, CHEM 403-404 (or CHEM 405), PHYS 407-408 and, PHYS 505 or ESCI 658. Some of these courses may also satisfy Group 2 and part of Group 3 of the general education requirements.
3. Complete a minimum of twelve courses in earth sciences, which should include ESCI 401, Principles of Geology; ESCI 409, Environmental Geology; ESCI 402, Earth History; ESCI 501, Introduction to Oceanography; ESCI 512, Principles of Mineralogy; ESCI 514, Optical Mineralogy and Petrography; ESCI 530, Field Methods; ESCI 631, Structural Geology; ESCI 561, Surficial Processes; ESCI 652, Paleontology; and three approved earth sciences 700-level electives.
4. Complete four approved science/math electives. The following should be considered: one additional 700-level course in the earth sciences; additional courses in mathematics, chemistry, and physics; as well as courses in computer science, engineering, and the biological sciences; and an off-campus field camp.

**Geology Minor**
Any University student who is interested in earth sciences may minor in geology. The minor consists of at least 18 semester hours, typically from five ESCI courses, each with a grade of C- or better, while maintaining a cumulative grade-point average of 2.0. A maximum of 8 credits may be used for both major and minor credit. Courses include both introductory and more advanced courses. Specific course requirements are flexible to accommodate the student's interest in different facets of the geosciences. Interested students should see the earth sciences' undergraduate coordinator to complete an Intent to Minor form no later than their junior year.
Environmental Sciences
www.unh.edu/envsci/

The College of Engineering and Physical Sciences (CEPS) and the College of Life Science and Agriculture (COLSA) 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 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.

Requirements
In addition to general education requirements, two introductory environmental science courses are required, including Environmental Pollution and Protection (ENE 520). Foundation courses include two semesters of chemistry (CHEM 403, 404) and calculus (MATH 425, 426), one semester of geology (ESCI 401, 402, or 409), one semester of statistics (MATH 464 or BIOL 528), and either two semesters of physics (PHYS 407, 408), and one semester of approved biology or one semester of physics (PHYS 407) and two semesters of approved biology. Core courses include Techniques in Environmental Sciences (ESCI 534); Introduction to GIS (NR 658); Fate and Transport in the Environment (ESCI 654); Natural Resource and Environmental Policy (NR 602); and a capstone course (e.g., Senior Thesis). Students must complete an additional seven courses in one of the following options:

Hydrology
ESCI 561, Surficial Processes
NR 501, Introduction to Soil Sciences or
ESCI 312, Principles of Mineralogy
NR 604, Watershed Hydrology
ESCI 705, Principles of Hydrology
ESCI 710, Groundwater Hydrology
Two approved electives

Soil and Watershed Management
NR 501, Introduction to Soil Sciences
NR 604, Watershed Hydrology
NR 703, Watershed Water Quality Management
NR 706, Soil Ecology
Three approved electives

For a list of approved elective courses and for further information about the major, contact the program coordinator, Serita Frey, Department of Natural Resources, 215 James Hall, (603) 862-3880; e-mail serita.frey@unh.edu.

COURSES
ESCI 400 Freshman Field Seminar 1 cr.
ESCI 401 Principles of Geology 4 cr.
ESCI 402 Earth History 4 cr.
ESCI 405 Global Environmental Change 4 cr.
ESCI 409 Environmental Geology 4 cr.
ESCI 420 Our Solar System 4 cr.
ESCI 450A Introduction to Earth Sciences 1 cr.
ESCI 450B Introduction to Earth Sciences 1 cr.
ESCI 450C Introduction to Earth Sciences 1 cr.
ESCI 450D Introduction to Earth Sciences 1 cr.
ESCI 501 Introduction to Oceanography 4 cr.
ESCI 512 Principles of Mineralogy 4 cr.
ESCI 514 Introduction to Climate 3 cr.
ESCI 530 Field Methods 4 cr.
ESCI 534 Techniques in Environmental Sciences 2 cr.
ESCI 561 Surficial Processes 4 cr.
ESCI 595 Introductory Investigations 1 to 4 cr.
ESCI 596 Introductory Investigations 1 to 4 cr.
ESCI 614 Optical Mineralogy and Petrography 4 cr.
ESCI 631 Structural Geology 4 cr.
ESCI 652 Paleontology 4 cr.
ESCI 654 Fate and Transport in the Environment 4 cr.
ESCI 658 Principles of Earth, Ocean, and Atmospheric Dynamics 4 cr.
ESCI 703 Fluvial Hydrology 4 cr.
ESCI 705 Principles of Hydrology 4 cr.
ESCI 710 Groundwater Hydrology 4 cr.
ESCI 716 Global Atmospheric Chemistry 3 cr.
ESCI 716 Atmospheric Aerosol and Precipitation Chemistry 3 cr.
ESCI 717 Macro-scale Hydrology I 4 cr.
ESCI 718 Macro-Scale Hydrology II 4 cr.
ESCI 723 Igneous Petrology 4 cr.
ESCI 726 Metamorphic Petrology 4 cr.
ESCI 732 Regional Geology and Advanced Structure 4 cr.
ESCI 734 Applied Geophysics 4 cr.
ESCI 741 Geochemistry 4 cr.
ESCI 745 Isotope Geochemistry 4 cr.
ESCI 746 Analytical Geochemistry 4 cr.
ESCI 747 Aqueous Geochemistry 4 cr.
ESCI 750 Biological Oceanography 4 cr.
ESCI 752 Chemical Oceanography 3 cr.
ESCI 754 Sedimentary Rocks and Stratigraphy 4 cr.

ESCI 758 Introductory Physical Oceanography 3 cr.
ESCI 759 Geological Oceanography 4 cr.
ESCI 762 Glacial Geology 4 cr.
ESCI 764 Introductory Paleoclimate Analysis 4 cr.
ESCI 765 Paleoclimatology 3 cr.
ESCI 770 Introduction to Ocean Mapping 4 cr.
ESCI 771 Geodesy and Positioning for Ocean Mapping 3 cr.
ESCI 795 Topics 1 to 4 cr.
ESCI 796 Topics 1 to 4 cr.
ESCI 797 Colloquium 1 cr.
ESCI 799 Senior Thesis 1 to 4 cr.

Electrical and Computer Engineering
(ECE)
www.ece.unh.edu/

(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: John R. LaCourse


Affiliate Professors: Jyoti P. Basu, Stuart M. Selikowitz

Associate Professors: Michael J. Carter, Allen D. Drake, Richard A. Messner

Research Associate Professor: William H. Lenhardt

Affiliate Associate Professors: Charles H. Bianchi, Paul W. Latham II

Assistant Professors: Kuan Zhou, Andrew L. Kun, Jianqiu Zhang

Research Assistant Professor: Brian P. Calder

Instructor: Francis C. Hudik, Jr.

Senior Lecturer: Barbara Dziurla Rucinska

Lecturer: Neda M. Pekari-Nad

Adjunct Faculty: Raymond J. Garbos

The Department of Electrical and Computer Engineering offers a B.S. in electrical engineering degree program that is accredited by the Accreditation Board for Engineering and Technology (ABET, Inc.). The department’s B.S. in computer engineering degree program, which commenced in September 2002, has been designed in accordance with the rules and guidelines of ABET, Inc. Accreditation of the computer engineering degree program will be sought at the earliest opportunity afforded by ABET’s rules, i.e., upon graduation of the first entering class in 2006.

ECE Department Mission
The mission of the Department of Electrical and Computer Engineering (ECE) is fourfold:
• to provide educational programs in electrical engineering and computer engineering and related fields at the bachelor's, master's, and doctoral levels of high quality and sufficient breadth and depth to serve industry, government and academic institutions of our state and nation;

• to conduct research and pursue scholarship to advance knowledge and apply that knowledge in areas relevant to our state and nation in order to meet the demands of the coming information age and global competition;

• to serve the state and nation by making available the accumulated expertise, knowledge and experience of the faculty to industry and government;

• to continually assess our programs to ensure market needs and to develop strategies to optimize student retention.

The EE and CE programs endeavor to provide a firm foundation in fundamentals, while also giving student exposure to current technologies for design and implementation. They strive for a balance between theory, laboratory and design experience. Furthermore, the programs foster teamwork and project management skills.

The graduate ECE program offers studies leading to the degrees of master of science in electrical engineering and the doctor of philosophy in engineering with an option in electrical engineering. All graduate students are expected to participate in research activities as an integral portion of their graduate education. Creative research/scholarship is an integral part of the ECE department's mission. The importance of research is equal and complementary to the function of teaching. Externally supported research endeavors, and therefore, success in obtaining external research and equipment grants is essential.

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.

Our mission was approved by the ECE faculty on March 2001, approved by the ECE Student Advisory Board on October 2001, and ratified by the ECE Industrial Advisory Board in April 2002.

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. The current electrical engineering educational program objectives and computer engineering educational program objectives are:

• graduates will function at a technically outstanding level in formulating and solving problems in electrical engineering;

• graduates will produce competent written and oral reports, and provide project management and leadership;

• through a thorough grounding in engineering fundamentals, graduates will be prepared for a successful engineering career amid future technological changes;

• through a well-rounded education, graduates are able respond to changing career paths as well as maintaining an interest in life-long learning together with the ability to advance professionally;

• graduates will be creative when dealing with contemporary issues facing society in the local, global, historical, social, economic, and political contexts as they relate to electrical engineering;

• graduates will be able to design, prototype, and test electrical and computer engineering designs using state of the art test equipment in the laboratory environment.

The electrical and computer engineering educational program objectives were approved by the ECE faculty in March 2001, approved by the ECE Student Advisory Board in November 2001, and ratified by the ECE Industrial Advisory Board in March 2002.

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 are 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 engineering educational program 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;
fully complete advanced degrees in engineering and business at top-ranked graduate schools, while others have gone on to obtain law or medical degrees.

At UNH, the cornerstone of the electrical engineering program is the involvement of students in the solution of real-world problems. During the freshman and sophomore years, students take basic courses in mathematics and science, learn how to use computers, and receive introductory experience in electric circuits, logic design, electronics, computer organization, and random processes. Building upon this foundation, students in the junior year develop core competencies in electronics, signal processing and control systems, computer engineering, and electromagnetics. In the senior year, students select professional elective courses to acquire both breadth and depth in specific areas of electrical engineering.

In addition to general University requirements, the department has a number of grade-point average and credit requirements.

1. For an electrical engineering major to enter the junior year and take any of the first-term junior courses (ECE 603, ECE 617, ECE 633, or ECE 651), he or she must have taken, and achieved a cumulative grade point average of 2.10 in all of the following freshman and sophomore courses: MATH 425, 426, 527; PHYS 407, 408; and ECE 541, 543, 544, 548, and 562.

2. Any electrical engineering major whose cumulative grade point average in ECE courses is less than 2.10 during any three semesters will not be allowed to continue as an electrical engineering major.

3. Electrical engineering majors must achieve a 2.00 grade point average in all of the following freshman and sophomore courses: MATH 425, 426, 527; PHYS 407, 408; and ECE 541, 543, 544, 548, and 562.

4. 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 advisers' assistance, should plan their programs, based on the distribution of courses in the chart below for a total of at least 130 credits.

---

**Curriculum for B.S. in Electrical Engineering**

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425, Calculus I</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>CS 410, Introduction to Scientific Programming**</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>ECE 401, Perspectives in Electrical and Computer Engineering</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>CHEM 405, General Chemistry</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>MATH 426, Calculus II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>General Education Elective**</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 407, Physics I</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>ENGL 401, General Education Writing</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 408, Physics II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527, Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>ECE 541, Electrical Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 543, Introduction to Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ME 523, Introduction to Statics and Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 544, Engineering Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECE 548, Electronic Design I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 562, Computer Organization</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 617, Junior Lab I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 651, Electronic Design II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 633, Signals and Systems I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 603, Electromagnetic Fields and Waves</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
</tr>
<tr>
<td>ECE 618, Junior Laboratory II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 634, Signals and Systems II</td>
<td>3</td>
</tr>
<tr>
<td>ECE 647, Random Processes and Signals in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE 668, Fundamentals of Computer Engineering</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>19</td>
</tr>
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</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Elective*</td>
<td>4</td>
</tr>
<tr>
<td>Professional Elective*</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
</tr>
<tr>
<td>ECE 791, Senior Project I</td>
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</tr>
<tr>
<td>Professional Elective*</td>
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</tr>
<tr>
<td>Professional Elective*</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
</tr>
<tr>
<td>ECE 792, Senior Project II</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
</tr>
</tbody>
</table>

**Curriculum for B.S. in Computer Engineering**

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425, Calculus I</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>CS 415, Intro to Computer Science I</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>ECE 401, Perspectives in Electrical and Computer Engineering</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Math 426, Calculus II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>CS 416, Intro to Computer Science II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>ECE 543, Intro to Digital Systems</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>ENGL 401, General Education Writing</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 407, Physics I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527, Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>CS 515, Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>ECE 542, Computer Organization</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408, Physics II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 544, Engineering Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CS 620, Operating Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>ECE 583, Design with Programmable Logic</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
</tr>
</tbody>
</table>
COLLEGE OF ENGINEERING AND PHYSICAL SCIENCES

Junior Year

Fall | Spring
--- | ---
ECE 541, Electrical Circuits | 4 | –
ECE 633, Signals and Systems  | 3 | –
ECE 649, Embedded Microcomputer Based Design | 4 | –
General Education Elective | 4 | –
ECE 548, Electronic Design  | – | 4
ECE 603, Electromagnetic Fields and Waves | – | 4
ECE 647, Random Processes and Signals in Engineering | – | 3
General Education Elective | – | 4
**Total** | **15** | **15**

Senior Year

Fall | Spring
--- | ---
Professional Elective* | 4 | –
ECE 734, Network Data Communications | 4 | –
ECE 714, Intro to Digital Signal Processing | 4 | –
General Education Elective | 4 | –
ECE 791, Senior Project I | 2 | –
Professional Elective* | – | 4
Professional Elective* | – | 4
General Education Elective | – | 4
General Education Elective | – | 4
ECE 792, Senior Project II | – | 2
**Total** | **18** | **18**

* Three professional electives must be selected from the following categories of courses:

- At least one from: ECE 711, ECE 715, ECE 717
- No more than one from: DS 630, ADMIN 640, DS 798C, DS 781, DS 765, ECE 634, ECE 651, ECE 7XX, CS 620, CS 658, CS 659, CS 671, CS 7XX

Environmental Engineering (ENE)

[www.unh.edu/environmental-engineering/](http://www.unh.edu/environmental-engineering/)

(For course descriptions, go to [www.undergradcat.unh.edu](http://www.undergradcat.unh.edu/))


Research Professor: T. Taylor Eighmy

Associate Professor: Thomas P. Ballester

Research Associate Professor: Kevin H. Gardner

Assistant Professor: Nivedita R. Gupta, Jennifer M. Jacobs

Research Assistant Professor: Jeffrey S. Selmon

The College of Engineering and Physical Sciences offers a bachelor of science degree in environmental engineering (ENE) and an interdisciplinary minor in environmental engineering.

Mission

The environmental engineering program offers an undergraduate degree in environmental engineering that prepares students for productive careers in the public and private sectors and 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 multi-disciplinary 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 of the responsibilities of engineers to society and teaches them the skills necessary to continue learning and improving their professional expertise throughout their careers.

The ENE degree program provides an opportunity for students to specialize in industrial and municipal processes. The curricula prepares students to plan and design systems to minimize the impact of human activity on the environment and protect human health.

Educational Objectives

ENE program graduates will have the skills, experience, and knowledge to pursue successful careers as environmental engineers. They will also 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. Graduates of the ENE program will work as part of multidisciplinary teams to arrive at solutions to environmental engineering problems. 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 clients and the public. ENE 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 of the contribution of environmental engineers to
the benefit of society and the responsibilities of a professional environmental engineer. ENE 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.

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 all mathematics, physics, chemistry, and engineering courses to be permitted to enroll in junior-level courses. To qualify for graduation, an ENE major must: have satisfied the previously specified course requirements, have satisfied the University’s general education requirements, have a minimum cumulative grade-point average of 2.00, and have a minimum grade-point average of 2.00 in engineering courses.

**Bachelor of Science in Environmental Engineering-Industrial Processes (IP) Emphasis**

The industrial processes (IP) emphasis of environmental engineering is a process-based program that draws on the principles of chemistry, physics, mathematics, and engineering sciences. Due to the complex nature of many aspects of environmental pollution, a broad understanding of the fundamentals of engineering and sciences forms the most desirable preparation for a career in the environmental field. The program is designed to provide training not only for end-of-pipe pollution control technologies, but also for expertise in process engineering and process design, essential for achieving the objectives of pollution curtailment and prevention. Such training is especially valuable in resolving industrial pollution problems. Career opportunities for environmental engineers with this background are found in industry, research institutes, government agencies, teaching, and consulting practice. Students may also enter graduate study at the M.S. or Ph.D. levels.

Engineering design is a critical aspect of the IP curriculum. In order to meet the objective of producing creative, problem-solving engineers, design concepts are introduced early in the curriculum and design experience is integrated into every engineering course. Students learn to seek optimal solutions to open-ended problems and function in design-based team projects. Design ability is finally demonstrated at the end of the capstone course (ENE 608), when self-directed teams develop a comprehensive design report for a full-scale engineering process based on a national process design competition problem.

Since 1993, the program faculty has administered a pollution prevention internship program with industries in New Hampshire, Maine, and Massachusetts, initially funded by US EPA and NHDES. In the past eleven years, the program has served more than forty facilities. Each year about 12 students have enrolled in the pollution prevention internship program which provides hands-on industrial employment for ten weeks during the summer assisting industry with projects in process modification, material substitution, chemical re-use, risk assessment, safety and economic analysis. The program faculty also assisted NHDES in setting up instrumentation in the Seacoast region of New Hampshire to monitor the precursor of ozone formation.

The B.S. program requires a minimum of 132 credits for graduation and can be completed in four years. There are eight electives in the curriculum: five for the fulfillment of the University’s general education requirements and the remaining three for technical electives to be chosen from the specified elective course list. Due to the substantial overlap in course requirements for the environmental engineering IP and chemical engineering majors, students will be able to transfer between these two programs during the first three semesters without losing any course credits towards graduation.

**First Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 405</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425-426</td>
<td>Calculus I &amp; II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Freshman English</td>
<td>4</td>
</tr>
<tr>
<td>ENE 400</td>
<td>Environmental Engineering Lectures I</td>
<td>1</td>
</tr>
<tr>
<td>ENE 401</td>
<td>Environmental Engineering Lectures II</td>
<td>1</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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**Second Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 501-502</td>
<td>Introduction to Chemical Engineering I &amp; II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 683-684</td>
<td>Physical Chemistry I &amp; II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 685</td>
<td>Physical Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CS 410</td>
<td>Introduction to Scientific Programming</td>
<td>4</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

**Third Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 603</td>
<td>Fluid Mechanics and Unit Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>ENE 612</td>
<td>Unit Operations Lab II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 651-652</td>
<td>Organic Chemistry I &amp; II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 663</td>
<td>Organic Chemistry Lab</td>
<td>2</td>
</tr>
<tr>
<td>ENE 742</td>
<td>Solid and Hazardous Waste Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers &amp; Scientists</td>
<td>4</td>
</tr>
<tr>
<td>General Education and Technical Electives</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tr>
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</table>

**Fourth Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 605</td>
<td>Mass Transfer and Stagnate Operations</td>
<td>3</td>
</tr>
<tr>
<td>ENE 608</td>
<td>Industrial Process Design</td>
<td>4</td>
</tr>
<tr>
<td>ENE 613</td>
<td>Unit Operations Lab II</td>
<td>3</td>
</tr>
<tr>
<td>ENE 709</td>
<td>Fundamentals of Air Pollution and Control</td>
<td>4</td>
</tr>
<tr>
<td>ENE 752</td>
<td>Process Dynamics and Control</td>
<td>4</td>
</tr>
<tr>
<td>ENE 772</td>
<td>Physicochemical Processes for Water and Air Quality Control</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 710</td>
<td>Groundwater Hydrology</td>
<td>4</td>
</tr>
<tr>
<td>MICR 501</td>
<td>Microbes in Human Disease</td>
<td>3-4</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19-20</td>
<td></td>
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</tbody>
</table>

**Suggested Technical Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 602</td>
<td>Heat Transfer and Unit Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHE 606</td>
<td>Chemical Engineering Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>CHE 744</td>
<td>Corrosion</td>
<td>4</td>
</tr>
<tr>
<td>ENE 739</td>
<td>Industrial Wastewater Treatment</td>
<td>3</td>
</tr>
<tr>
<td>ENE 746</td>
<td>Bioenvironmental Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>ENE 747</td>
<td>Introduction to Marine Pollution</td>
<td>3</td>
</tr>
<tr>
<td>ENE 706</td>
<td>Introduction to Geo-Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 409</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 561</td>
<td>Surficial Processes</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 705</td>
<td>Principles of Hydrology</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 708</td>
<td>Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 715</td>
<td>Global Atmospheric Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>EE 772</td>
<td>Control Systems</td>
<td>4</td>
</tr>
<tr>
<td>MICRO 501</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
</tbody>
</table>

**Bachelor of Science in Environmental Engineering-Municipal Processes (MP) Emphasis**

Environmental engineers graduating from the municipal processes (MP) emphasis 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 with a municipal processes perspective 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.

In ENE 400 and 401, 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, and interact with engineers who have been involved in the design and/or construction of the projects. Design is integrated throughout the curriculum, and particularly emphasized in junior- and senior-level courses. As part of these projects, students analyze treatment alternatives, recommend a system that meets regulatory operational needs, and prepare an implementation schedule and project budget. Detailed design projects are performed in ENE 744 and 746. ENE 788 serves as a capstone design experience where students work on a multi-interdisciplinary environmental engineering project as part of the U.S. Department of Energy's international WERC competition held in New Mexico every April, and apply skills learned in other courses while working with real world clients.

The following schedule is a sample of a planned program for environmental engineering students completing the major within the municipal processes emphasis.

**Environmental Engineering Minor**

<table>
<thead>
<tr>
<th>COURSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENE 400 Environmental Engineering Lectures I 1 cr.</td>
</tr>
<tr>
<td>ENE 401 Environmental Engineering Lectures II 1 cr.</td>
</tr>
<tr>
<td>ENE 520 Environmental Pollution and Protection: A Global Context 4 cr.</td>
</tr>
<tr>
<td>ENE 521 Seminar 1 cr.</td>
</tr>
<tr>
<td>ENE 608 Industrial Process and Design 4 cr.</td>
</tr>
<tr>
<td>ENE 612 Unit Operations Laboratory I 3 cr.</td>
</tr>
<tr>
<td>ENE 613 Unit Operations Laboratory II 3 cr.</td>
</tr>
<tr>
<td>ENE 645 Fundamental Aspects of Environmental Engineering 4 cr.</td>
</tr>
<tr>
<td>ENE 696 Field Experience 1 cr.</td>
</tr>
<tr>
<td>ENE 697 Internship 2 cr.</td>
</tr>
<tr>
<td>ENE 709 Fundamentals of Air Pollution and Its Control 4 cr.</td>
</tr>
<tr>
<td>ENE 740 Public Health Engineering 3 cr.</td>
</tr>
<tr>
<td>ENE 742 Solid and Hazardous Waste Engineering 3 cr.</td>
</tr>
<tr>
<td>ENE 743 Environmental Sampling and Analysis 4 cr.</td>
</tr>
<tr>
<td>ENE 744 Physicochemical Treatment Design 4 cr.</td>
</tr>
<tr>
<td>ENE 746 Bioenvironmental Engineering Design 4 cr.</td>
</tr>
<tr>
<td>ENE 747 Introduction to Marine Pollution and Control 3 cr.</td>
</tr>
<tr>
<td>ENE 748 Solid and Hazardous Waste Design 4 cr.</td>
</tr>
<tr>
<td>ENE 749 Water Chemistry 4 cr.</td>
</tr>
<tr>
<td>ENE 752 Process Dynamics and Control 4 cr.</td>
</tr>
<tr>
<td>ENE 756 Environmental Engineering Microbiology 4 cr.</td>
</tr>
<tr>
<td>ENE 772 Physicochemical Processes for Water and Air Quality Control 4 cr.</td>
</tr>
<tr>
<td>ENE 788 Project Planning and Design 4 cr.</td>
</tr>
<tr>
<td>ENE 795 Independent Study 1 to 4 cr.</td>
</tr>
<tr>
<td>ENE 797 Special Topics 1 to 4 cr.</td>
</tr>
<tr>
<td>ENE 799H Senior Honors Thesis 4 cr.</td>
</tr>
</tbody>
</table>
International Affairs (dual major)  
(For program description, see page 131.)

Mathematics and Statistics (MATH)  
www.math.unh.edu  
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Eric L. Grinberg  
Professors: Albert B. Bennett, Jr., Liming Ge, Karen J. Graham, Eric L. Grinberg, Donald W. Hadwin, Rita A. Hibschweiler, A. Robb Jacoby, Ernst Linder, Eric A. Nordgren, Samuel D. Shore, Kevin M. Short, Marianna A. Shubov  
Associate Professors: Kelly J. Black, David V. Feldman, William E. Geeslin, Edward K. Hisson, Berrien Moore III, Dmitri A. Nikshych  
Assistant Professors: Maria Basterra, Mitrajit Dutta, Sonia Hristov, Linyuan Li, Yeping Li  
Instructor: Philip J. Ramsey  
Lecturers: Zhaozhi Fan, Gertrud L. Kraut, Mehmet Orhon, Yitang Zhang  

The Department of Mathematics and Statistics offers a variety of programs. 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 can usually be accommodated.

The first two years of all programs are similar. In the first year, students are expected to take Calculus I (MATH 425) and Calculus II (MATH 426) as well as an introductory computer programming course (CS 410, or CS 415). A sophomore typically takes follow-up calculus courses in differential equations (MATH 527) and multi-dimensional calculus (MATH 528), an introductory statistics course (MATH 639) and a course in mathematical proof (MATH 531, or MATH 545).

In addition to its degree programs, the department has an active interest in the actuarial profession and is an examination center for the Society of Actuaries. Those interested in actuarial science should seek the advice of the coordinator of the actuarial program in the department.

For more information about the department’s undergraduate programs, visit the Web site.

Standards for Graduation  
To be certified for graduation with a degree from the Department of Mathematics and Statistics, a student must complete all courses used to satisfy the requirements for the major program with a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Bachelor of Arts, Mathematics Major  
This program 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.

Required MATH courses  
MATH 425, Calculus I  
MATH 426, Calculus II  
MATH 527*, Differential Equations with Linear Algebra  
MATH 528*, Multidimensional Calculus  
*These requirements can be satisfied by MATH 525-526, Linearity

Bachelor of Science in Mathematics  
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.

Required MATH courses  
MATH 425, Calculus I  
MATH 426, Calculus II  
MATH 527*, Differential Equations with Linear Algebra  
MATH 528*, Multidimensional Calculus  
*These requirements can be satisfied by MATH 525-526, Linearity

Bachelor of Science: Interdisciplinary Programs in Mathematics and Its Applications  
The programs in interdisciplinary mathematics prepare students for employment in areas of applied mathematics and statistics. Some of them can lead to graduate work in appropriate fields (e.g., physics, computer science, or economics). The major may consist of mathematics combined with Computer Science, Economics, Statistics, Electrical Science, or Physics.

Each program requires ten mathematics courses along with at least six courses in the discipline of the option. Specific requirements follow.

Requirements  
Required courses in all options:  
MATH 425, Calculus  
MATH 426, Calculus II  
MATH 527*, Differential Equations with Linear Algebra  
MATH 528*, Multidimensional Calculus  
MATH 531, Mathematical Proof  
MATH 545, Introduction to Linear Algebra and Mathematical Proof  
MATH 639, Introduction to Statistical Analysis  
MATH 664*, Linear Algebra for Applications  
MATH 640, Introduction to Scientific Programming  
MATH 641, Introduction to Computer Science I  
MATH 645*  
If MATH 545 is taken, credit may not be earned for MATH 645 so that students must choose a MATH elective in consultation with their academic adviser.

Other required courses by option:  
Computer Science Option  
MATH 532, Discrete Mathematics  
MATH 533, Introduction to Numerical Methods I  
One additional MATH course chosen from approved electives, in consultation with your academic adviser.

Other required courses  
Two approved MATH electives chosen in consultation with your academic adviser  
CS 410, Introduction to Scientific Programming or CS 415, Introduction to Computer Science I  
PHYS 407-408, General Physics I and II, which may be used to satisfy general education requirements in Group 3

Bachelor of Science: Interdisciplinary Programs in Mathematics and Its Applications  
The programs in interdisciplinary mathematics prepare students for employment in areas of applied mathematics and statistics. Some of them can lead to graduate work in appropriate fields (e.g., physics, computer science, or economics). The major may consist of mathematics combined with Computer Science, Economics, Statistics, Electrical Science, or Physics.

Each program requires ten mathematics courses along with at least six courses in the discipline of the option. Specific requirements follow.

Requirements  
Required courses in all options:  
MATH 425, Calculus  
MATH 426, Calculus II  
MATH 527*, Differential Equations with Linear Algebra  
MATH 528*, Multidimensional Calculus  
MATH 531, Mathematical Proof  
MATH 545, Introduction to Linear Algebra and Mathematical Proof  
MATH 639, Introduction to Statistical Analysis  
MATH 664*, Linear Algebra for Applications  
MATH 640, Introduction to Scientific Programming  
MATH 641, Introduction to Computer Science I  
MATH 645*  
If MATH 545 is taken, credit may not be earned for MATH 645 so that students must choose a MATH elective in consultation with their academic adviser.

Other required courses by option:  
Computer Science Option  
MATH 532, Discrete Mathematics  
MATH 533, Introduction to Numerical Methods I  
One additional MATH course chosen from approved electives, in consultation with your academic adviser.

Other required courses  
Two approved MATH electives chosen in consultation with your academic adviser  
CS 410, Introduction to Scientific Programming or CS 415, Introduction to Computer Science I  
PHYS 407-408, General Physics I and II, which may be used to satisfy general education requirements in Group 3

Bachelor of Science: Interdisciplinary Programs in Mathematics and Its Applications  
The programs in interdisciplinary mathematics prepare students for employment in areas of applied mathematics and statistics. Some of them can lead to graduate work in appropriate fields (e.g., physics, computer science, or economics). The major may consist of mathematics combined with Computer Science, Economics, Statistics, Electrical Science, or Physics.

Each program requires ten mathematics courses along with at least six courses in the discipline of the option. Specific requirements follow.

Requirements  
Required courses in all options:  
MATH 425, Calculus  
MATH 426, Calculus II  
MATH 527*, Differential Equations with Linear Algebra  
MATH 528*, Multidimensional Calculus  
MATH 531, Mathematical Proof  
MATH 545, Introduction to Linear Algebra and Mathematical Proof  
MATH 639, Introduction to Statistical Analysis  
MATH 664*, Linear Algebra for Applications  
MATH 640, Introduction to Scientific Programming  
MATH 641, Introduction to Computer Science I  
MATH 645*  
If MATH 545 is taken, credit may not be earned for MATH 645 so that students must choose a MATH elective in consultation with their academic adviser.

Other required courses by option:  
Computer Science Option  
MATH 532, Discrete Mathematics  
MATH 533, Introduction to Numerical Methods I  
One additional MATH course chosen from approved electives, in consultation with your academic adviser.

Other required courses  
Two approved MATH electives chosen in consultation with your academic adviser  
CS 410, Introduction to Scientific Programming or CS 415, Introduction to Computer Science I  
PHYS 407-408, General Physics I and II, which may be used to satisfy general education requirements in Group 3
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) 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, page 34.

Elementary School Option
Required MATH courses:
MATH 425, Calculus I
MATH 426, Calculus II
MATH 545, Introduction to Linear Algebra and Mathematical Proof
MATH 619, Historical Foundations of Mathematics
MATH 621, Number Systems for Teachers
MATH 622, Geometry for Teachers
MATH 623, Topics in Mathematics for Teachers
MATH 639, Introduction to Statistical Analysis
MATH 657, Geometry
MATH 700, Introduction to Mathematics Education
MATH 703, The Teaching of Mathematics, K-6

Other required courses:
Two approved MATH electives chosen in consultation with your academic adviser.
CS 410, Introduction to Scientific Programming
or CS 407, Introduction to Computer Programming with Java;
or CS 415, Introduction to Computer Science I
EDUC 500, Exploring Teaching
EDUC 700, Educational Structure and Change
EDUC 701, Human Development and Learning: Educational Psychology
EDUC 705, Alternative Perspectives on the Nature of Education

Note: EDUC 751 is a requirement for certification that may be taken as an undergraduate.

Secondary School Option
Required MATH courses:
MATH 425, Calculus I
MATH 426, Calculus II
MATH 527, Differential Equations with Linear Algebra
MATH 528, Multidimensional Calculus
MATH 545, Introduction to Linear Algebra and Mathematical Proof
MATH 619, Historical Foundations of Mathematics
MATH 624, Analysis for Secondary School Teachers
MATH 639, Introduction to Statistical Analysis
MATH 657, Geometry
MATH 761, Abstract Algebra
MATH 791, Teaching of Mathematics, 7-12

Other required courses:
Two approved MATH electives chosen in consultation with your academic adviser:
CS 410, Introduction to Scientific Programming
or CS 407, Introduction to Computer Programming with Java;
or CS 415, Introduction to Computer Science I
EDUC 500, Exploring Teaching
EDUC 700, Educational Structure and Change
EDUC 701, Human Development and Learning: Educational Psychology
EDUC 705, Alternative Perspectives on the Nature of Education

Note: EDUC 751 is a requirement for certification that may be taken as an undergraduate.


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 for the minor.

Mathematics Minor
Required (3): MATH 528*, MATH 531 (or 545), and MATH 761 (or 767)
Electives (2): Two courses chosen from among MATH 527*, 656, 657, 658, 761, 762, 764, 776, 777, 783, 784, 788

Applied Mathematics Minor
Required (4): MATH 527*, 528*, 657 (or 545), and 753
Electives (1): One course chosen from among MATH 639 (or 644), 646, 647, 745, 746, 747, or 754

Statistics Minor
Required (2): MATH 639 (or 644) and MATH 645 (or 545)
Electives (3): Three courses chosen from among MATH 737, 739, 740, 741, 742, 744, 755, 756

COURSES
MATH 301 Elementary Math I 4 cr.
MATH 302 Elementary Math II 4 cr.
MATH 418 Analysis and Applications of Functions 4 cr.
MATH 419 Evolution of Mathematics 4 cr.
MATH 420 Finite Mathematics 4 cr.
MATH 424A Calculus for Social Sciences 4 cr.
MATH 424B Calculus for Life Sciences 4 cr.
MATH 425 Calculus I 4 cr.
MATH 425H Honors/Calculus I 4 cr.
MATH 426 Calculus II 4 cr.
MATH 426H Honors/Calculus II 4 cr.
MATH 525 Linear Algebra I 6 cr.
MATH 526 Linear Algebra II 6 cr.
MATH 527 Differential Equations with Linear Algebra 4 cr.
MATH527H Honors/Differential Equations with Linear Algebra 4 cr.
MATH 528 Multidimensional Calculus 4 cr.
MATH 531 Mathematical Proof 4 cr.
MATH 532 Discrete Mathematics 4 cr.
MATH 545 Introduction to Linear Algebra and Mathematical Proof 4 cr.
MATH 601 Exploring Mathematics for Teachers I 4 cr.
MATH 602 Exploring Mathematics for Teachers II 4 cr.
MATH 619 Historical Foundations of Mathematics 4 cr.
MATH 621 Number Systems for Teachers 4 cr.
MATH 622 Geometry for Teachers 4 cr.
MATH 623 Topics in Mathematics for Teachers 4 cr.
MATH 624 Analysis for Secondary School Teachers 4 cr.
MATH 639 Introduction to Statistical Analysis 4 cr.
MATH 644 Statistics for Engineers and Scientists 4 cr.
MATH 645 Linear Algebra for Applications 4 cr.
MATH645H Honors/Linear Algebra for Applications 4 cr.
MATH 646 Introduction to Partial Differential Equations 4 cr.
MATH 647 Complex Analysis for Applications 4 cr.
MATH 656 Introduction to Number Theory 4 cr.
MATH 657 Geometry 4 cr.
MATH 658 Topics in Geometry 4 cr.
MATH 696 Independent Study 1 to 4 cr.
MATH696W Independent Study 1 to 4 cr.
MATH 698 Senior Seminar 4 cr.
MATH 700 Introduction to Mathematics Education 4 cr.
MATH 701 Exploring Mathematics for Teachers I 4 cr.
MATH 702 Exploring Mathematics for Teachers II 4 cr.
MATH 703 Teaching of Mathematics, K-6 4 cr.
MATH 721 Number Systems for Teachers 4 cr.
MATH 722 Geometry for Teachers 4 cr.
MATH 723 Topics in Mathematics for Teachers 4 cr.
MATH 737 Statistical Methods for Quality Improvement 4 cr.
MATH 739 Applied Regression Analysis 4 cr.
MATH 740 Industrial Statistics and Design of Experiments 4 cr.
MATH 741 Biostatistics and Life Testing 4 cr.
MATH 742 Multivariate Statistical Methods 4 cr.
MATH 744 Design of Experiments II 4 cr.
MATH 745 Foundations of Applied Mathematics 4 cr.
MATH 746 Foundations of Applied Mathematics 4 cr.
MATH 747 Introduction to Nonlinear Dynamics and Chaos 4 cr.
MATH 753 Introduction to Numerical Methods I 4 cr.
MATH 754 Introduction to Numerical Methods II 4 cr.
MATH 755 Probability and Stochastic Processes with Applications 4 cr.
MATH 756 Principles of Statistical Inference 4 cr.
MATH 761 Abstract Algebra 4 cr.
MATH 762 Linear Algebra 4 cr.
MATH 764 Advanced Algebra 4 cr.
MATH 767 One-Dimensional Real Analysis 4 cr.
MATH 776 Logic 4 cr.
MATH 780 Teaching Middle School Mathematics 4 cr.
MATH 784 Topology 4 cr.
MATH 788 Complex Analysis 4 cr.
MATH 791 Teaching of Mathematics, 7-12 4 cr.
MATH 796 Topics 4 cr.
MATH 799 Senior Thesis 2 or 4 cr.

Mechanical Engineering (ME)
www.unh.edu/mechanical-engineering/
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Todd S. Gross

Professors: Kenneth C. Baldwin, Barabora Cellikkol, Barry K. Fussell, Todd S. Gross, Robert Jerard, James E. Krajnok, M. Robinson Swift, David W. Watt

Affiliate Professor: Robert G. Hanman

Associate Professors: John McHugh, Igor I. Tsukrov

Affiliate Associate Professor: Vladimir Riabov

Assistant Professors: Gregory P. Chini, Brad Lee Kinsey, May-Win L. Thein

Research Assistant Professor: David W. Fredriksson

Affiliate Assistant Professors: Gary Lapham, Timothy Upton

Instructor: Gerald Sedor

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. Our graduates will be prepared to creatively solve engineering problems through the use of analysis, computation, and experimentation. The students completing our 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 our intent to maintain a general and flexible curriculum that prepares students for both industrial practice and graduate education.

Educational Objectives
The goal of the UNH mechanical engineering program is to produce graduates that are good professionals and good citizens who 1) skillfully apply the fundamental principles of mathematics, science, and engineering; 2) solve engineering problems by integrating strong design, analysis, and experimental abilities with excellent communication skills; 3) successfully contribute to their respective corporate government or academic organizations; 4) demonstrate continuous growth by assuming positions of leadership in their profession or by becoming successful entrepreneurs; by successfully completing advanced degrees and professional education; 5) are broadly educated citizens of society with an understanding of the impact of engineering solutions in a global/societal context; and 6) demonstrate a high level of personal and social integrity through their ethical behavior and service to their peers,
employers, communities, the nation, and the world.

Mechanical engineering is a challenging profession encompassing research, design, development, and production of aerospace vehicles, underwater vessels, instrumentation and control systems, nuclear and conventional power plants, and consumer and industrial products in general. The profession also makes contributions through more fundamental studies of material behavior, the mechanics of solids and fluids, and energy transformation. Additional information can be found at the mechanical engineering Web site.

The program begins with courses in physics, mathematics, chemistry, and computer aided design. The department has a four-semester mechanics thread, a four-semester thread in the thermal/fluid sciences, and a three-semester thread in systems and controls. Modern experimental methods are taught in a two-semester course starting in the junior year. The two-semester senior design project requires the students to utilize the skills they have learned in their courses and to learn how to function in an engineering team. The seven technical electives offered 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. 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.

The curriculum has thirteen elective courses. These should be selected in consultation with a departmental adviser to lead to a balanced program that addresses chosen areas of interest. Five of the elective courses are selected from groups four through eight of the University’s general education requirements, with the remainder being either ENGR 402 or EREC 411. One of the elective courses must be selected from the biological science listing of Group 3 of the general education requirements. Seven technical elective courses of at least three credits each are required. They may be selected from 600–700 level courses in the College of Engineering and Physical Sciences, excluding BET, and from the following 500 level courses, ENE 520, ESCI 501 and ECE 543. Three of the seven technical electives must come from the prescribed lists: A) engineering practice; B) mathematics; C) advanced engineering topics. These lists are available in the mechanical engineering office. All students must take one course from each list. Two of the remaining four technical electives can be used for studying a focused area such as a foreign language, or a preprofessional program, or a minor, with mechanical engineering department approval. Some programs may require additional elective courses to reach the minimum of 128 credits required for graduation. Other programs may exceed 128 credits to include all the required courses.

To enter the junior-year courses in the mechanical engineering major, students must take at least a 2.00 grade-point average for the following group of courses: PHYS 407-408, ME 503, ME 525, and ME 526.

In order to graduate in the mechanical engineering major, students must have at least a 2.00 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. The option of repeating required engineering, science, and technical elective courses normally taken after the start of the junior year may be exercised in only one of the following: 1) one course may be repeated twice; and 2) a maximum of two courses may be repeated once.

**Mechanical Engineering Minor**

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.

Students must complete a minimum of six courses as follows: ME 441, ME 525, ME 526, ME 527, ME 503, and ME 608. Electrical and Computer Engineering majors should take the following courses: ME 441, ME 523, ME 526, ME 503, ME 608, and ME 561.

By midsemester of their junior year, interested students should consult the chair of the mechanical engineering department.

**Materials Science Minor**

The minor, administered by the Department of Mechanical Engineering, is open to all students of the University and offers a broad introduction to materials science.

Students must complete at least 18 credits and a minimum of five courses as follows: ME 561 (required); ME 760 (required); and ME 730 (required); and additional courses from the following: 731, 744, 761, 762, 763, and 795 (materials).

By midsemester of their junior year, interested students should consult the minor supervisor, James E. Krzanowski, Department of Mechanical Engineering.
Physics (PHYS)
www.physics.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu/)

Chairperson: Dawn C. Meredith
Research Professors: Terry Forbes, Philip A. Isenberg, R. Bruce McKibben, Charles W. Smith III
Assistant Professors: Joanne Fabtric, Lynn M. Kistler, Mark L. McConnell, Dawn C. Meredith, Joachim Raeder
Research Associate Professors: Charles J. Farrugia, Antoinette B. Galvin, Vania K. Jordanova, Clifford Lopate, Jack M. Quinn, Bernard J. Vasquez
Assistant Professors: Yuri E. Litvinenko, Chung-Sang Ng

Physics is concerned with the properties of matter and the laws that describe its behavior. It is an exact science based on precise measurement, and its objective is the kind of understanding that leads to the formulation of mathematical relationships between measured quantities. 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 have participated 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 has its own library, which provides a comfortable, inviting atmosphere for study and relaxed reading.

The suggested programs that follow are indicative of the flexibility available to students, whether they are preparing for graduate work in physics, 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 option allows for 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 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 (see page 80). For those interested in a career as a middle or high school educator in both physics and chemistry, the Department of Chemistry offers a B.A. in chemistry and physics teaching.

Interested students are encouraged to contact the department for further information. More detailed information is also on the physics department Web page at www.physics.unh.edu.

Minor in Physics
The minor in physics consists of five courses in physics. All students must take PHYS 407, 408, and 505, including labs. Two other physics courses at the 500 level or above must be chosen in consultation with the student's physics minor adviser.

Bachelor of Arts, Chemistry and Physics Teaching
For information, see page 67.

Physics Major, Bachelor of Arts
This degree provides an opportunity for a broad and liberal education, which in some cases may be sufficient for graduate work. A judicious choice of electives may also prepare students for interdisciplinary programs that require proficiency in a restricted area of physics.

Requirements
1. Satisfy general education and writing requirements
2. Satisfy bachelor of arts degree requirements (page 18)
3. PHYS 400, 407-408, 505, 506, 508, 615, 616, 701, 703, 705. Note that MATH 425, 426, and MATH 525, 526 or MATH 527, 528 are prerequisites for some of the courses. A total of 40 credits is required.
In the following table, "Electives" include general education courses, writing intensive courses, language courses required for the B.A. (see page 18), and free choice electives.

### Suggested Curriculum for B.A. in Physics

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>PHYS 400, Freshman Seminar</td>
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<tr>
<td>PHYS 407-408, General Physics I and II</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425, 426, Calculus I and II (Group 2)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401, Freshman English</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
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#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 505-506, General Physics III and Lab</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 615, Classical Mechanics and Mathematical Physics I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>MATH 525, Linearity I or MATH 527, Differential Equations</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MATH 526, Linearity II or MATH 528, Multidimensional Calculus</td>
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<td>6</td>
</tr>
<tr>
<td>Elective</td>
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<td>8</td>
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<td><strong>Total</strong></td>
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#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PHYS 605, Experimental Physics I</td>
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<td>-</td>
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<tr>
<td>PHYS 508, Thermodynamics and Statistical Mechanics</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 616, Classical Mechanics and Mathematical Physics II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 701, Introduction to Quantum Mechanics I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>8</td>
</tr>
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<td><strong>Total</strong></td>
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#### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 705, Experimental Physics II</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 703, Electricity and Magnetism I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

### Bachelor of Science in Physics

The bachelor of science degree in physics prepares students for professional work as physicists. The required courses in the standard options are those typically necessary for admission to graduate study in physics. The interdisciplinary options require fewer physics courses combined with a concentration in another area (chemistry, biology, or materials science).

#### Requirements

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science requirements (page 18).
3. Minimum physics requirements: 400, 407-408, 505-506, 508, 605, 615-616, 701, 702, 703, 704, 705; two physics electives selected from the 700-level physics courses.
4. Chemistry: 403-404 or 405
5. Math: 425-426, and 525-526 or 527-528

### Suggested Curriculum for B.S. in Physics

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
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<tbody>
<tr>
<td>PHYS 400, Freshman Seminar</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 407-408, General Physics I and II</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425, 426, Calculus I and II (Group 2)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401, Freshman English</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
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#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 505-506, General Physics III and Lab</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 508, Thermodynamics and Statistical Mechanics</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 615, Classical Mechanics and Mathematical Physics I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>MATH 525, Linearity I or MATH 527, Differential Equations</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MATH 526, Linearity II or MATH 528, Multidimensional Calculus</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
<td>16</td>
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#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 605, Experimental Physics I</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 616, Classical Mechanics and Mathematical Physics II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 701, Introduction to Quantum Mechanics I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 703, Electricity and Magnetism I</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
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#### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 702, Quantum Mechanics II</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>PHYS 704, Electricity and Magnetism II</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 705, Experimental Physics II</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>12</td>
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<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>16</td>
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</tbody>
</table>

### Chemical Physics Option, Bachelor of Science in Physics

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science requirements.
5. Mathematics: MATH 425-426, 525-526 or 527-528, 646
6. Computer Science: CS 410
7. Electives in Option: Two courses selected from CHEM 5479, MATH 646, PHYS 718, PHYS 795

### Materials Science Option, Bachelor of Science in Physics

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science requirements.
3. Physics requirements: PHYS 400, 407-408, 505-506, 508, 605, 615-616, 701, 702, 703, 705, 706, 707 (5 credit hours).
4. Mechanical Engineering: 561, 730, 760
5. Math: 425-426, 525-526, or 527-528
6. Computer Science: CS 410
7. Electives in Option: Three courses selected from MATH 646, ME 731, 761, 762, 763, 795, PHYS 718
8. Chemistry: 403-404 or 405

### Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>PHYS 400, Freshman Seminar</td>
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<tr>
<td>PHYS 401, Introduction to Physics I</td>
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</tr>
<tr>
<td>PHYS 402, Introduction to Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 404, Introduction to Space Science</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 406, Introduction to Modern Astronomy</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407, General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408H, Honors/General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 409, Introduction to Problem Solving</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 444, Myths and Misconceptions About Nuclear Science</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 505, General Physics III</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 506, General Physics III Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 508, Thermodynamics and Statistical Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 605, Experimental Physics I</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 615, Classical Mechanics and Mathematical Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 616, Classical Mechanics and Mathematical Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 701, Introduction to Quantum Mechanics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 702, Introduction to Quantum Mechanics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 703, Electricity and Magnetism I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 704, Electricity and Magnetism II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 705, Experimental Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 708, Optics</td>
<td>4</td>
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<tr>
<td>PHYS 710, Introduction to Modern Astrophysics</td>
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<tr>
<td>PHYS 712, Physics of the Ionosphere</td>
<td>4</td>
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<tr>
<td>PHYS 718, Introduction to Solid State Physics</td>
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</tr>
<tr>
<td>PHYS 720, Nuclear Physics</td>
<td>4</td>
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<tr>
<td>PHYS 791, Special Topics</td>
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<tr>
<td>PHYS 795, Independent Study</td>
<td>1 to 8</td>
</tr>
<tr>
<td>PHYS 799, Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

84
The School of Health and Human Services, established in 1968, was created in response to the growing need for programs in higher education that prepare young men and women for health-related careers. The school offers undergraduate instruction leading to the bachelor of science degree in communication sciences and disorders, family studies, health management and policy, kinesiology, nursing, occupational therapy, and recreation management and policy. It also offers undergraduate instruction leading to a bachelor of arts degree in social work. Each program enables students to acquire the basic knowledge and skills needed to practice their chosen professions and to obtain a broad cultural background in the humanities and social sciences.

Degree Requirements
Candidates for the B.S. and B.A. degree must satisfy all general education requirements for graduation (page 16), earn at least 128 credits, successfully complete the courses required in one of the curricula described in this section, and achieve the required minimum grade-point average in the chosen curriculum. Candidates for the B.A. degree must satisfy a language requirement (page 17). Generally, courses are to be completed in the sequence in which they are arranged.

Minors: See page 19; see also page 22.
Dual-Degree Programs: See page 18.
Student-Designed Majors: See page 133.
Second Majors: See page 19.

Undeclared Major
A limited number of well-qualified freshmen who have expressed an interest in a health-related career, but who are undecided about a specific major may enter the School of Health and Human Services as undeclared students. Undeclared students should explore possible majors by selecting courses from those listed below.

Required Courses
ENGL 401, Freshman English
PSYC 401, Introduction to Psychology
ZOOI 507-508, Human Anatomy and Physiology

Exploration Courses
COMM 520, Survey of Communication Disorders
FS 525, Human Development
HMP 401, U.S. Health Care Systems
KIN 500, Historical and Contemporary Issues in Physical Education
KIN 585, Emergency First Responder
NUTR 400, Nutrition Health and Well Being

RMP 490, Recreation and Leisure in Society
SW 424, Introduction to Social Work

All SHHS undeclared students are advised by a professional academic counselor. Upon declaration of a specific major, each student is assigned to a faculty adviser within the major department.

Programs of Study
Communication Sciences and Disorders (COMM)

Chairperson: Penelope E. Webster
Professor: Stephen N. Calculator
Associate Professors: Steven P. Bornstein, Frederick C. Lewis, Penelope E. Webster
Assistant Professors: Michael Fraas, Sheryl Gottwald, Jeanne H. O'Sullivan, Ruth E. Peaper, Amy S. Plante
Research Assistant Professor: Rae M. Sonnenmeier
Clinical Assistant Professor: Mary Jane Sullivan
Lecturers: Pamela E. Broido, Mary A. Paul
Communication disorders is the profession devoted to helping people overcome disabilities of speech, language, or 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. Students are encouraged to take elective courses in linguistics, human development, learning theory, early childhood, health administration, special education, and various aspects of rehabilitation.

Students are advised to continue their professional education at colleges or universities offering graduate programs leading to a master's degree and to subsequent certification by the American Speech-Language-Hearing Association. Certified clinicians find employment opportunities in hospitals, schools, community speech and hearing clinics, and private practice.

The required courses in communication sciences and disorders which all students in the program must successfully complete are COMM 520, Survey of Communication Disorders; COMM 521, Anatomy and Physiology of the Speech and Hearing Mechanism; COMM 522, The Acquisition of Language; COMM 524, Clinical Phonetics; COMM 630, Organic Pathologies; COMM 631, Articulation and Language Disorders in Children; COMM 635, Professional Issues in Speech-Language Pathology; COMM 704, Basic Audiology; COMM 705, Introduction to Auditory Perception and Aural Rehabilitation; and COMM 777, Speech and Hearing Science. Students must also complete KIN 706, Neurology, and a course in statistics. Other elective courses are available.

Students must have a grade-point average of 2.75 at the end of their sophomore year to continue in the major. A 2.75 grade-point average is also required to transfer into the major. Students interested in this program should consult with the chairperson, Penelope E. Webster.

**COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COMM 520</td>
<td>Survey of Communication Disorders</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 521</td>
<td>Anatomy and Physiology of the Speech and Hearing Mechanism</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 522</td>
<td>Acquisition of Language</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 524</td>
<td>Clinical Phonetics</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 533</td>
<td>Elementary American Sign Language</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 533A</td>
<td>Elementary American Sign Language</td>
<td>4 cr.</td>
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<tr>
<td>COMM 536</td>
<td>Introduction to Deaf Studies</td>
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<tr>
<td>COMM 537</td>
<td>Deaf Culture</td>
<td>4 cr.</td>
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<tr>
<td>COMM 630</td>
<td>Organic Pathologies</td>
<td>4 cr.</td>
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<td>COMM 631</td>
<td>Articulation and Language Disorders in Children</td>
<td>4 cr.</td>
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<td>COMM 635</td>
<td>Professional Issues in Speech-Language Pathology</td>
<td>3 cr.</td>
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<td>COMM 660</td>
<td>Special Problems</td>
<td>2 to 8 cr.</td>
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<td>COMM 704</td>
<td>Basic Audiology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 705</td>
<td>Introduction to Auditory Perception and Aural Rehabilitation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 733</td>
<td>Intermediate American Sign Language</td>
<td>4 cr.</td>
</tr>
<tr>
<td>COMM 733A</td>
<td>Intermediate American Sign Language</td>
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<tr>
<td>COMM 775</td>
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<td>COMM 777</td>
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<tr>
<td>COMM 798</td>
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<td>1 to 4 cr.</td>
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**Family Studies (FS)**

www.shhs.unh.edu/fs/

(For course descriptions, go to www.undergradcat.unh.edu.)

**Chairperson:** Elizabeth M. Dolan

**Graduate Program Coordinator:** Corrina Jenkins Tucker

**Professor:** Nancy G. Guerra

**Associate Professors:** Kristine M. Baber, Elizabeth M. Dolan, Barbara R. Frankel, Michael F. Kalinowski, Kerry Kazura, John W. Nimon

**Assistant Professor:** Corrina Jenkins Tucker

**Extension Educators:** Charlotte W. Cross, Suzann E. Knight, Kathryn A. Becker Bease

**Adjunct Faculty:** Molly Connelly, Helen Fitzgerald, Valerie Hurst, Mark Moses, Charles Putnam, Chuck Rhodes, Jane Stapelton

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 lifespan development, the social and economic roles of families, child advocacy, teacher and parent education, and intervention programs that support 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 both students and the larger community.

Students learn about families through integration of developmental, theoretical, and empirical information. The department offers a B.S. degree in family studies. Each student selects from one of the four specializations, each offering unique opportunities. Students prepare for positions in family service organizations, educational settings and programs, corporations, and government agencies. Each specialization has entry-level criteria and specific course requirements.

All require close consultation with a faculty adviser. Any changes or updates are posted on our Web site.

The nursery/kindergarten teaching certification and the Certified Family Life Educator programs are highly structured and may have limited enrollment. Acceptance to these programs and to internships and practica is restricted to students demonstrating exceptional potential for working with children and families.

**Major Requirements**

Core courses required of each family studies major are: FS 525, Human Development and FS 545, Family Relations. A minimum of nine family studies courses are required, at least two of which must be at the 700 level. Twenty credits of supporting coursework are selected in consultation with the adviser. These courses must be 500 level or above and must include at least 12 credits in courses outside the department. Each specialization has required or recommended supporting courses. Some departmental specializations may specify general education courses because they enhance the plan of study. Family studies majors are required to complete an undergraduate statistics course.

**Child Advocacy and Family Policy Specialization**

This specialization focuses on analyzing and solving problems related to children and their families with a primary emphasis on unmet needs. The goal is for students to complete their degree with a detailed understanding of human development, family relations, educational and government initiatives and regulations, cultural differences, statistics, politics, and effective communication strategies. The specialization is designed to prepare students for entry-level positions as advocates or policy generalists, or to pursue a graduate degree.

**Department Requirements**

FS 525, Human Development

FS 545, Family Relations

FS 553, Personal and Family Finance for Family Life Educators, or

FS 653, Family Economics

FS 623, Development Perspectives on Infancy and Early Childhood, or

FS 624, Developmental Perspectives on Adolescence and Early Adulthood

FS 641, Parenting Across the Lifespan, or

FS 743, Families, Schools and Community, or

FS 760, Family Programs and Policies
Family Support/Provisional Certification Family Life Education

This specialization is for students interested in working with children, adolescents, and adults either as individuals or as families. Students develop knowledge and skills to prepare them to provide family support, direct services, and family life education. This specialization prepares students to work in human service settings. Students may choose a plan of study leading to a provisional certification as a family life educator.

The National Council on Family Relations has approved the Department of Family Studies undergraduate program as meeting the standards and criteria required for the Provisional Certified Family Life Educator (CFLE) designation. Certified 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 designation recognizes expertise in a broad range of issues that constitute family life education and increases credibility by validating the individual’s education and experience.

Department Courses

- FS 525, Human Development*
- FS 545, Family Relations*
- FS 623, Developmental Perspectives on Infancy and Early Childhood
- FS 635, Teaching and Learning in Early Childhood Settings*
- FS 708-709, Advanced Child Development Internship*
- FS 733, Supervising Programs for Young Children*
- FS 743, Curriculum for Young Children*
- FS 743, Families, Schools and Community*
- FS 771, Observation and Assessment*

Students accepted into the certification program must also enroll in the following courses during their senior year:

- FS 785, Seminar for Student Teachers*
- FS 786, Seminar for Student Teachers*
- FS 788, Student Teaching of Young Children*

Supporting Courses

- EDUC 500* (may substitute FS 708 or FS 709); THDA 576; PSYC 581; or ANT 517, ANTH 517, SW 705 or EDUC 706*

*These courses are required for the certified Family Life Educator designation.

Individual and Family Development Specialization

This specialization is for students with a broad interest in working with families. This specialization 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.

Department Requirements

- FS 525, Human Development
- FS 545, Family Relations
- FS 623, Developmental Perspectives on Infancy and Early Childhood
- FS 624, Developmental Perspectives on Adolescence and Early Adulthood
- FS 641, Parenting Across the Lifespan
- FS 757, Race, Class and Gender
- FS 760, Family Programs and Policies
- FS 774, Families and the Law
- FS 794, Families and the Law

Supporting Courses

- FS 750, Contemporary Issues in Adolescent Development
- FS 760, Family Programs and Policies
- FS 782, Family Internship
- FS 792, Family Internship Seminar
- Research Methods course (e.g., PSYC 502, Research Methods in Psychology)
- PSYC 552, 581, 582
- NURS 535
- SOC 540

A foreign language
- Work with the Institute on Disability

Family Internships

Internship students will apply knowledge gained from their academic studies in a supervised environment. The internship involves a commitment of fifteen hours per week for two semesters, plus a three-hour seminar every other week. 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 with a minimum overall grade-point average of 3.00 and a departmental grade-point average of 3.20 or higher. Internship requirements vary depending on specialization. Internship courses will count toward the 20 credits required in supporting courses.
Family Studies Minor
The department offers a minor to interested students in related majors. Minor requirements include FS 525, FS 545, and three additional courses chosen in consultation with a departmental adviser. Individual course grades must be C or above and the overall grade-point average for the 20 credits must be at least 2.00. Students desiring a minor in family studies are advised to consult with the departmental administrative manager as early as possible.

Child Life Minor
The interdisciplinary minor is offered by the Department of Family Studies and the Therapeutic Recreation Option in the Department of Recreation Management and Policy. Upon completion of course requirements, students will be able to sit for the Child Life Specialist exam. Family studies majors are required to take three core courses: RMP 501, FS 525, and FS 623. FS students will select two courses from the following: RMP 501, RMP 503, RMP 504, RMP 603, RMP 604. Students will complete an Internship which will entail a minimum of 480 hours of experience and be supervised by a certified Child Life Specialist. Family studies majors will be assigned a minor adviser from therapeutic recreation.

Adolescence Minor
The UNH Center on Adolescence, in conjunction with the Departments of Family Studies and Recreation Management and Policy, offers a minor in Adolescent and Youth Development. The minor is designed to provide students 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. In order that students may be assisted in developing a cohesive plan of study for their minor, a simple application process will be used. Only students who have submitted an application, been accepted into the minor, and completed the required coursework will be identified as having achieved a minor in Adolescent and Youth Development. Students will select two courses from: FS 624, Developmental Perspectives on Adolescence and Early Adulthood; FS 750, Contemporary Issues in Adolescent Development; RMP 668, Youth Culture and Programs. Students will select three electives from: EDUC 710c, Youth Organizations; EDUC 797, Seminar in Early Adolescent Development; EDUC 717, Growing Up Male in America; EDUC 735, Young Adult Literature; FS 797, Adolescent Males and Violence; KIN 565, Principles of Coaching; RMP 558, Program Supervision and Leadership; RMP 560, Recreational Sport Management; RMP 730, Camp Administration and Leadership; RMP 760, Community Sport Organizations: Administration and Development; SOC 523, Juvenile Crime and Delinquency; SOC 773, Sociology of Childhood; RMP 563 or FS 707, Practicum; EDUC 507, Mentoring Adolescents.

COURSES

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<tr>
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Health Management and Policy (HMP)
www.shhs.unh.edu/hmp/
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: John W. Seavey
Professors: Cynthia M. Duncan, James F. McCarthy, Jeffrey Colman Salloway, John W. Seavey, Lee F. Seidel, Robert S. Woodward
Clinical Professors: Edgar J. Helms, Jr., Leslie N.H. MacLeod
Associate Professors: Marc D. Hiller, James B. Lewis
Assistant Professor: Gretta R. Bauer
Research Assistant Professors: David J. Laflamme, Tamara A. Martin
Clinical Assistant Professor: Susan W. Fox
Instructor: Robert J. McGrath

Undergraduates majoring in the health management and policy program are prepared to embark upon management careers in a wide range of health care delivery and financing organizations, public health, and health policy. Graduates work in many settings, including health care delivery systems, hospitals, nursing homes, health maintenance and other managed care organizations, public health departments, community-based and home-health agencies, mental health facilities, regulatory bodies, consulting companies, and insurance companies.

The academic program is interdisciplinary, with undergraduates taking courses in many academic units of the University. Students gain a broad view of health and health care while developing analytical skills in health care management and policy. The department uses a computer laboratory that is integrated throughout the curriculum.

The department’s undergraduate program maintains full certification by the Association of University Programs in Health Administration (AUPHA). Students have the opportunity to become student members in the American College of Healthcare Executives and the American College of Health Care Administrators, both of which are represented by student chapters at the University. There is also an organization for students interested in public health issues.

The department curriculum is approved under the New England Regional Student Program.

Academic Program
Competencies are achieved through three components of the curriculum:
University general education requirements, HMP collateral courses, and the HMP core courses including a field practicum. Students work closely with their assigned faculty.
advisers to develop a plan of study to achieve completion of each of these components. Additionally, several upper-level HMP elective courses are available.

University General Education Requirements:
Advisers assist students in selecting courses that satisfy certain program expectations and simultaneously meet University general education requirements.

HMP-Required Collateral Courses:
A basic understanding is expected in each of the following areas related to health management and policy: 1) microeconomics, 2) organizational behavior, and 3) statistics. HMP faculty advisers work with students to select the appropriate courses to fulfill these requirements. In general, students are advised to complete their collateral coursework prior to their junior year in the major. Program-approved courses in organizational behavior and U.S. Health Care Systems (HMP 401) must have been completed successfully before a student may begin junior-level studies in the major.

HMP Core Courses:
Each of the following courses must be completed by HMP majors prior to graduation.


Upper-division courses include HMP 642, Health Economics; HMP 711, Health Systems Research I; HMP 712, Health Systems Research II; HMP 721, Managing Health Care Organizations; HMP 723, Health Planning; HMP 740, Health Policy Analysis; HMP 744, Ethical Issues in Health Management and Medicine; and HMP 746, Health Policy. Upper-division courses are not offered every semester and students generally progress through these courses in a sequential order.

Field Practicum:
A full-time practicum (or administrative internship) that integrates class work with a supervised managerial work experience constitutes an essential part of the academic program. It allows students to explore an area of special interest in depth. Courses comprising this component of the major include: HMP 621, Prepracticum Seminar; HMP 622, Field Practicum; and HMP 624, Post Practicum Seminar. The practicum is divided into three concurrent components: A. Field Practicum Organizational Analysis; B. Field Practicum Management Skills Development; and C. Field Practicum Project Analysis. Field practicum sites are selected by faculty with student involvement and are concentrated in central and northern New England. Given sufficient timing of student request, efforts will be made to arrange practica at distant sites based on special needs.

HMP field practica currently occur during the summer between the junior and senior year in the major. They begin in late May and end in late August and require a full-time commitment.

HMP Elective Courses:
Elective courses within the program may include: HMP 430, Alternative Medicine and Health; HMP 505, Public Health: History and Practice; HMP 569, Human Behavior and the Public Health; HMP 570, Social Marketing; HMP 730, Managed Care; HMP 750, Comparative Health Care Systems; and HMP 755, Long Term Care Management and Policy. In addition, seniors may have the opportunity to elect independent studies (HMP 796) through individual arrangements with HMP faculty. Majors are encouraged to enroll in one or more of these courses before graduation.

Academic Requirements:
HMP majors must obtain a minimum of a C- in all HMP core courses and must pass all HMP-required collateral courses. Majors must have an overall grade-point average of 2.50 by the end of the semester preceding their practicum. Students not maintaining an overall grade-point average of 2.50 are reevaluated by the faculty and may be counseled into another major area of study at the University.

The faculty reviews student performances during the semester before the practicum to determine each student's readiness. Students who do not successfully complete prerequisite courses may not be permitted to advance through subsequent courses in the major.

Applications for Major
Students interested in additional information or in applying for admission to the health management and policy major are encouraged to contact the department's director of undergraduate studies before commencing the minor.

University general education courses in required collateral courses as well as those in the major in a timely and efficient manner.

Honors in Major
The department offers an honors in major program. To qualify, students must meet the department's requirement of having an overall 3.20 grade-point average at UNH and a 3.30 grade-point average for required HMP courses taken by the end of the junior year. Honors in major students take honors courses during the last half of junior year and senior year as well as complete an honors project. Students work with a faculty member in the department in the development of the honors project. Students should contact the department's honors in major adviser for further information.

Academic Minor in Health Management
The department offers an integrated minor in health management designed for students majoring in clinically oriented professional programs offered through other departments in the School of Health and Human Services. Students not enrolled in the school who wish to minor in health management may inquire about doing so by contacting the department's director of undergraduate studies. Students accepted into the minor must complete: 1) three required courses (HMP 401, U.S. Health Care Systems; HMP 721, Managing Health Care Organizations; and HMP 710, Financial Management for Clinicians); 2) one HMP elective course (HMP 501, Epidemiology and Community Medicine; HMP 430, Alternative Medicine and Health; HMP 505, Public Health History and Practice; HMP 569, Human Behavior and the Public Health; HMP 642 Health Economics; HMP 744, Ethical Issues in Health Management and Medicine; or HMP 755, Long Term Care Management and Policy; HMP 746, Health Policy; and 3) one additional elective course from a list approved by the department. Students seeking to minor in health management must complete the application available in the department office and meet with the department's director of undergraduate studies before applying for admission to the minor.

The Department of Health Management and Policy also 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. Public health is interdisciplinary in nature and, therefore, the minor is composed of courses in the Department of Health Management and Policy as well as courses in other schools and colleges in the University.

COURSES
HMP 400 Exploring Health: Doing Well by Doing Good 2 cr.
HMP 401 United States Health Care Systems 4 cr.
HMP 401H Honors/United States Health Care Systems 4 cr.
HMP 401W United States Health Care Systems 4 cr.
HMP 402 Health Management and Policy Critical Issues 4 cr.
HMP 430 Alternative Medicine and Health 4 cr.
HMP 444 From Frankenstein to Dolly, and Beyond 4 cr.
HMP 501 Epidemiology and Community Medicine 4 cr.
HMP 501H Honors/Epidemiology and Community Medicine 4 cr.
HMP 505 Public Health: History and Practice 4 cr.
HMP 569 Human Behavior and the Public Health 4 cr.
HMP 570 Social Marketing 4 cr.
HMP 600 Special Topics 1 to 4 cr.
International Affairs (dual major)
(For program description, see page 131.)

Kinesiology (KIN)
www.unh.edu/kinesiology/
(For course descriptions, go to www.undergradat.unh.edu.)

Chairperson: Heather Barber
Professors: Ronald V. Croce, Michael A. Gass, Stephen H. Hardy
Associate Professors: Heather Barber, Robert W. Keneke, John P. Miller, Timothy J. Quinn, Neil B. Vroman, Steven C. Wright
Assistant Professors: Karen E. Collins, David G. Edwards, Keith Russell, Erik E. Swartz
Clinical Associate Professor: Daniel R. Sedory
Clinical Assistant Professor: Laurie Gullion
Instructors: Jonathan L. Dickey, Michelle A. Grenier, Karen N. Henny, Kenneth T. Hult, James Miller, Jr.

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 options described below. While options 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 option makes extensive use of field experiences and internships that blend theory with practice.

The department offers five areas of study for majors: 1) athletic training, 2) exercise science, 3) outdoor education, 4) sport studies, and 5) physical education pedagogy. Students who wish to minor in kinesiology must complete 20 credits of coursework that have been approved by a department minor adviser. No more than 6 of the 20 credits may be earned through activity or coaching courses.

Students interested in majoring or minoring in kinesiology should consult with the specific option coordinator.

Athletic Training Option
An athletic trainer implements injury prevention programs and immediate treatment and rehabilitation procedures for injured individuals as directed by physicians. The Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited athletic training option prepares professionals qualified to attend the athlete, the fitness-conscious jogger, or the skilled professional athlete.

Students take coursework in prevention, evaluation, management, care, and rehabilitation of athletic injuries as well as administration, education, and counseling. Students must earn a grade of C (2.00) or better in all KIN required courses and ZOOL 507-508.

Students gain clinical experience in University athletic training rooms and at off-campus clinical sites. Successful completion of the entire program, including 1,000 hours of supervised clinical experience, qualifies students to take the NATA-BOC certification exam. Students who wish to pursue both NATA-BOC certification and public school teacher certification should also take the pedagogy option. This double course of study will require between five and six years.

Students are admitted to the University in the athletic training option with conditional status. Specific criteria must be met during the student's first year before he/she may apply for full-time status in the option, which is awarded to those students demonstrating exemplary performance in classes and clinical observations. Additionally, option 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, with reasonable accommodations, they can meet the standards. It is very important that interested students consult with option coordinator, Dan Sedory, regarding entry criteria and the technical standards.

Required Courses

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<td>KIN 585, Emergency First Responder</td>
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<td>KIN 620, Physiology of Exercise</td>
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<td>KIN 63A, Musculoskeletal Assessment</td>
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<td>KIN 658, Athletic Training for the Professional I</td>
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<td>KIN 660, Therapeutic Exercise in Athletic Training</td>
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<td>KIN 670, General Medical Conditions in Athletics</td>
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<td>KIN 718, Career Preparation in Athletic Training</td>
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<td>KIN 780, Psychological Factors in Sport</td>
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<td>NUTR 400, Nutrition in Health and Well Being</td>
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Exercise Science Option
This curriculum prepares individuals for career opportunities in fitness and health promotion programs in hospitals, industry, and communities. Exercise scientists work in physical activity programs of prevention, intervention, and rehabilitation. Students must earn a grade of C (2.00) or better in
every required course. All required courses must be completed before enrolling in KIN 650. Interested students should consult with the option coordinator, Robert Kenefick.

**Required Courses**

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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>KIN 585, Emergency First Responder</td>
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<tr>
<td>KIN 620, Physiology of Exercise</td>
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<tr>
<td>KIN 621, Exercise Laboratory Techniques</td>
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<tr>
<td>KIN 650, Exercise Science Internship</td>
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<tr>
<td>KIN 652, Clinical Kinesiology</td>
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<td>KIN 653A, Musculoskeletal Assessment</td>
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<tr>
<td>KIN 704, Electrocardiography</td>
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<tr>
<td>KIN 705, Topics in Applied Physiology</td>
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<tr>
<td>KIN 720, Science &amp; Practice of Strength Training</td>
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<td>KIN 724, Metabolic Adaptations to Exercise</td>
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<td>KIN 736, Fitness and Graded Exercise Testing &amp; Prescription</td>
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<tr>
<td>KIN 737, Personal Training and Exercise Leadership</td>
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</tr>
<tr>
<td>KIN 794, Practicum in Cardiac Rehabilitation</td>
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</tbody>
</table>

**Outdoor Education Option**

The outdoor education option is an award-winning, internationally recognized program preparing individuals for careers in the educational, managerial, and/or therapeutic aspects of physical activity in natural and challenging environments. The option is interdisciplinary in scope, uses the various natural resources in seacoast and mountain areas, and provides students ample opportunity for practical application and field experience. Students must earn a grade of C (2.00) or better in every required course. In addition they must complete 100 days of documented leadership experience prior to beginning an internship. Interested undergraduate students should consult with the undergraduate curriculum coordinator, Laurie Gullion, e-mail lgullion@unh.edu.

**University Required Courses**

- One course chosen from SOC 502, PSYC 402, or HHS 540 (4)
- CHEM 403-404, General Chemistry (8)
- CS 403, Online Network Applications (4)
- NUTR 400, Nutrition in Health and Well Being (4)
- PSYC 401, Introduction to Psychology (4)
- ZOOL 507-508, Human Anatomy and Physiology (8)

**Outdoor Education Option**

- KIN 682, Outdoor Leadership (4)
- KIN 684, Emergency Medical Care: Principles and Practices (3)
- KIN 685, Emergency Medical Care: Principles and Practices Lab (2)
- KIN 686, Wilderness Emergency Medical Care (4)
- KIN 687, Leadership Practicum (4)
- KIN 786, Organization and Administration of Outdoor Education (4)
- KIN 650, Internship* (2-4 Cr/F)

*Note: Proof of 100 days of leadership experience is required prior to taking this course.

**Elective Courses (must successfully complete at least one)**

- KIN 545, High Angle Rescue (2)
- KIN 546, Whitewater Canoeing (3)
- KIN 547, Lead Rock Climbing (3)
- KIN 548, High Altitude Mountaineering (4)
- KIN 549, Wilderness Programming Skills (4-8)
- KIN 782, Therapeutic Applications of Adventure Programming (4)
- KIN 693C, Teaching Assistantship (2 Cr/F)

**Physical Education Pedagogy Option**

Pedagogy is the art and science of teaching. This option integrates a general education background with the theoretical and process knowledge involved in teaching movement-based elementary and secondary physical education programs. Extensive practicum experiences prepare students to teach preschool children, school-aged youth, and young adults, including students with developmental disabilities.

The physical education pedagogy option provides the foundation for public school teacher certification through either our four-year certification program, or, if a student chooses to pursue a master’s degree with certification, the Department of Education’s Fifth-Year Program. All fifth-year candidates must meet the requirements for admission to graduate school (e.g., grade-point average of 2.67 or above and 800 or above on the Graduate Record Examination). Internal transfer candidates must have a minimum GPA of 2.5. All physical education pedagogy option students must receive a “C” grade (2.0) or better in all KIN required courses, including: KIN 655, Middle School and Secondary PE Pedagogy; KIN 666, Middle School and Secondary PE Practicum; KIN 610, Elementary PE Pedagogy; KIN 781, Inclusion in PE; and KIN 570, Elementary PE Practicum. For questions about this program, contact the option coordinator, Steven Wright, at (603) 862-4408, or e-mail Steven.Wright@unh.edu.
Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>KIN 500</td>
<td>Historical and Contemporary Issues in Physical Education</td>
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<td>KIN 501</td>
<td>First Aid: Responding to Emergencies</td>
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</tr>
<tr>
<td>KIN 570</td>
<td>Elementary Physical Education Practicum</td>
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<td>KIN 600</td>
<td>Movement Fundamentals</td>
<td>4 cr.</td>
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<td>KIN 601</td>
<td>Lifetime Sports</td>
<td>3 cr.</td>
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<td>KIN 602</td>
<td>Team Sports</td>
<td>3 cr.</td>
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<tr>
<td>KIN 609</td>
<td>Gymnastics</td>
<td>3 cr.</td>
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<td>KIN 610</td>
<td>Elementary Physical Education Pedagogy</td>
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<td>KIN 620</td>
<td>Physiology of Exercise</td>
<td>4 cr.</td>
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<tr>
<td>KIN 648</td>
<td>Current Issues in Health</td>
<td>4 cr.</td>
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<tr>
<td>KIN 652</td>
<td>Clinical Kinesiology</td>
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<td>Biomechanical Analysis of Movement</td>
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<td>KIN 675</td>
<td>Motor Development and Learning</td>
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<td>Adventure Activities</td>
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<td>KIN 780</td>
<td>Psychological Factors in Sport</td>
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<td>KIN 781</td>
<td>Inclusion in Physical Education</td>
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Required Education Courses

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<th>Course Title</th>
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<tr>
<td>EDUC 700/800</td>
<td>Educational Structure and Change</td>
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<tr>
<td>EDUC 705/805</td>
<td>Alternative Perspectives on the Nature of Education</td>
<td>2-4 cr.</td>
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<tr>
<td>KIN/EDUC 694</td>
<td>Courses in Supervised Teaching</td>
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<tr>
<td>or EDUC 900/901</td>
<td>Internship and Seminar in Teaching</td>
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COURSES

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<td>Prevention and Care of Athletic Injuries</td>
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<td>Concepts of Athletic Training for the Professional</td>
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<td>Theory of Coaching Basketball</td>
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<td>Theory of Coaching Hockey</td>
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<td>Basic Scuba</td>
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<td>Top Rope Rock Climbing</td>
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<td>Management of Initiatives and Challenge Courses</td>
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<td>Winter Backpacking Skills</td>
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<td>High Angle Rescue</td>
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<td>KIN 546</td>
<td>White Water Canoeing</td>
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<td>KIN 547</td>
<td>Lead Rock Climbing</td>
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<td>High Altitude Mountaineering</td>
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<td>KIN 550</td>
<td>Outdoor Education Philosophy and Methods</td>
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<td>Adventure Programming: Backcountry Based Experiences</td>
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<td>History of American Sport and Physical Culture</td>
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<td>Principles of Coaching</td>
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<td>Sport Industry</td>
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<td>Internship in Sport Studies</td>
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<td>KIN 650D</td>
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<td>KIN 659L</td>
<td>Athletic Training for the Professional II Lab</td>
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<td>Therapeutic Modalities in Athletic Training</td>
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<td>Therapeutic Modalities in Athletic Training Laboratory</td>
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<td>Laboratory Practicum in Athletic Training</td>
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<td>Pharmacology for Athletic Training</td>
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<td>KIN 668</td>
<td>Ergonomic Aids in Sports</td>
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<td>KIN 684</td>
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<td>KIN 686</td>
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<td>Leadership Practicum</td>
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<td>KIN 693</td>
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<td>KIN 694</td>
<td>Supervised Teaching in Physical Education</td>
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<tr>
<td>KIN 696</td>
<td>Independent Study</td>
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<td>KIN 699H</td>
<td>Honors Project</td>
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<td>KIN 704</td>
<td>Electrocardiography</td>
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<td>Topics in Applied Physiology</td>
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<td>KIN 706</td>
<td>Neurology</td>
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<td>Neurology Lab</td>
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<td>KIN 710</td>
<td>Organization and Administration of Athletic Training Programs</td>
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<td>Seminar in Athletic Training</td>
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<td>Career Preparation in Athletic Training</td>
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<td>Science and Practice of Strength Training</td>
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<td>Metabolic Adaptations to Exercise</td>
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<td>Research Diving Techniques</td>
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<td>Advanced Scuba</td>
<td>4 cr.</td>
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<td>KIN 736</td>
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<td>KIN 741</td>
<td>Social Issues in Contemporary Sports</td>
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<td>KIN 743</td>
<td>Sport Marketing</td>
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<td>Theories of Motivation in Sport and Exercise</td>
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<td>Senior Seminar Sport Studies</td>
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<td>Psychological Skills in Performance</td>
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<td>KIN 781</td>
<td>Inclusion in Physical Education</td>
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<td>KIN 786</td>
<td>Organization and Administration of Outdoor Education</td>
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<td>KIN 794</td>
<td>Cardiopulmonary Pathology and Rehabilitation</td>
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</tr>
<tr>
<td>KIN 798</td>
<td>Special Topics</td>
<td>1 to 4 cr.</td>
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</table>

Nursing (NURS)

www.shhs.unh.edu/nursing/ (For course descriptions, go to www.undergradat.unh.edu.)

Chairperson: Lynette A. Ament
Professor: Judith A. Sullivan
Associate Professors: Lynette A. Ament, Susan J. Fetzet, Gene E. Harkless, Liza Little, Dorothy D. Rentschler, Raeleen Shippee-Rice, Carol L. Williams-Barnard
Assistant Professors: Joyce Dolphin Cappiello, Katherine S. Collopy, Pamela P. DiNapoli, Janice B. Foust
Clinical Assistant Professors: Jeffrey A. Eaton, Paula L. McWilliam, Melissa E. Ott, Donna M. Pelletier

The nursing program is nationally accredited by the Commission on Collegiate Nursing Education, One Dupont Circle NW, Suite 530, Washington, DC 20036-1120. It reflects the mission and goals of the University and focuses on the uniqueness of each individual. The mission of the Department of Nursing 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 educa-
tion. Its goals are to help nursing students develop knowledge and skills essential to the present and future practice of nursing. Graduates of the program 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.

The curriculum is divided into biological, social sciences, and humanities as a foundation for courses in the major; and nursing courses, which emphasize caring, critical thinking, problem solving, decision making, and developing clinical skills. Clinical experiences are offered in area hospitals and in community health agencies. The senior year culminates in a practicum in which students apply curriculum concepts to an interest area of their choice.

The faculty of the nursing program 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 cumulative grade-point average of 3.20 and 3.5 in the major.

The following prerequisite courses must be completed successfully prior to the first clinical course, NURS 514, Techniques of Clinical Nursing: ENGL 401; ZOOL 507-508; NUTR 400; PSYC 401; MCR 501; and NURS 501. A course in statistics must be completed prior to, or taken concurrent with, NURS 645, Nursing Research. Prerequisite courses require grades of C or better and only one prerequisite course may be repeated one time in order to achieve successful completion.

Most of the prerequisite courses also meet general education requirements. A cumulative grade-point average of 2.50 must be attained prior to NURS 514 and maintained throughout the program. Major courses require a minimum grade of C.

Students are responsible for their own transportation to clinical agencies, uniforms, professional equipment, liability and health insurance coverage, criminal background checks, and selected immunizations. Additional costs associated with the program include laboratory fees each semester beginning in sophomore year and fees associated with attendance at professional meetings. Students must be certified in cardiopulmonary resuscitation before the first clinical course and recertified as necessary until graduation. Students will be required to pay late fees if documentation is not received by the first day of class. Students may not attend clinical experiences if required information is not on file in the department.

### Freshman Year

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<td>ZOOL 507-508, Human Anatomy and Physiology</td>
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<tr>
<td>NURS 400, Nutrition in Health and Well Being</td>
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<td>ENGL 401, Freshman English</td>
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<tr>
<td>PSYC 401, Introduction to Psychology</td>
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<td>Electives (3)</td>
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<td><strong>16 16</strong></td>
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### Sophomore Year

| MICR 501, Microbes in Human Disease | 4 |
| NURS 501, Introduction to Nursing | 4 |
| One course in statistics* | 4 |
| NURS 502, Concepts of Pathophysiology/Pharmacology | 4 |
| NURS 508, Foundations of Nursing Judgment | 4 |
| NURS 514, Techniques of Clinical Nursing | 4 |
| Electives (2) | 4 |
| **Total** | **16 16** |

### Junior Year

| NURS 615, Care of the Adult | 4 |
| NURS 615C, Care of the Adult Clinical | 4 |
| NURS 619, Clinical Decision Making I | 4 |
| NURS 620, Caring for the Childbearing-Rearing Family | 4 |
| NURS 620C, Caring for the Childbearing-Rearing Family Clinical | 4 |
| NURS 618, Caring for People with Alterations in Mental Health, | 2 |
| NURS 618C, Caring for People with Alterations in Mental Health Clinical | 2 |
| **Total** | **16 16** |

### Senior Year

| NURS 703, Nursing Leadership/Management and the Organizational Context | 4 |
| NURS 618, Caring for People with Alterations in Mental Health, | 2 |
| NURS 618C, Caring for People with Alterations in Mental Health Clinical | 2 |
| **Total** | **16 16** |

*HHS 540, PSYC 402, SOC 502, etc.*

### R.N. Baccalaureate Program

Registered nurses with a valid registered nurse license who meet University admission criteria may pursue, on a full- or part-time basis, a bachelor of science degree with a major in nursing at UNH-Durham, Keene, or at UNH Manchester.

Curriculum requirements may be met through transfer credits, course enrollments, and challenge examinations. An R.N. license and one year of practice experience are required for all nursing coursework.

The nursing component is based on the belief that R.N. students enter the program with knowledge and competence gained through previous educational and work experiences. This knowledge and competence can be demonstrated through completion of required baccalaureate-level nursing courses. Individualized plans of study are developed to enable completion of nursing content.

The R.N. student must earn a minimum of 128 credits and have a 2.50 cumulative grade-point average in order to enroll in clinical nursing courses and maintain that grade-point average throughout their coursework. A minimum grade of C is required in each nursing course.

Interested R.N.s should consult with the R.N. program coordinator at Durham, Keene, or Manchester.

### Courses

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CR.</th>
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<tbody>
<tr>
<td>NURS 501 Introduction to Nursing</td>
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<tr>
<td>NURS 502 Concepts of Pathophysiology/Pharmacology</td>
<td>4</td>
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<tr>
<td>NURS 508 Foundations of Nursing Judgment</td>
<td>4</td>
</tr>
<tr>
<td>NURS 514 Techniques of Clinical Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 535 Death and Dying</td>
<td>4</td>
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<td>NURS 595 Women's Health</td>
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<tr>
<td>NURS 606 Seminar on Professional Nursing</td>
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<tr>
<td>NURS 615 Adult Health Nursing</td>
<td>4</td>
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<tr>
<td>NURS 615C Adult Health Nursing Clinical</td>
<td>4</td>
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<tr>
<td>NURS 617 Nursing and Healthcare Policy</td>
<td>3</td>
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</tbody>
</table>

93
SCHOOL OF HEALTH AND HUMAN SERVICES

NURS 618 Caring for People with Alterations in Mental Health 2 cr.
NURS 618C Caring for People with Alterations in Mental Health Clinical 2 cr.
NURS 619 Clinical Decision Making I 4 cr.
NURS 620 Caring for the Childbearing and Childrearing Family 4 cr.
NURS 620C Caring for the Childbearing and Childrearing Family Clinical 4 cr.
NURS 622 Clinical Decision Making II 4 cr.
NURS 624 Nursing in the Community 2 cr.
NURS 624C Nursing in the Community Clinical 2 cr.
NURS 645 Research 4 cr.
NURS 645W Research 4 cr.
NURS 655 Community Health Nursing I 3 cr.
NURS 656 Community Health Nursing II: Individuals, Families, and Aggregates 2 cr.
NURS 656C Community Health Nursing II/Clinical 1 cr.
NURS 694 Special Topics 1 to 4 cr.
NURS 695 Independent Study 2 to 4 cr.
NURS 703 Nursing Leadership/Management and the Organizational Context 4 cr.
NURS 703W Nursing Leadership/Management and the Organizational Context 4 cr.
NURS 710 Families in Health and Illness 4 cr.
NURS 719 Professional Nursing Practice: Transitions 7 cr.
NURS 720 Clinical Decision-Making III 6 cr.
NURS 720C Clinical Decision-Making III Clinical 6 cr.
NURS 794 Special Topics 1 to 4 cr.
NURS 794W Special Topics 1 to 4 cr.
NURS 797 Honors Thesis 1 or 4 cr.

Occupational Therapy (OT)
www.shhs.unh.edu/ot/
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Elizabeth L. Crepeau
Professor: Elizabeth L. Crepeau
Associate Professors: Lou Ann Griswold, Shelley E. Mulligan, Judith D. Ward
Assistant Professors: Susan C. Merrill, Douglas C. Simmons, Barbara Prudhomme White

Occupational therapy enables people to participate in daily life activities including leisure, work, self-care, and home management. Occupational therapists work with people of all ages to gain or regain skills and abilities or adapt tasks within their natural environment. Occupational therapy education includes studies in liberal arts, biological, behavioral, and health sciences, and occupational science and occupational therapy.

The occupational therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). ACOTE is located at the American Occupational Therapy Association, 4720 Montgomery Lane, P. O. Box 31220, Bethesda, MD 20824-1220. ACOTE's phone number is (301) 652-2682. 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.

Combined Bachelor of Science/Master of Science Program

Graduates of professional programs must complete a professional master's degree in occupational therapy in order to enter the field. The University of New Hampshire Department of Occupational Therapy offers a combined bachelor's degree/master's degree program. Students may enter as freshmen or transfer into the B.S./M.S. program at the end of 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.

Pre-Professional Curriculum

Students begin the B.S./M.S. curriculum with three years of pre-professional courses, which include courses in biological and social sciences as well as occupational therapy. In addition to University general education courses, students take the following core courses during their first three years:
ENGL 401, Freshman English
PSYC 401, Introduction to Psychology
ZOOI 507 and 508, Human Anatomy and Physiology
Social Sciences: three courses in the social sciences, such as history, sociology, psychology, economics, anthropology
OT 500, The Behavior and Development of Children
OT 501, Development Tasks of Adulthood
OT 510, Exploring Occupational Therapy
OT 685, Psychosocial Disorders and Everyday Life
KIN 706 and 707, Neurology and Neurology Lab
Statistics

Additional requirements include:
- an experiential learning course for four credits;
- a health or social policy course;
- a minor or self-designed concentration area that relates to health and human services for a total of 20 credits;
- 40 hours of volunteer or work experience in a health and human service organization are recommended.

Professional Curriculum

Students in the B.S./M.S. curriculum begin the professional program in the senior year and complete the following courses:
OT 741, Human Occupation I
OT 751, Mind Body Systems Neurologically-based Function and Dysfunction
OT 752, Human Movement and Environmental Effects on Everyday Occupations
OT 761, Professional Roles and Principles of Practice
OT 762, Evaluation Principles and Methods
OT 763, Intervention Principles and Methods
OT 771, Enabling Participation in Community Groups
OT 772, Occupation, Health and Community Programming
OT 792, Level I Fieldwork

At the end of this year, students are awarded a Bachelor of Science degree in occupational therapy. Students then apply to the Graduate School as advanced-standing students in the professional master's program. An overall minimum grade point of 3.0 and a minimum of 3.0 G.P.A. in prerequisite courses is required for admission to the master's degree program.

Please refer to the Graduate Catalog for additional information about the master's program and the fifth year of the occupational therapy curriculum including fieldwork requirements.

Students have four academic years to complete the professional curriculum including level II field work. They will then be eligible to sit for the certification examination administered by the National Board of Certification of Occupational Therapists (NBCOT). Consistent with NBCOT, students must sit for the certification examination within two years of completion of coursework and fieldwork. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and/or obtain state licensure.

Students are responsible for transportation to off-campus practicum and fieldwork locations and must purchase personal liability insurance for coverage for the practical components of the curriculum.

Curriculum review and revision is undertaken annually. The Department of Occupational Therapy works closely with students during academic advising sessions and shares information about policy and requirement changes during registration periods as well as throughout the academic year. Students are also expected to take an active role in verifying expectations and should check with their department advisors each September for updated policies and requirements. Program requirements and policies for retention in the major are in the
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 the public health, 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. Graduates are employed by community recreation agencies, resorts, conference centers, youth services agencies, hospitals, rehabilitation centers and long-term care facilities. 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 is nationally accredited by the National Recreation and Parks Association/American Association of Leisure and Recreation. The department's curriculum supports a broad-based liberal education and an opportunity to acquire specialized professional knowledge and skills.

Curriculum Structure

Students entering the major may choose either: 1) program administration, which includes the professional core and required courses related to program administration, or 2) a specialized option in therapeutic recreation, which includes the professional core and required courses in therapeutic recreation.

International Study in Recreation and Leisure

A semester abroad sponsored by the American Universities International Program is available to students pursuing a degree in recreation management and policy. Programs in Scotland, Australia, New Zealand, South Africa, or Belize provide discipline-related exchange opportunities. Approval by the curriculum director is required approximately one year before departure. Eleven transfer credits can be granted. Other destinations can be negotiated through the Center for International Education on campus.

Core Courses

All majors must complete a core curriculum of eight courses: RMP 490, Recreation and Leisure in Society; RMP 501, Recreation Services for Individuals with Disabilities; RMP 557, Recreation Services Program Design and Planning; RMP 563, Recreation Management and Policy Practicum; RMP 654, Professional Development and Ethics; RMP 663, Management and Policy in Leisure Services; RMP 664 (A or B), Professional Internship; RMP 724, Grantsmanship, Evaluation, and Research; and RMP 772, Law and Public Policy in Leisure Services. A supervised internship (RMP 664) is required of all majors. The internship is designed to create a bridge between theory and practical application. Students working with their advisors and the internship coordinator select an appropriate setting based on their professional and career interests. They must complete a minimum of 560 hours of supervised field study within fourteen weeks. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

Program Administration Option

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 meeting planning, municipal park and recreation services, recreational sports, commercial/entrepreneurial recreation businesses, youth serving agencies, resorts, and natural resource management positions in state and federal agencies.

In addition to the required core courses, students who pursue the program administration option must complete the following departmental requirements: RMP 558, Program Supervision and Leadership; RMP 665, Applied Marketing and Communication in Recreation Services; two RMP course electives; CS 401, Computer Applications, or an approved equivalent; HHS 540 or other descriptive statistics; PSYC 401, Introduction to Psychology; FS 525, Human Development; or SW 550. Program administration students must complete a minor or emphasis area of 18-20 credits to support their specific career goals.

Therapeutic Recreation Option

Therapeutic recreation utilizes recreation to help 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- to 16-week full-time clinical internship under the supervision of a Certified Therapeutic Recreation Specialist (CTRS). Students must purchase personal liability insurance for coverage for the clinical components of the curriculum. The Bureau of Labor Statistics reports that therapeutic recreation is one of the fourteen fastest growing occupations in the country. The occupational outlook statistics reflect a "39 percent increase in demand for recreational therapists with strong clinical backgrounds" for the beginning of the twenty-first century. Upon successful completion of this option, students are prepared to meet sitting requirements for the National Council for Therapeutic Recreation Certification Examination.

In addition to the required core courses, students who choose this option must complete the following departmental requirements: RMP 502, Foundations of Therapeutic Recreation; RMP 503, Therapeutic Recreation Rehabilitation Principles and Interventions; RMP 504, Therapeutic Recreation Mental Health Principles and Interventions; RMP 603, Assessment and Treatment Planning in Therapeutic Recreation; RMP 604, Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation; CS 401, Computer Applications or approved equivalent; HHS 540, Statistics, or equivalent; PSYC 561, Abnormal Behavior; FS 525, Human Development; ZOOL 507-508, Human Anatomy and Physiology; KIN 652, Clinical Kinesiology, and KIN 653A, Musculoskeletal Assessment.

Criteria for Admission and Retention

Internal transfer students interested in applying to the major must meet with an RMP faculty member prior to receiving an application for admission to the major. Transfer applications are accepted throughout the year. Applications can be obtained from the Department of Recreation Management and Policy. Students within the major are required to maintain a minimum 2.50 semester grade-point average every semester to retain good academic standing within the major. In addition, student majors must obtain a grade of C (2.00) or better in RMP courses and a grade of C- (1.67) or better in all other courses specifically required by the department.

Child Life Minor

This interdisciplinary minor is offered to a limited number of students by the therapeutic recreation option in the Department of Recreation Management and Policy and the Department of Family Studies. Upon completion of course requirements, students will be able to sit for the Child Life Specialist exam. All students complete three core courses: RMP 502, FS 525 and FS 623. Therapeutic Recreation students will select two courses from the following: FS 635, FS 641, FS 709, FS 734, and FS 772. Students will complete an Internship which will entail a minimum of 480 hours of experience and be supervised by a certified Child Life Specialist. Therapeutic recreation majors will be assigned a minor adviser from family studies.

<table>
<thead>
<tr>
<th>COURSES</th>
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<tr>
<td>RMP 444 Building a Culture of Peace</td>
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<td>RMP 490 Recreation and Leisure in Society</td>
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<td>RMP 501 Recreation Services for Individuals</td>
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<td>RMP 502 Foundations of Therapeutic Recreation</td>
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<td>RMP 503 Therapeutic Recreation Rehabilitation</td>
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<td>Principles &amp; Interventions</td>
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<td>RMP 504 Therapeutic Recreation Mental Health</td>
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<td>Principles and Interventions</td>
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<td>RMP 511 Issues of Wilderness and Nature</td>
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<td>RMP 550 Perspectives on Disability</td>
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<td>RMP 557 Recreation Services Program</td>
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<td>Design</td>
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<td>RMP 558 Program Supervision and Leadership</td>
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<td>RMP 560 Recreational Sport Management</td>
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<td>RMP 563 Recreation Management and Policy</td>
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<td>Practicum</td>
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<td>RMP 593 Special Topics</td>
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<td>RMP593W Special Topics</td>
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<td>RMP 600 Multicultural Perspectives and</td>
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<td>Leisure</td>
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<td>RMP 603 Assessment and Treatment Planning in</td>
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<td>Therapeutic Recreation</td>
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<tr>
<td>RMP 604 Therapeutic Communication and</td>
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<tr>
<td>Facilitation in Therapeutic Recreation</td>
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<tr>
<td>RMP 654 Professional Development and Ethics</td>
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<td>RMP 663 Management and Policy in Leisure</td>
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<td>Services</td>
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RMP 664 Internship                           | 6 to 16 cr. |
RMP 665 Applied Marketing and Communications in Recreation Services | 4 cr. |
RMP 668 Youth Culture and Programs           | 4 cr. |
RMP 675 Entrepreneurial and Commercial Recreation | 4 cr. |
RMP 700H Senior Honors Project               | 4 to 6 cr. |
RMP 705 Management and Policy in Therapeutic Recreation | 4 cr. |
RMP 711 Recreation Resource Management       | 4 cr. |
RMP 724 Grantmanship, Evaluation, and Research | 4 cr. |
RMP 730 Camp Administration and Leadership   | 4 cr. |
RMP 760 Community Sport Organizations:       | 4 cr. |
| Administration and Development              |         |
| RMP 770 Management and Design of            | 4 cr.   |
| Recreation and Park Facilities               |         |
| RMP 772 Law and Public Policy in Leisure    | 4 cr.   |
| Services                                    |         |
| RMP 793 Advanced Topics                     | 2 to 4 cr.|
| RMP 796 Independent Study                   | 1 to 4 cr.|

Social Work (SW)

www.shhs.unh.edu/sw/

(For course descriptions, go to www.catalog.unh.edu)

Chairperson: Jerry D. Marx
Associate Professors: Mary Banach, Linda Rene Bergeron, Cynthia Anne Broussard, Robert E. Jolley, Jerry D. Marx, Sharyn J. Zunz
Assistant Professors: Vernon Brooks Carter, Karen R. Oil, Martha H. Ortmann, Melissa Wells
Clinical Assistant Professors: Martha A. Byam, Susan A. Lord, Kim Kelsey
Instructor: Lee P. Rush

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 knowledge, skills, and value base of social work and the liberal arts. Social work graduates apply their education in working with individuals, groups, and social systems. In addition, the program prepares qualified students to pursue graduate education in schools of social work and other graduate programs in human services.

The baccalaureate program at the University of New Hampshire 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 foundation of social welfare policy, social work practice, human behavior in the social
environment, research, and field education. Course content on values and ethics, populations-at-risk, human diversity, and social and economic justice is integrated throughout the curriculum.

To enable students to gain direct experience and to integrate classroom content with the demands of professional social work practice, students complete an introductory-year field observation as well as a 450-hour social work internship over two semesters during the senior year. The senior field placement is a "capstone" experience in the final year of the baccalaureate program and is arranged between the student and the field education coordinator. Students are required to pay a liability insurance fee for their off-campus field education experience.

Social work majors earn the B.A. degree with a notation on their University records, "majored in social work." This is equivalent to a B.S.W. degree. Graduates are eligible for practice in a variety of social work settings throughout the United States and full membership in the National Association of Social Workers. In addition, qualified graduates may be eligible for advanced standing in M.S.W. programs which offer advanced standing.

**Academic Program**

Social work majors are required to take ZOOL 401; SW 424, 525, 550, 551, 601, 622, 623, 640, 640A, 641, 641A. In addition, students are expected to successfully complete four courses taken from the disciplines of anthropology/sociology, macroeconomics, philosophy, and psychology. Many of these may also fulfill general education requirements. Students wishing to minor in social work are required to take SW 424, SW 525 and any three other courses offered by the department, excluding SW 640, 641. 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.

**COURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4 cr.</td>
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<tr>
<td>SW 444</td>
<td>You've Got Your Troubles, I've Got Mine</td>
<td>4 cr.</td>
</tr>
<tr>
<td>SW 525</td>
<td>Introduction to Social Welfare Policy</td>
<td>4 cr.</td>
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<tr>
<td>SW 550</td>
<td>Human Behavior and Social Environment I</td>
<td>4 cr.</td>
</tr>
<tr>
<td>SW 551</td>
<td>Human Behavior and Social Environment II</td>
<td>4 cr.</td>
</tr>
<tr>
<td>SW 601</td>
<td>Research Methods in Social Work</td>
<td>4 cr.</td>
</tr>
<tr>
<td>SW 622</td>
<td>Social Work Practice I</td>
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<tr>
<td>SW 623</td>
<td>Social Work Practice II</td>
<td>4 cr.</td>
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</table>

SW 640 Social Welfare Field Experience I | 5 cr. |
SW 640A Social Welfare Field Experience I: Seminar | 3 cr. |
SW 641 Social Welfare Field Experience II | 5 cr. |
SW 641A Social Welfare Field Experience II: Seminar | 3 cr. |
SW 697 Special Topics in Social Welfare | 4 cr. |
SW 701 Women and Aging | 4 cr. |
SW 705 Child Welfare: Policies, Programs, and Practice | 4 cr. |
SW 711 Social Work and Mental Illness | 4 cr. |
SW 712 Social Work and Developmental Disabilities | 4 cr. |
SW 715 Practice with Gay, Lesbian, and Bisexual Clients | 4 cr. |
SW 785 Comparative Social Welfare Systems | 4 cr. |
SW 795 Independent Study in Social Service | 1 to 6 cr. |
SW 796 Independent Study: Teaching Assistantship | 1 to 6 cr. |
SW 797H Honors Thesis | 2 to 4 cr. |
SW 798H Honors Thesis | 2 to 4 cr. |
The objectives of the College of Life Sciences and Agriculture are to give students a fundamental education in the biological, natural, and social sciences and to introduce them to the arts and humanities. In addition, advanced technical and professional courses are offered to prepare students for graduate school or entry-level positions in areas concerned with improving the quality of life. Preparation can vary from fundamental studies of cancer cells to community-service planning, resource protection to genetic engineering, and career teaching to molecular biology and biotechnology.

A blend of the basic and applied aspects of life sciences and agriculture, coupled with careful selection of supportive courses, ensures graduates 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 communications experts.

Community governments employ graduates as service planners and land-use specialists, teachers in traditional and vocational 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 as greenhouse, nursery, farm, and natural resource managers; or as consultants, arborists, and environmental planners.

For those graduates with international aspirations, the Peace Corps and the Foreign Agriculture Service employ farm production experts, soil and water managers, market analysts, agricultural engineers, teachers, plant and animal breeders, and nutrition specialists.

Additionally, departments prepare 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 general education requirements. Students should see their adviser for specific information.

Bachelor of Arts

The bachelor of arts degree is available in plant biology and zoology. Students must accumulate 128 credits, attain a 2.00 cumulative grade-point average, satisfy general education requirements, and complete a foreign language requirement (see Degree Requirements under 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 except forestry. 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.

Bachelor of Science in Forestry

The bachelor of science in forestry is a professional, designated degree available to students majoring in forestry. (See Forestry for major requirements.)

General Science Certification

Students majoring in animal sciences, biochemistry, biology, 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.

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 at the COLSA Advising Center and in the dean’s office, Taylor Hall.

Undeclared Status
Students may select a major upon entering the college or may 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:

Fall
LSA 400
CHEM 403
BIOL 411
General education requirement
An introductory course in any department in the college

Spring
CHEM 404
BIOL 412
MATH 424B
General education requirement

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.

Combined Programs of Study
In addition to pursuing a single major, students may combine programs of study as follows (check University Academic Requirements for more information):

Minors: See page 19.
Second Majors: See page 19.
Dual-Degree Programs: See page 18.
Student-Designed Majors: See page 133.
Other combined and interdisciplinary opportunities: See page 130.

UNH-EcoQuest New Zealand Study Abroad Program
The Department of Natural Resources 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, 661, 662, and 663 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, 662 for 8 credit hours) summer session. Contact Donna Dowal, (603) 862-2036.

Interdisciplinary Minors
Agribusiness
The agribusiness minor is designed to provide students in disciplines other than environmental and resource economics 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 business will also find this minor very useful. The courses in the agribusiness minor emphasize the applications of economic and business management principles.

Required
EREC 411, Environmental and Resource Economics Perspectives
EREC 501, Agricultural and Natural Resource Product Marketing or MKTG 550, Survey of Marketing
EREC 504, Business Management for Natural Resource Firms
EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes
EREC 715, Linear Programming and Quantitative Models

For additional information, contact John M. Halstead, Environmental and Resource Economics Program Coordinator, 309 James Hall, (603) 862-3914.

Animal Behavior Minor
The animal behavior minor is designed for students who are interested in learning more about the mechanisms underlying the behavior of many different types of animals, as well as the reasons why certain behaviors may have evolved. Students interested in the animal behavior minor must complete a total of 20 credits of coursework (approximately 5 courses), from the list of courses below. Students must receive a grade of C- or better in each of these courses and no more than eight major requirement credits can be counted toward the minor. If a student is interested in using a relevant course that is not included in the following list, they must seek permission from either Dr. Michelle Scott or Dr. Win Watson in the Zoology department.

Required Courses (2):
ZOOL 713, Animal Behavior
ZOOL 777, Neurobiology and Behavior
Elective Courses (must take three, and one must be a psychology course):
PSYC 512, Psychology of Primates
PSYC 521, Behavior Analysis
PSYC 531, Psychobiology
PSYC 710, Visual Perception
PSYC 711, Sensation and Perception
PSYC 721, Experimental Analysis of Behavior
PSYC 731, Brain and Behavior
PSYC 732, Evolution and Behavior
PSYC 733, Drugs and Behavior
PSYC 735, Neurobiology of Mood Disorders
PSYC 737, Behavioral Medicine
PSYC 741, Animal Cognition
BCHM 702, Endocrinology
ZOOL 709, Environmental Physiology of Animals
ZOOL 714, Ecology of Animal Behavior (Shoals)
ZOOL 733, Behavioral Ecology
ZOOL 778, Neuroscience Techniques

Community Planning
Land use and its impact on the quality of life has emerged as a major policy issue in New Hampshire, as well as at the national and global levels. Planning is a multidisciplinary profession that requires people who understand the technical tools and social concepts required to guide the selection and implementation of alternative schemes compatible with long-term environmental and economic objectives. Students may supplement their major and general education course 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
Group I—Theory and practice of planning (all courses required)
CD 415, Community Development Perspectives
CD 614, Fundamentals of Planning (prereq: EREC 411)
CD 777, Topics in Community Planning (prereq: CD 614)
Group II—Tools and applications in planning (choose one)
- CIE 505, Surveying (coreq: MATH 426)
- NR 757, Photo Interpretation and Photogrammetry
- NR 760, Geographic Information Systems in Natural Resources
- NR 609, Soils and Community Planning
- NR 703, Watershed Water Quality Management (prereq: NR 504 or permission)
- SOC 660, Urban Sociology
- GEOG 590, Introductory Cartography

Group III—Resource management theory (choose one)
- EREC 572, Introduction to Natural Resource Economics
- EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes
- EREC 627, Community Economics (prereq: EREC 411 or equivalent)
- EREC 756, Rural and Regional Economic Development
- TOUR 767, Social Impact Assessment

Group IV—Additional complementary electives (optional)
- CD 794, Community Planning Internship
- GEOG 582, Economic Geography
- GEOG 583, Urban Geography

For additional information, contact Professor Kelly L. Girand, Community Development Program coordinator, 309 James Hall.

Genetics (GEN)
genetics.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu.)

The interdepartmental program in genetics involves faculty from the departments of animal and nutritional sciences, biochemistry and molecular biology, microbiology, plant biology, and zoology. M.S. and Ph.D. degrees in genetics are offered through the Graduate School. An undergraduate major in genetics is not currently offered. Undergraduates interested in genetics can pursue a minor (see requirements below). Students interested in preparing for graduate work in genetics should contact the chairperson of the genetics program early in their undergraduate careers for advice on courses.

Genetics Minor
Completion of 20 credits from the following courses is required for a minor in genetics. At least one course should be selected from each of the subdisciplines listed below. Three (or more) credits of GEN 795, Investigations in Genetics, may be counted as one course toward fulfillment of the minor.

Transmission Genetics
- GEN 706, Human Genetics (prereq: BIOL 604 or ANSC 612)
- GEN 753, Cytogenetics (prereq: BIOL 604)

Molecular Genetics
- GEN 711, Genomics and Bioinformatics (prereq: BIOL 604)
- GEN 715, Molecular Evolution (prereq: BIOL 604)
- GEN 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids (prereq: BCHM 658 or 751; or permission)
- GEN 771, Molecular Genetics (prereq: BCHM 658 or 751; BIOL 604)
- GEN 774, Plant Biotechnology and Genetic Engineering (prereq: BIOL 604)
- GEN 782, Developmental Genetics (prereq: BIOL 604; BCHM 658 or 751)

Population and Quantitative Genetics
- GEN 705, Population Genetics (prereq: BIOL 604)
- GEN 723, Quantitative Genetics (prereq: BIOL 604)

Marine Biology
The minor in marine biology, available to all students in the University, consists of 20 credits with grades of C- or better and no pass/fail courses. Students should consult with a marine biology minor adviser before selecting electives.

Required
- Introductory course (choose one)
  - ESCI 501, Introduction to Oceanography
  - ZOOL 503, Introduction to Marine Biology
  - ZOOL 674, Field Marine Science

Interest concentration courses (choose four)
- BCHM 702, Endocrinology
- EREC 611, Marine Resource Economics
- ESCI 501, Introduction to Oceanography
- MICR 702, Marine Microbiology
- MICR 714, Public Health and Waterborne Diseases
- NR 610, Coastal and Oceanic Law and Policy
- PBIO 625, Introduction to Marine Botany
- PBIO 721, Microscopic Algae
- PBIO 722, Marine Physiology
- PBIO 725, Marine Ecology
- PBIO 727, Algal Physiology
- TECH 797, Undergraduate Ocean Research Project
- ZOOL 610, Principles of Aquaculture
- ZOOL 617, Principles of Aquaculture Lab
- ZOOL 628, Marine Invertebrate Evolution and Ecology
- ZOOL 674, Field Marine Science
- ZOOL 710, Ichthyology
- ZOOL 711, Zooplankton Ecology
- ZOOL 712, Mammalogy
- ZOOL 713, Animal Behavior
- ZOOL 719, Field Studies in Lake Biology
- ZOOL 720, Marine Biology for Teachers
- ZOOL 722, Ecology of Marine Fishes
- ZOOL 725, Marine Ecology
- ZOOL 730, Underwater Research
- ZOOL 750, Biological Oceanography
- ZOOL 751, Research in Marine Biology
- ZOOL 753, Marine Vertebrates
- ZOOL 772, Fisheries Biology
- ZOOL 773, Physiology of Fish
- ZOOL 775, Reproduction and Development of Marine Invertebrates
- ZOOL 795/796, Special Investigations (marine-related project)

Sustainable Living
Issues of sustainable living involve every aspect of life. To learn about sustainable living, a community and bioregional context is desirable. The student must be aware of environmental issues and problems, have an understanding of ecology, increase his or her capacity to think about complex problems, and have hands-on learning experiences to approach effectiveness in sustainable living. Students taking the sustainable living minor will, at minimum, take the courses listed below.

Required
- BIOL 541, General Ecology, or NR 527, Forest Ecology
- NR 435, Contemporary Conservation Issues and Environmental Awareness, or NR 592, Forest Ecosystems and Environmental Change
- NR 784, Sustainable Living
- NR 785, Systems Thinking for Sustainable Living

Choose one of the following
- EDUC 630, Development of Food and Fiber in Third-World Countries
- ECON 697, Ecological Economics
- GEOG 673, Environmental Geography
- NR 501, Introduction to Soil Sciences
- NR 504, Freshwater Resources
- NR 719, Wetlands Restoration and Mitigation
- NR 720, International Environmental Politics and Policies for the 21st Century
- NR 724, Resolving Environmental Conflicts
- NR 725, Environmental Communications and Advocacy

Choose one of the following
- NR 601, Environmental Conservation and Sustainable Living Internship
- NR 665, Applied Environmental Philosophy

For additional information please contact Dr. Robert Eckert, Natural Resources Department, James Hall.
Wetland Ecology

Students in biology, environmental conservation, forestry, plant biology, environmental sciences, wildlife management, and zoology should consider obtaining a minor in wetland ecology. There is a strong demand among consulting firms, and state and federal agencies for employees with knowledge and experience relevant to wetland resource management.

Required
NR 504, Freshwater Resources,
or NR 703, Watershed Water Quality Management
NR 711, Wetland Ecology and Management
NR 716, Wetland Delineation,
or NR 719, Wetlands Restoration and Mitigation,
or ZOOL 708, Stream Ecology

Recommended
ESCI 653, Estuaries and Coasts
PBIO 566, Systematic Botany
PBIO 625, Introduction to Marine Botany
PBIO 721, Microscopic Algae
PBIO 722, Marine Phyology
PBIO 747, Aquatic Higher Plants
MICR 713, Microbes and the Environment
NR 527, Forest Ecology
NR 765, Community Ecology
NR 721, Ecology of Polluted Waters
NR 425, Field Dendrology
NR 501, Introduction to Soil Sciences
NR 602, Natural Resources and Environmental Policy
NR 704, Soil Genesis and Classification
NR 706, Soil Ecology
ZOOL 725, Marine Ecology

Major Programs of Study

Animal Sciences (ANSC)

www.anscandnutr.unh.edu/
(For course descriptions, go to www.undergradcat.
unh.edu. See also page 115, Nutritional Sciences,
and page 112, Medical Laboratory Science.)

The undergraduate Animal Sciences Program at UNH provides students with fundamental and applied education in nutrition, reproduction, genetics, physiology, pathology, cell biology, and large animal management. Courses are offered in all areas of dairy and light horse production.

The Department of Animal and Nutritional Sciences has four major degree programs. They are a) animal sciences with options in equine sciences, bioscience and technology, and preveterinary medicine; b) dairy management; c) medical laboratory science with options in clinical chemistry, hematology, immunohematology, and microbiology; d) nutritional sciences. The department is housed in Kendall Hall, a five-story animal science facility. This building houses the New Hampshire Veterinary Diagnostic Lab; an electron microscopy facility; and nutrition, physiology, and cell culture labs, all of which provide opportunities for students interested in basic animal sciences.

The department maintains a light horse center and offers an equine program with courses in management, equine diseases, equine discipline, physical performance, and horsemanship specializing in dressage and combined training. Dairy facilities include housing for more than one hundred milking-age cows in the new $1.6-million Dairy Teaching and Research Center. Miniature swine are maintained at the Burley-Demerritt farm. Poultry facilities also permit research and work experience in poultry science.

The animal sciences degree has three program options: 1) equine sciences, 2) bioscience and technology, and 3) preveterinary medicine. In addition to satisfying the specific requirements of the major and options, all animal science majors must complete the University general education requirements.

The UNH equine sciences option offers a unique and well-rounded program of study to students pursuing a career in the horse industry. The equine program's outstanding physical facilities are complemented by a strong, science-based curriculum taught by an experienced and talented faculty.

Students graduating from the UNH equine program receive a B.S. in animal science with a concentration in equine science. The core curriculum of study provides students with a solid background in the biological and equine sciences. Students then choose one of three tracks for career specialization: I) Equine Management, II) Therapeutic Riding, III) Equine Science.

Students in the bioscience and technology option often specialize in nutrition, reproduction, genetics, or cell biology. This curriculum prepares students for advanced training in graduate school programs or in various medical professions; entry-level positions in biomedical, biotechnical, pharmaceutical, and other scientific companies; or technical positions in many research and medical units.

The preveterinary medicine option is designed to meet the academic requirements of most veterinary schools. Requirements may be met within three years, allowing students to apply to veterinary school during their senior year. However, most students finish their senior year, thus allowing more time for electives, concentration in areas of secondary interest, and completion of graduation requirements.

Employers in agriculture prefer to hire an agricultural graduate with extensive knowledge in a related field (e.g., computer science) rather than a graduate in one of these areas with no knowledge of agriculture. Hence, animal science students are encouraged to obtain training in a field that complements study in animal sciences. Such areas may include cell biology, biotechnical skills, communications, computer science, education, or business. This is generally accomplished by either taking a concentration of courses or obtaining a minor in a specialty area. Attainment of sufficient training in a specialty area enhances opportunity for employment. A careers course is offered to help students select and prepare for a particular career area.

Development of optional career goals is important for preveterinary students. Admission to schools of veterinary medicine is highly competitive. Therefore, students in this option are urged to prepare for alternative careers as they complete preveterinary requirements.

All animal science majors are required to complete ANSC 406; CHEM 403-404; and either ENGL 501, 502, 503, 519, or 529. In addition, the requirements in one of the three following options must also be completed:

Bioscience and Technology Option
BIOL 411-412; PHYS 401-402; MATH 424B; BIOL 528;
MICR 503 or BIOL 541; ANSC 511-512 or ZOOL 518 and
625/626; CHEM 545 or 651-652; BIOL 604; BCHM
658/659 or 751-752; ANS( 507 and one 700-level ANS course.

Equine Science Option
Track I—B.S. in Equine Management

Core Courses
ZOOL 412, Biology of Animals
ANSC 404, Introduction Equine Science (waived for TSAS
equine management graduates)
ANSC 406, Careers in Animal Science
ENGL 501, Introduction to Creative Nonfiction or ENGL 503,
519 or 529 or ANS( 543
AAS 228, Anatomy and Physiology of Domestic Animals
AAS 235, Animal Nutrition
BIOL 528, Applied Biostatistics

ANSC 404, Introduction Equine Science (waived for TSAS
equine management graduates)
ANSC 406, Careers in Animal Science
ENGL 501, Introduction to Creative Nonfiction or ENGL 503,
519 or 529 or ANS( 543
AAS 228, Anatomy and Physiology of Domestic Animals
AAS 235, Animal Nutrition
BIOL 528, Applied Biostatistics
At least six of the following:
OT 510, Exploring Occupational Therapy and Occupation
RMP 501, Recreation Services for Individuals with Disabilities
ANSC 507, Scientific Approach to Equine Discipline
RMP 557, Recreation Services Program Design
CSL 202, Introduction to Non-Profit Organizations
CSL 203, Organizing and Supervising Volunteers
CSL 208, Essentials of Fundraising for Community-Based Organizations or
CSL 209, Essentials of Grant Writing for Community-Based Organizations
MGT 580, Introduction to Organizational Behavior
CSL 207, Introduction to Non-Profit Budgeting and Accounting Practices
CMN 500, Public Speaking
EREC 504, Business Management for Natural Resource Firms
HHS 740, Collaborative Services for Children with Special Needs
OT 500, Behavior and Development of Children or FS 525, Human Development
COMM 520, Survey of Communications Disorders or COMM 533, Elementary American Sign Language

Suggestive Electives for students in Track II
AAS 278, Applied Animal Science Computer Applications
AAS 254, Animal Assisted Activities and Therapies
AAS 251, Animal Bond

Diploma Program providing preparation for NARHA Certification
ANSC 404, Introduction to Equine Science or AAS 237, Equine Handling and Care Techniques
ANSC 402, Horsemanship
ANSC 500, Methods of Therapeutic Riding
ANSC 795, Investigations, and a seminar on teaching therapeutic riding

Track II—B.S. in Therapeutic Riding
Core Courses
ZOOI 412, Biology of Animals
ANSC 404, Introduction Equine Science (waived for equine-management program)
ANSC 500, Methods of Therapeutic Riding
ENGL 501, Introduction to Creative Nonfiction or ENGL 503, 519 or 529 or ANSC 543
ZOOI 507/508, Human Anatomy and Physiology
AAS 226, Equine Conformation and Lameness or ANSC 604, Equine Selection
AAS 252, Equine Health Management or ANSC 620/622, Equine Diseases and Disease Clinic
EREC 411, Environmental and Resource Economics Perspectives
AAS 237, Equine Handling and Care Techniques or equivalent
AAS 246, Animal Business Applications or ANSC 605, Equine Business Management
AAS 247, Applied Equine Management
KIN 501, First Aid—Responding to Emergencies or equivalent
ANSC 600, Field Experience
ANSC 795, Investigations

At least four of the following:
AAS 235, Animal Nutrition
AAS 239, Fundamentals of Animal Health
ANSC 432, Animal Forages
ANSC 701, Physiology of Reproduction
ANSC 704, Principles of Pathobiology
ANSC 718, Mammalian Physiology
ANSC 724, Reproductive Management and Artificial Insemination
ANSC 750, Nutritional Biochemistry
BCHM 658/659, General Biochemistry and General Biochemistry Lab
BIOI 604, Principles of Genetics
CHEM 545/546, Organic Chemistry and Organic Chemistry Lab
ZOOI 713, Animal Behavior

Pre-veterinary Medicine Option
BIOI 411-412; PHYS 401-402; MATH 424B; BIOL 528; MICR 503; ANSC 511-512; BIOL 604; CHEM 651/653 and 652/654; BCHM 658/659; ANSC 750 and one 700-level ANSC course.

General Science Certification
See pages 34 and 98.
The Department of Biochemistry and Molecular Biology offers specialized training in the areas of molecular genetics, signal transduction, gene regulation, bioinformatics, molecular evolution, cancer biology, macromolecular interactions, glycochemistry, lipid metabolism, endocrinology, genomics, and proteomics. Undergraduate students are encouraged to become involved in research projects sponsored by external granting agencies such as the National Institutes of Health, the National Science Foundation, and others.

Students interested in the biochemistry major should consult with the department chairperson or a faculty member as early as possible to ensure the most effective curricular planning.

For first-year students with a strong high school preparation in both chemistry and mathematics (including calculus), the following schedule is recommended:

Fall
- BIOL 411, Principles of Biology I
- CHEM 403, General Chemistry I
- MATH 425, Calculus I
- ENGL 401, Freshman English

Spring
- BIOL 412, Principles of Biology II
- CHEM 404, General Chemistry II
- MATH 426, Calculus II

For first-year students lacking a strong background in chemistry and mathematics, the following schedule is recommended:

Fall
- BIOL 411, Principles of Biology I
- CHEM 403, General Chemistry I
- ENGL 401, Freshman English

Spring
- BIOL 412, Principles of Biology II
- CHEM 404, General Chemistry II
- MATH 426, Calculus II

Bachelor of Science in Biochemistry

The bachelor's degree in biochemistry consists of a set of core requirements (Group I) and a set of required electives from several subject areas (Groups II–V):

I. All of the following
- BIOL 411, 412, Principles of Biology I, II
- CHEM 403, 404, General Chemistry I, II
- MATH 425, 426, Calculus I, II, or 4248, Calculus for Life Sciences and Biostatistics

II. One of the following molecular biology courses
- BCHM 711, Genomics and Bioinformatics
- BCHM 714, Molecular Genetics
- BCHM 718, Developmental Genetics

III. One of the following biochemistry courses
- BCHM 750, Physical Biochemistry
- CHEM 683, 684, Physical Chemistry I, II
- BCHM 761, Cell Signaling Transduction in Health and Disease
- BCHM 794, Protein Structure and Function

IV. One of the following laboratory techniques courses
- BCHM 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids
- BCHM 799, Senior Thesis (4 cr.)
- BCHM 795, Investigations in Biochemistry and Molecular Biology (4 cr.)

V. One additional course from groups II–IV

The biochemistry curriculum provides most of the required and recommended courses for students seeking admission to professional schools in medicine, dentistry, veterinary medicine, and pharmacy. Students who major in biochemistry can also use their training in conjunction with advanced degrees in law and business.
Approximately 50 percent of the students who graduate with a major in biochemistry seek advanced degrees. Many biochemistry majors go on to attend graduate school in all areas of the life and biomedical sciences, especially graduate programs in genetics, molecular biology, biochemistry, cell biology, and chemistry. Recipients of an M.S. degree are more attractive to employers and often obtain better positions, greater salaries, and more responsibility and independence. A Ph.D. degree is eventually required for those who wish to direct research programs, be involved in state-of-the-art scientific research, become a professor in a college or university, or obtain an executive position in a science-related area of industry or government.

Students obtaining the B.S. in biochemistry 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. Students graduating in biochemistry have knowledge that is valuable in the fields of management, sales, marketing, regulatory affairs, technical writing, and scientific journalism. With additional courses in education, the B.S. in biochemistry also qualifies graduates to teach at the elementary, junior high, and high school levels.

A combined Bachelor of Science and Master of Science in Biochemistry
This is a five-year program leading to a combined bachelor and master's degree in biochemistry. It is designed for highly motivated and qualified students seeking additional training to further their career goals as a researcher in the life sciences.

Admission Policy
Admission to the combined degree program is highly competitive. Students wishing to pursue this option must have a grade-point average greater than 3.20 at the time of application. A thesis adviser must be identified during the junior year, and the approval of the adviser and department chairperson must be obtained. Prior to the first semester of the senior year, the student must formally apply to the Graduate School and receive early admission. The requirement for the Graduate Record Examinations is waived for combined degree applicants.

Requirements
Thirty credits of graduate level (800–900) coursework (including dual credit courses) must be completed. Six to 8 credits must be taken during the senior year, and are applied to both the B.S. and M.S. requirements. All other requirements for the M.S. degree (see Graduate School catalog) must be followed, including completion of preliminary exams, conducting a research project, and passing an oral examination based on the master's thesis project.

Suggested Program
Because of the intensive nature of the combined degree program, the thesis research project should be initiated as early as possible. A guidance committee should be established no later than the beginning of the fifth year to approve the student's proposed course of study. The following schedule is recommended:

**Junior year**
Identify thesis adviser and begin research project during the summer following junior year.

**Senior year**
Senior thesis (BCHM 799) during both semesters and the following summer, along with two dual-credit courses (800/900 level).

**Fall semester, fifth year**
Two 800/900 level courses (6–8 cr.)
BCHM 997 (1 cr.)
BCHM 899 (5 cr.)

**Spring semester and summer, fifth year**
One 800/900 level course (3–4 cr.)
BCHM 998 (1 cr.)
BCHM 899 (5 cr.)
Special topics (1–2 cr. as needed)

Research should be completed and the master's thesis defended during the summer.

Support
Students in the B.S./M.S. program are eligible for support through University Financial Aid. Additional support may be available from the student's adviser.

**General Science Certification**
See pages 34 and 98.

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<tr>
<th>COURSES</th>
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<tr>
<td>BCHM 600 Field Experience</td>
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<td>BCHM 600W Field Experience</td>
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<tr>
<td>BCHM 658 General Biochemistry</td>
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<td>BCHM 659 General Biochemistry Laboratory</td>
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<td>BCHM 702 Endocrinology</td>
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<tr>
<td>BCHM 711 Genomics and Bioinformatics</td>
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<td>BCHM 750 Physical Biochemistry</td>
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<td>BCHM 751 Principles of Biochemistry</td>
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<td>BCHM 752 Principles of Biochemistry</td>
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<td>BCHM 754 Laboratory in Biochemistry and Molecular Biology of Nucleic Acids</td>
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<td>BCHM 761 Cell Signaling Transduction in Health and Disease</td>
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<td>BCHM 763 Biochemistry of Cancer</td>
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<td>BCHM 766 Environmental Genomics</td>
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<td>BCHM 771 Molecular Genetics</td>
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<td>BCHM 782 Developmental Genetics</td>
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<td>BCHM 790 Current Topics in Biomedicine</td>
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<td>BCHM 794 Protein Structure and Function</td>
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**Biology (BIOL)**
biology.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu.)

Coordinator: Subhash C. Minocha

The interdepartmental program in biology is designed to provide a strong and a broad background in biological sciences to students interested in education in the life sciences. The biology program 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 program is aimed at promoting excellence in biological science education by involving undergraduate students in strong interaction with faculty both in the classroom and research laboratories, and to encourage the development of high-quality undergraduate programs in all aspects of biology.

The biology program 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, 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 major.

Courses in the biology program are selected from departments that constitute the biological sciences community at UNH. The flexibility of the curriculum allows students wide selection of courses in various departments. Students in the biology major take a common core curriculum involving introductory and upper level courses. They select one of four areas of concentration (options). These are: 1) ecology, evolution, and behavior biology; 2) marine and freshwater biology; 3) molecular, cellular, and developmental biology; and 4) general biology.

While students are advised to declare the biology major as incoming freshmen to assure adequate program planning, transfer into the program at a later stage is also possible. Students who wish to concentrate in a specific area of biological sciences other than the options within the biology program should consider a major in animal science, biochemistry, microbiology, plant biology, or zoology. The biology core curriculum is followed by students in all these programs. This makes changing majors a very simple process.

**Biology Core Curriculum**

All biology and several of the biological sciences majors begin with the biology core curriculum. The biology courses in the core curriculum constitute an integrated sequence of courses imparting basic knowledge of biology in order to expose the 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 related physical sciences and math. While it is recommended that the core curriculum be substantially completed in the first two years, students are encouraged to consult with their academic adviser to select one or more courses in their major during the sophomore year that may provide a gateway to the major. This may result in delaying one or more of the core courses in the junior year. By the end of the sophomore year, students are expected to have selected a departmental major or one of the four biology options leading to a B.S. degree. These options are: 1) general biology; 2) ecology, evolution, and behavior biology; 3) marine and freshwater biology; and 4) molecular, cellular, and developmental biology.

**Academic Requirements**

To receive the B.S. degree in biology, students must complete 128 credit hours with a 2.0 cumulative grade-point average (GPA). Courses must include all UNH General Education requirements, biology core curriculum requirements, and the requirements for the selected option. A minimum grade of C- is required in all biological science courses that are counted towards the requirements for a degree in biology (all four options). The only exception is that a passing grade below a C- will be accepted in a student's first biology course (BIOL 411 or 412). Students who expect to complete 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 this level.

Students should consult with their academic adviser during their freshmen and sophomore years for assistance in determining the most appropriate option or major for their professional goals. Since biology core courses are required of all biological science majors, it is relatively easy to change majors within the biological sciences during this period.

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 Web site for details). It is strongly recommended that students explore possibilities of one or more semesters of Independent Investigation (research projects). For details, students should contact their adviser or the biology program office. Financial support is available for most of these programs.

Premedical and other pre-health professional students should visit the premedical office in Hood House for additional information on requirements for specific professional schools. 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: BCHM/ANSC 702, ZOOL 518, ZOOL 625/626, BIOL 605, BCHM 751/752, ANSC 511/512.

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's approval. A Petition for Academic Variance approved by the biology program director is required to count 795-796 experiences for more than one major required course. Students should check the UNH WEBCAT (webcat.unh.edu), the biology Web site (biology.unh.edu), and the UNH online catalog for updates and current course offerings.

**Biology Options**

In order to receive a B.S. in biology, a student may choose from one of the four biology options: 1) general biology; 2) ecology, evolution, and behavior biology; 3) marine and freshwater biology; and 4) molecular, cellular, and developmental biology. A complete list of approved courses in each option is available from the student's adviser, the biology program office (G87 Rudman Hall), and the biology program Web site at biology.unh.edu.
The general biology option within the biology major provides broad-based training in the biological sciences for students who prefer not to specialize at the undergraduate level. Students must choose eight courses in addition to the biology core curriculum courses as specified in the categories listed in the option requirements (see Web site biology.unh.edu). Within the biology core, BIOL 528 is preferred to MATH 426; however, either is acceptable, and the sequence CHEM 545/546-BCHM 658/659 is preferred to CHEM 651/653-652/654, for all students in the option, except for those who are pre-health professionals. Corequisite lecture and lab courses count as one course. Courses listed in more than one category will satisfy requirements in only one category.

The marine and freshwater biology (MFB) option provides broad-based training in the aquatic biological sciences for students who prefer to take additional courses in the area of marine and freshwater biology. Students interested in aquaculture and fisheries may also choose this option by taking appropriate courses in consultation with their adviser. Students must choose eight courses in addition to the biology core curriculum courses to fulfill the requirements of this option. All students must take Biology of Lakes (PBIO/ZOOL 717) or Field Studies in Lake Biology (PBIO/ZOOL 719). For additional course requirements, the students should visit the biology Web site at biology.unh.edu.

The molecular, cellular, and developmental biology (MCDB) option provides an opportunity for broad training in molecular, cellular, and developmental biology, and the biotechnology area for students who would like to achieve limited specialization in this field. Students interested in the interdisciplinary fields of genetics, genomics, and bioinformatics may also choose this option by taking appropriate courses in consultation with their adviser. This is in addition to broad-based training in the basic areas of biology and related physical sciences covered in the core curriculum. Students choose eight courses from the list of approved courses (available on the Web at biology.unh.edu) in addition to biology core curriculum courses, in order to complete this option. The sequence CHEM 651/653-CHEM 652-654 is preferable to CHEM 545/546 and BCHM 658/659.

The ecology, evolution, and behavior (EEB) option within the biology program provides broad training in organismal and environmental biology, and provides an opportunity for limited specialization in the field of ecology, conservation, evolution, or behavior. Students must choose eight courses in addition to the biology core curriculum to complete this option. All students are required to take ZOOL 690. An additional seven courses should be selected as specified in the list of approved courses (biology.unh.edu). Within the biology core, BIOL 528 is preferred to MATH 426; however, either is acceptable.

Prehealth Professional Program

Students who wish to pursue postgraduate degrees in the health care professions should visit the premed advising office in Room 102, Hood House. For more information, call (603) 862-2064 or visit the program’s Web page at www.unh.edu/premed-advising.

Biology Teacher Certification and General Science Certification

Biology teacher certification for students preparing to teach high school biology may be obtained through the Department of Education’s five-year, undergraduate-graduate degree program. Students are required to take EDUC 500 (preferably in the sophomore year), earn a bachelor’s degree in one of the biological sciences, and complete a fifth year, which includes an internship and coursework leading to a master’s degree in education. General science certification for students preparing to teach science in middle and junior high schools can be obtained through the Department of Education’s general science certification program. For further information, see page 34 in Education, or contact the Department of Education’s teacher education coordinator.

Biology Minor

A biology minor may be earned by completing the following requirements: 1) BIOL 411-412 or PBIO 412 and ZOOL 412; 2) one course from each of the three major organism groups: a) animals (ANSC or ZOOL courses), b) microbes (MICR courses), and c) plants (PBIO courses); 3) two additional biological science courses at the 600–700 level.

Students interested in a biology major or minor should contact the Biology Program Office, G87 Rudman Hall, (603) 862-3840.

Community Development (CD)

www.dred.unh.edu/CD.htm

(For course descriptions, go to www.unh.edu/undergradcat)

COURSES

| BIOL 400 | Professional Perspectives on Biology | 1 cr. |
| BIOL 401 | Topics | 1 cr. |
| BIOL 404 | Biotechnology and Society | 4 cr. |
| BIOL 407 | Germs 101 | 4 cr. |
| BIOL 411 | Principles of Biology | 4 cr. |
| BIOL 411H | Honors/Principles of Biology I | 4 cr. |
| BIOL 412 | Principles of Biology II | 4 cr. |
| BIOL 412H | Honors/Principles of Biology II | 4 cr. |
| BIOL 444 | Emergence of Life in the Universe | 4 cr. |
| BIOL 528 | Applied Biostatistics I | 4 cr. |
| BIOL 541 | General Ecology | 4 cr. |
| BIOL 600 | Field Experience | 1 to 4 cr. |
| BIOL 600W | Field Experience | 1 to 4 cr. |
| BIOL 601 | Biology of Plants | 4 cr. |
| BIOL 602 | Project Lake Watch | 3 or 5 cr. |
| BIOL 603 | Seminar/Project Lake Watch | 3 cr. |
| BIOL 604 | Principles of Genetics | 4 cr. |
| BIOL 605 | Eukaryotic Cell and Developmental Biology | 4 cr. |
| BIOL 695 | Biology Teaching Practices | 1 to 4 cr. |
| BIOL 696 | Biology Teaching Practices | 1 to 4 cr. |
| BIOL 711 | Applied Biostatistics II | 4 cr. |
| BIOL 795 | Independent Investigations | 1 to 4 cr. |
| BIOL 795W | Independent Investigations | 1 to 4 cr. |
| BIOL 799 | Honors Senior Thesis | 2 to 8 cr. |

The Community Development Program prepares students for professional careers as local government administrators, town or regional land-use planners, and community facilitators and educators. It is an applied social science degree program that gives the student an understanding of the interrelated social, economic, political, environmental, and technical factors that influence a community and its residents. The curriculum takes an interdisciplinary approach and includes field experience and internships as vital components that complement classroom and independent research.

Students majoring in community development are encouraged to concentrate in one of three areas: 1) community change and development, 2) community public administration, and 3) community and regional planning. These areas of specialty provide the necessary background and training to prepare graduates for entry-level positions with local municipalities and agencies throughout the nation. The community development program also provides a firm base for graduate study in a variety of areas such as regional planning, public administration, rural sociology, economic development, and law.
A minor in community development or community planning provides opportunities for students in other areas to better understand the application of their knowledge to specific community issues. A community development minor complements majors in both technical fields and liberal arts.

Local municipalities in New England are turning to full-time professional administrators to assume responsibility for the day-to-day administration, management, and planning activities that were previously carried out by part-time town officials. Officials at the New Hampshire Municipal Association estimated that New Hampshire needs, each year, at least twenty-five new graduates in community and public administration to fill local government professional needs. In addition to professional administration or planning positions in local or regional government, employment opportunities are also available with public agencies and organizations at the state, national, and international levels.

Students interested in the challenges of community development should consult with Kelly L. Giraud program coordinator, Department of Resource Economics and Development, 309 James Hall, (603) 862-4811.

**Required Courses**

- CD 415, Community Development Perspectives
- CD 508, Applied Community Development
- CD 614, Fundamentals of Planning
- CD 777, Topics in Community Planning
- or CD 793, Community Administration Internship
- EREC 411, Environmental and Resource Economics Perspectives
- EREC 525, Statistical Methods and Applications
- EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes
- EREC 627, Community Economics
- TOUR 700, Marketing Community Research: Methodological Foundations
- TOUR 705, Ecotourism: Managing for the Environment
- or TOUR 767, Social Impact Assessment
- MATH 420, Finite Mathematics
- MGT 580, Introduction to Organizational Behavior
- MGT 712, Managing Conflict and Conflict in Organizations
- or CSL 204, Managing Change and Conflict in Communities
- POLT 502, State and Local Government
- or POLT 551, Global Urban Politics

**Dairy Management**

**www.anseandnitr.unh.edu/Undergraduate/dairy_science.htm**

(See page 101 for Animal Science (ANSC) courses. For course descriptions, go to www.undergradat.unh.edu.)

The Dairy Management Program, offered by the Department of Animal and Nutritional Sciences, 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. In addition, junior and senior students enrolled in this program will be given complete responsibility for managing the UNH teaching herd with other students, acquiring actual management experience along with their basic subject matter training. The UNH Teaching and Research Center, a modern dairy facility, houses approximately one hundred milking cows plus a similar number of nonlactating animals.

In addition to general education requirements, a typical dairy management student will take the following courses:

**First Year**

- ANSC 408 (optional), 409, 410, 430; BIOL 411; CHEM 403-404; ENGL 401; EREC 411

**Second Year**

- ANSC 432, 511, 512, 543, 650; CS 401; PBIO 421; EREC 504

**Summer Internship**

- ANSC 600

**Third Year**

- ANSC 609, 612, 530, 650, 701, 715

**Fourth Year**

- ANSC 698, 708, 710, 727, 728; MGT 580 or 713

Students interested in pursuing graduate studies take MATH 424B, CHEM 545-546, BCHM 658-659 and MIRC 503 in lieu of PBIO 421 and CS 401.

**Environmental Conservation Studies**

**www.unh.edu/natural-resources/ug-ec.html**

(For course descriptions, go to www.undergradat.unh.edu.)

The environmental conservation studies (ECS) major gives students a broad, interdisciplinary background for developing their understanding of environmental and resource problems and what is needed to solve them. It also provides a solid foundation for the development of critical thinking skills. The program is designed to ensure that graduates possess broad-based integrated knowledge of how local and global ecological systems work as well as an understanding of the interdependency between people and the environment. Building on a solid natural science base, students discover how political, institutional, and economic systems relate to environmental quality and learn ways to sustainably manage human activities within the constraints of the Earth's ecological systems. Students acquire a set of basic skills and problem solving tools that enable them to tackle complex environmental conservation problems. Graduates have gained hands-on practical experience integrating and applying their accumulated knowledge and skills in real world situations.

International education to support ECS students' educational goals is encouraged as a means to broaden their perspectives and knowledge, particularly through the UNH-Ecoquest New Zealand Field Studies Program. ECS students may also take advantage of a wide range of undergraduate research opportunities.

ECS students meet a set of 19 CORE requirements, through which they develop a foundation in natural resources, biology, ecology, chemistry, water quality management, soils, natural resources and environ-
mental policy, economics, environmental ethics, and environmental law. They also acquire basic statistics, oral communication, writing and geographic information skills and develop their abilities to apply their knowledge and skills professionally through a practicum (internship) and a capstone Senior Project.

In addition to the CORE, each student chooses a 36 credit hour specialization, which may be selected from a range of natural resources and environmental policy and management course sequences that provide a specific focus as each student develops an area of academic competency and the skill sets to help meet her or his career goals. For example, students can choose specializations in the following subject areas: land and water resource policy and management; international environmental and natural resource policy and sustainable development; environmental education, communication, public participation and leadership; or conservation biology. Or a student may, in consultation with his or her adviser, design a specialization.

Students with strong interests in field-based natural resource management careers can choose a focus on a particular land or water natural resource system, such as forest resources, marine and coastal resources, watersheds or wetlands, or food production to build their expertise. Those with wildlife interests and habitat protection may choose conservation biology. Students with interests in environmental policy, politics, law and administration, or sustainable community development may want to gain additional background through selected courses in the social sciences. Those with interests in environmental education may want to obtain a teaching certificate or develop expertise in outdoor education or leadership. Others may want to pursue interests in environmental communication through courses in journalism or the visual or theater arts. Many undergraduates in ECS participate in faculty research or gain experience through UNH's undergraduate research opportunities program. Students with particular interests in international environmental studies may want to participate in the dual major in International Affairs.

Students graduating with a B.S. degree in environmental conservation studies, with excellent academic records, are qualified for graduate work in environmental studies, environmental sciences, natural resources and environmental policy, resource management, conservation biology, environmental law, or environmental education and communication. ECS graduates work with private or nongovernmental conservation organizations; local, state or federal natural resources or planning agencies; industrial firms (e.g., waste management, compliance, land protection, watershed management, community planning, energy conservation, etc.); in primary and secondary education; field studies programs; journalism; and specialized environmental consulting firms. A number of graduates also choose to serve in the Peace Corps or with AmeriCorps prior to making more specific career path commitments.

Degree Core Requirements

1. NR 400, Professional Perspectives in Natural Resources or 401, Introduction to Natural Resources
2. PBIO 412, Introductory Botany or 420, Introduction to Marine Biology
3. ZOOL 412, Biology of Animals, or BIOL 411/412
4. Introductory Resource System Course (choose one)
   a. Global Biological Change
   b. Field Dendrology
   c. Wildlife Ecology
   d. Forest Ecosystems and Environmental Change
5. Ecology Elective (choose one)
   a. BIOL 541, General Ecology
   b. NR 527, Forest Ecology
   c. NR 660, Ecology and Biogeography of New Zealand (for UNH-EcoQuest NZ program students)
   d. ZOOL 503, Introduction to Marine Biology
6. Introduction to Natural Resource Economics
   a. EREC 411, Environmental and Resource Economics Perspectives
   b. or ECON 402, Principles of Economics (Micro)
7. Physical Science (relevant to specialization)
   a. CHEM 403, General Chemistry
   b. ESCI 405, Environmental Geology
   c. PHYS 401, Intro to Physics
8. Environmental Ethics and Values (choose one)
   a. NR 701, Ecological Values and Ethics (WI)
   b. NR 704, Freshwater Resources
   c. NR 501, Introduction to Soil Sciences
   d. NR 602, Natural Resources and Environmental Policy (WI)
9. Environmental and Natural Resource Systems (Internship)
   a. NR 601A, Field Studies
10. One Communication Skills course
    a. CMN 600, Public Speaking as a Civic Art
    b. EDUC 710B, Micro-communications
    c. THDA 520, Creative Drama (Children's Theater)
    d. THDA 583, Introduction to Puppets
    e. THDA 624, Theater for Young Audiences
11. One Critical Analysis Writing Skills course (beyond ENGL 401)
    a. ENG 502, 503, 519, 521, 529, 621, or 623
12. Information Management Skills
    a. NR 658, Introduction to Geographic Information Systems
13. Law of Natural Resources and Environment
    a. NR 718, Law of Natural Resources and Environment
14. Practicum in Environmental Conservation
    a. NR 637, Practicum in Environmental Conservation (Internship)
15. Natural Resources Senior Project (WI), or NR 663, Applied Directed Research in New Zealand (WI)

Specialization (36 credits required)

Students select one from the below listed specialization areas to develop their expertise in an area of interest. Alternatively, a student may, in consultation with the student's adviser, design a specialization area.

A. Land and Water Resource Policy and Management
B. International Environmental and Natural Resource Policy and Sustainable Development
C. Environmental Education, Communication, Public Participation and Leadership
D. Conservation Biology

For each area of specialization students are required to select one listed course from each of 5 specified categories:

Category 1: Ecology (a listed 600 or higher level course)
Category 2: Economics (a listed 600 or higher level course)
Category 3: Theory (from identified courses relevant to the specialization)
Category 4: Problem Solving Skills (from identified courses relevant to the specialization)
Category 5: Professional and/or Field Skills (from identified courses relevant to the specialization)

Students select four additional courses in their Specialization to complete their 36 hour specialization. These four courses may be selected from any of the 5 categories. The majority of courses selected for the student's specialization should be at the 600 or 700 level. Special permission will be required to apply a 400 level course to fulfill a specialization requirement. Students must achieve a grade of C- or better for all courses they wish to be counted for their environmental conservation studies major. Students work closely with a faculty adviser to plan their program of study.
Environmental Conservation Studies Minor

A minor in environmental conservation studies (5 courses totaling at least 20 credits) is available to students outside of the environmental conservation studies major.

Required Courses
1. Any one of the following: PBIO 412; ZOOL 412, BIOL 411, BIOL 412.
2. NR 435, Contemporary Conservation Issues and Environmental Awareness, or NR 502, Forest Ecosystems and Environmental Change.
3. One course in ecology: Possibilities include: NR 433, NR 425, NR 527, NR 660, BIOL 541.
5. ECON 607, Ecological Economics, EREC 606, 611, 627 or 676.

A petition to the environmental conservation studies program is required for consideration of substitutions to listed courses.

Interested students should contact Professor Mimi Larsen Becker, environmental conservation studies program coordinator, Department of Natural Resources, James 207B, (603) 862-3950.

COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NR 400</td>
<td>Professional Perspectives in Natural Resources</td>
<td>1 cr.</td>
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<tr>
<td>NR 401</td>
<td>Introduction to Natural Resources</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 410</td>
<td>Insects and Society</td>
<td>4 cr.</td>
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<tr>
<td>NR 415</td>
<td>Global Biological Change</td>
<td>4 cr.</td>
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<tr>
<td>NR 415H</td>
<td>Honors / Global Biological Change</td>
<td>4 cr.</td>
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<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4 cr.</td>
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<tr>
<td>NR 426</td>
<td>Wood Science and Technology</td>
<td>4 cr.</td>
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<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
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<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4 cr.</td>
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<tr>
<td>NR 435H</td>
<td>Honors / Contemporary Conservation Issues and Environmental Awareness</td>
<td>4 cr.</td>
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<tr>
<td>NR 444</td>
<td>Endangered Species: A Bio-political Crossroad</td>
<td>4 cr.</td>
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<tr>
<td>NR 501</td>
<td>Introduction to Soil Sciences</td>
<td>4 cr.</td>
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<tr>
<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
<td>4 cr.</td>
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<tr>
<td>NR 503</td>
<td>Wetlands Resources</td>
<td>2 cr.</td>
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<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4 cr.</td>
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<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td>4 cr.</td>
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<tr>
<td>NR 513</td>
<td>Ecology of the Great Bay Estuary</td>
<td>4 cr.</td>
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<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4 cr.</td>
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<tr>
<td>NR 542</td>
<td>Forestland Measurement and Mapping</td>
<td>2 cr.</td>
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<td>NR 544</td>
<td>Forest Biometrics</td>
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<tr>
<td>NR 566</td>
<td>Wildlife Law Enforcement I</td>
<td>3 cr.</td>
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<td>NR 599</td>
<td>Work Experience</td>
<td>1 cr.</td>
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<td>NR 601</td>
<td>Environmental Conservation and Sustainable Living Internship</td>
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<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
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<tr>
<td>NR 604</td>
<td>Watershed Hydrology</td>
<td>4 cr.</td>
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<tr>
<td>NR 607</td>
<td>Soil and Land Evaluation</td>
<td>2 cr.</td>
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<tr>
<td>NR 609</td>
<td>Soils and Community Planning</td>
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<tr>
<td>NR 610</td>
<td>Coastal and Oceanic Law and Policy</td>
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<tr>
<td>NR 615</td>
<td>Wildlife Habitats</td>
<td>4 cr.</td>
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<tr>
<td>NR 621</td>
<td>Field Description of Soils</td>
<td>3 cr.</td>
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<tr>
<td>NR 629</td>
<td>Silviculture</td>
<td>3 cr.</td>
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<tr>
<td>NR 636</td>
<td>Wildlife Techniques</td>
<td>4 cr.</td>
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<tr>
<td>NR 637</td>
<td>Practicum in Environmental Conservation</td>
<td>4 cr.</td>
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<tr>
<td>NR 643</td>
<td>Economics of Forestry</td>
<td>4 cr.</td>
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<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>4 cr.</td>
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<tr>
<td>NR 652</td>
<td>Forest Resources Assessment</td>
<td>2 cr.</td>
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<tr>
<td>NR 655</td>
<td>Vertebrate Biology</td>
<td>4 cr.</td>
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<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4 cr.</td>
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<tr>
<td>NR 660</td>
<td>Ecology and Biogeography of New Zealand</td>
<td>5 cr.</td>
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<tr>
<td>NR 661</td>
<td>Restoration Ecology and Ecosystem Management in New Zealand</td>
<td>4 cr.</td>
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<tr>
<td>NR 662</td>
<td>Environmental Policy, Planning, and Sustainability in New Zealand</td>
<td>4 cr.</td>
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<tr>
<td>NR 663</td>
<td>Applied Directed Research in New Zealand</td>
<td>4 cr.</td>
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<tr>
<td>NR 665</td>
<td>Applied American Environmental Philosophy</td>
<td>4 cr.</td>
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<tr>
<td>NR 670</td>
<td>Forest Fire Protection</td>
<td>2 cr.</td>
</tr>
<tr>
<td>NR 675</td>
<td>CEEP (Community Environmental Outreach Program) Projects</td>
<td>2 to 4 cr.</td>
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<tr>
<td>NR 690</td>
<td>Sustainability Analysis: Focus on Purchasing</td>
<td>3 cr.</td>
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<tr>
<td>NR 700</td>
<td>Critical Analysis of Water Resources Literature</td>
<td>2 cr.</td>
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<tr>
<td>NR 701</td>
<td>Ecological Values and Ethics</td>
<td>4 cr.</td>
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<tr>
<td>NR 702</td>
<td>Workshops</td>
<td>1 to 4 cr.</td>
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<tr>
<td>NR 703</td>
<td>Watershed Water Quality Management</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 704</td>
<td>Soil Genesis and Classification</td>
<td>4 cr.</td>
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<tr>
<td>NR 706</td>
<td>Soil Ecology</td>
<td>4 cr.</td>
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<tr>
<td>NR 710</td>
<td>Endangered Species Seminar</td>
<td>2 cr.</td>
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<tr>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
<td>4 cr.</td>
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<tr>
<td>NR 713</td>
<td>Quantitative Ecology</td>
<td>4 cr.</td>
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<td>NR 714</td>
<td>Ecosystems of Puerto Rico</td>
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<tr>
<td>NR 715</td>
<td>Theoretical Ecology</td>
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<td>NR 716</td>
<td>Wetland Delination</td>
<td>4 cr.</td>
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<td>NR 718</td>
<td>Law of Natural Resources and Environment</td>
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<td>NR 719</td>
<td>Wetlands Restoration and Mitigation</td>
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<td>NR 720</td>
<td>International Environmental Politics and Policies for the 21st Century</td>
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<td>NR 721</td>
<td>Ecology of Polluted Waters</td>
<td>4 cr.</td>
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<td>NR 723</td>
<td>Field Wetland Ecology</td>
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<td>NR 724</td>
<td>Resolving Environmental Conflicts</td>
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<td>NR 725</td>
<td>Environmental Communications and Advocacy</td>
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<td>NR 730</td>
<td>Terrestrial Ecosystems</td>
<td>3 cr.</td>
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<td>NR 732</td>
<td>Chemistry of Soils</td>
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<td>NR 737</td>
<td>Wildlife Population Dynamics</td>
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<td>NR 738</td>
<td>Wildlife Policy and Management</td>
<td>4 cr.</td>
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<td>NR 745</td>
<td>Forest Management</td>
<td>4 cr.</td>
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<tr>
<td>NR 747</td>
<td>Biology Through Bugs</td>
<td>4 cr.</td>
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<tr>
<td>NR 753</td>
<td>Decision Sciences in Natural Resource Management</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 754</td>
<td>Wood Products Manufacture and Marketing</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 755</td>
<td>Regional Silviculture and Forest Management</td>
<td>2 cr.</td>
</tr>
<tr>
<td>NR 757</td>
<td>Photo Interpretation and Photogrammetry</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 759</td>
<td>Digital Image Processing for Natural Resources</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 760</td>
<td>Geographic Information Systems in Natural Resources</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 764</td>
<td>Vegetation Sampling and Analysis</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 772</td>
<td>Wildlife Energetics</td>
<td>2 cr.</td>
</tr>
<tr>
<td>NR 775</td>
<td>Natural Resources Senior Project</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 780</td>
<td>Earth as a System for Educators</td>
<td>4 cr.</td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living</td>
<td>3 cr.</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Living</td>
<td>3 cr.</td>
</tr>
<tr>
<td>NR 795</td>
<td>Investigations</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>NR 795W</td>
<td>Investigations</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>NR 797</td>
<td>Special Topics</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>NR 799</td>
<td>Honors Senior Thesis</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>

Environmental Horticulture

For plant biology (PBIO) courses, see page 115. For course descriptions, go to www undergradcat.unh.edu.

This program offers a flexible curriculum for students interested in a multifaceted view of plant agriculture that also embraces issues of environmental stewardship, food safety, international development, and other topics of broad public concern. A degree in environmental horticulture will prepare students for careers managing greenhouses, nurseries, farms, and golf courses; in teaching; in consulting and applied research; in practicing journalism; in working for park and highway planning commissions; in working in sales or brokerage aspects of wholesale and retail marketing; and in finding employment in food- and feed-processing firms.

Students are required to take the core courses, support courses, and 20 credits of elective courses.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 401</td>
<td>Plant Biology Orientation</td>
<td>1</td>
</tr>
<tr>
<td>PBIO 412</td>
<td>Introductory Botany</td>
<td>4</td>
</tr>
<tr>
<td>PBIO 421</td>
<td>Introductory Horticulture</td>
<td>4</td>
</tr>
<tr>
<td>PBIO 501</td>
<td>Basic Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>or BCHM 658/659 General Biochemistry</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Credits
more specialized graduate studies in one or more of the above areas.

Departmental Honors
Honors in environmental and resource economics will be awarded to students who complete 16 credits of honors courses in environmental and resource economics (including a minimum of four credits of a senior research project), and who maintain a minimum grade-point average of 3.20 in the major. Students interested in the environmental and resource economics honors program should contact the environmental and resource economics coordinator in James Hall for more information.

Students interested in a major or minor in environmental and resource economics should contact John M. Halstead, 309 James Hall, (603) 862-3914.

COURSES
ERE 403 World Resources 4 cr.
ERE 409 Castastrophe and Terrorism 4 cr.
ERE 411 Environmental and Resource Economics Perspectives 4 cr.
ERE 501 Agriculture and Natural Resource Product Marketing 4 cr.
ERE 504 Business Management for Natural Resource Firms 4 cr.
ERE 512 Gulf of Maine Economic Resources 1 cr.
ERE 525 Statistical Methods and Applications 4 cr.
ERE 527 Introduction to Natural Resource Economics 4 cr.
ERE 595 Problems in Natural and Agricultural Resources 2 to 4 cr.
ERE 595W Problems in Natural and Agricultural Resources 2 to 4 cr.
ERE 596 Problems in Natural and Agricultural Resources 2 to 4 cr.
ERE 600 Field Experience 1 to 4 cr.
ERE 600W Field Experience 1 to 4 cr.
ERE 604 Financial Concepts for Natural Resource Firms 4 cr.
ERE 608 Environmental Economics for Non-Economists 4 cr.
ERE 611 Marine Resource Economics 4 cr.
ERE 627 Community Economics 4 cr.
ERE 633 Economics of Travel and Tourism 4 cr.
ERE 676 Economics of Water Use and Quality Management 4 cr.
ERE 708 Environmental Economics 4 cr.
ERE 710 Seminar 2 to 4 cr.
ERE 715 Linear Programming and Quantitative Methods 4 cr.
ERE 756 Rural and Regional Economic Development 4 cr.
ERE 775 Research Methods 4 cr.
ERE 795 Investigations 2 to 4 cr.
ERE795W Investigations 2 to 4 cr.
ERE 799 Honors Senior Thesis 4 cr.

Electives
A minimum of 20 credits (see department for list of electives applicable)

Students are offered some flexibility in selection of electives, although these electives should be related to horticulture and selected in consultation with an adviser.

Support courses required from other departments
BIOL 527, Applied Biostatistics 4
CHEM 403, General Chemistry I 4
CHEM 404, General Chemistry II 4
EREC 411, Environmental and Resource Economics Perspectives 4
ZOO 745, Biology and Diversity of Insects 4
or HT 236, Plant Management: Insects 2

Environmental and Resource Economics (EREC)
www.dred.unh.edu/EREC.htm
(For course descriptions, go to www.undergrad.cat.unh.edu.)

This program offers training in environmental and resource economics, including 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.

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. In addition, students must satisfy general education requirements, which lead to a broad university education. Majors interested in the economic or business aspects of agriculture and natural resources will be expected to take courses in the biological science.

Students majoring in any of the social science, life science, and agriculture departments of the University may find it to their advantage to elect courses or a minor in environmental and resource economics or agribusiness. By doing so, their basic training can be supplemented in a specific area of interest, such as resource development and natural resource policy for social science majors, farm management and agricultural marketing for agricultural majors, and community economics and finance for students interested in local government and development.

Required Courses
All of the following
CD 614, Fundamentals of Planning
ECON 401, Principles of Economics (Macro)
ECON 560, Intermediate Microeconomic Analysis
ECON 611, Intermediate Macroeconomic Analysis, or ECON 653, Money and Banking
EREC 411, Environmental and Resource Economics Perspectives
EREC 504, Business Management for Natural Resource Firms
EREC 525, Statistical Methods and Applications
EREC 775, Research Methods
MATH 420, Finite Mathematics, or MATH 424B, Calculus for the Life Sciences

At least five of the following, of which two must be 700 level
EREC 501, Agricultural and Natural Resource Product Marketing
EREC 572, Introduction to Natural Resource Economics
EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes
EREC 611, Marine Resource Economics
EREC 627, Community Economics
EREC 633, Economics of Travel and Tourism
EREC 676, Economics of Water Use and Quality Management
EREC 708, Environmental Economics
EREC 715, Linear Programming and Quantitative Methods
EREC 756, Rural and Regional Economic Development

Students who major in environmental and resource economics are qualified for a wide variety of opportunities upon graduation. 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
Environmental Sciences
www.unh.edu/envsci/
(For course descriptions, go to www.undergradcat.unh.edu.)

The College of Life Science 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 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 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 nongovernmental 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.

Requirements
In addition to general education requirements, two introductory environmental science courses are required, including Environmental Pollution and Protection (ENE 520). Foundation courses include two semesters of chemistry (CHEM 403, 404) and calculus (MATH 425, 426), one semester of geology (ESCI 401, 402, or 409), one semester of statistics (MATH 644 or BIOL 528), and either two semesters of physics (PHYS 407, 408), and one semester of advanced biology or one semester of physics (PHYS 407) and two semesters of approved biology. Core courses include Techniques in Environmental Sciences (ESCI 534); Introduction to GIS (NR 658), Fate and Transport in the Environment (ESCI 654); Natural Resource and Environmental Policy (NR 602); and a capstone course (e.g., Senior Thesis). Students must complete an additional seven courses in one of the following options:

Ecosystems
NR 527, Forest Ecology OR BIOL 541, General Ecology
NR 730, Terrestrial Ecosystems
NR 765, Community Ecology
one approved course in taxonomy (e.g., NR 425)
three approved electives

Hydrology
ESCI 561, Surficial Processes
NR 501, Introduction to Soil Sciences or ESCI 512, Principles of Mineralogy
NR 604, Watershed Hydrology
ESCI 705, Principles of Hydrology
ESCI 710, Groundwater Hydrology
two approved electives

Soil and Watershed Management
NR 501, Introduction to Soil Sciences
NR 604, Watershed Hydrology
NR 703, Watershed Water Quality Management
NR 706, Soil Ecology
three approved electives

For a list of approved elective courses and for further information about the major, contact the program coordinator, Serita Frey, Department of Natural Resources, 226 James Hall, (603) 862-3880, serita.frey@unh.edu.

Forestry
www.unh.edu/natural-resources/ug-forex.html
(For course descriptions, go to www.undergradcat.unh.edu.)

Forestry is the art and science of managing and understanding the natural and human dimensions of forests and forest use. The forestry program is designed to provide graduating professionals with a sound technical preparation and a broad general education. The forest management and forest science options of the forestry major leading to the bachelor of science in forestry degree (B.S.F.) are 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 in the United States.

Professional foresters are employed by private industry, public agencies, public interest firms, groups, educational institutions, research organizations, and consulting firms. Foresters manage forests, provide for wildlife habitat and forest recreation, protect water and soil resources, and assure a sustainable supply of forest products. Some graduates work toward natural resource protection and the improvement of environmental quality.

Forestry education at UNH focuses on ecosystem management for diversity, productivity and health, based on multidisciplinary collaboration. There are opportunities in international forestry. Many students enter graduate school for advanced training in forest biology or forest management.

Technical, administrative, and managerial skills are required of all professional foresters. This program provides a foundation in scientific knowledge, as well as technical and managerial skills, with elective freedom to cultivate special abilities and interests.

Students majoring in forestry must complete 130 credits of classroom work and 4 credits of field training. University general education requirements are included in this total.

Besides these formal courses, all forestry majors are required to have at least one summer of forestry work experience (NR 599). While students are responsible for their own summer work, placement assistance is available from the faculty.

In the junior year, students must choose to concentrate in either of the following options (and must earn 24 credits within that concentration to graduate):

Forest Management Option
This option is designed for students who intend to plan a career in forest resource management. Requirements: NR 753, Decision Sciences in Natural Resource Management; NR 754, Wood Products Manufacture and Marketing; RMP 711, Recreation Resource Management; one course in administration, 500 level or higher; two courses (8 credits) in advanced forestry, wildlife, hydrology, soils, resource management, urban forestry, recreation, or administration.

Forest Science Option
In this option, students may specialize in specific forest sciences as background for graduate school or focus their interests in areas other than forest management. Areas of concentration include forest biology, ecology, soil science, watershed management, international forestry, and others. Students in this option are encouraged to minor in the area of their choice.

College of Life Sciences and Agriculture
Minors
Nonforestry majors may minor in forestry by completing 20 to 22 credits of coursework approved by the forestry program faculty.

Freshman Year
BIOL 528, Applied Biostatistics I or equivalent
ENGL 401, Freshman English
MATH 424B, Calculus for Life Sciences
NR 400, Professional Perspectives in Natural Resources
NR 401, Introduction to Natural Resources
NR 425, Field Dendrology
NR 426, Wood Science and Technology
NR 542, Forestland Measurement and Mapping
PBIO 412, Introductory Botany
One oral communication skills course

Sophomore Year
CHEM 403, General Chemistry
NR 400, Professional Perspectives in Natural Resources
PBIO 412, Introductory Botany
General education elective 4, 5, 6,
NR 433, Wildlife Ecology
NR 501, Introduction to Soil Sciences
NR 506, Forest Entomology
NR 527, Forest Ecology
NR 544, Forest Biometrics
NR 599, Work Experience
General education elective 4, 5, 6, or 8
General education elective 4, 5, 6, or 8

Junior Year
NR 602, Natural Resources and Environmental Policy
NR 629, Silviculture
NR 643, Economics of Forestry
NR 652, Forest Resources Assessment
NR 658, Introduction to Geographic Information Systems
NR 670, Forest Fire Protection
PBIO 651, Plant Pathology
Professional option
General education elective 4, 5, 6, or 8
General education elective 4, 5, 6, or 8

Senior Year
NR 745, Forest Management
NR 775, Natural Resources Senior Project
NR 757, Photo Interpretation and Photogrammetry
Professional option
Professional option
Professional option
NR 703, Watershed Water Quality Management, or NR 504, Freshwater Resources
General education elective 4, 5, 6, or 8
Students interested in the forestry program may consult with the program coordinator, Mark Ducey, Neshmith 209, (603) 862-2249.

General Science Certification
See pages 34 and 98.

Genetics Program
There is no baccalaureate degree program in genetics. The Genetics Program offers master's and Ph.D. degrees in genetics. Undergraduates interested in genetics can pursue their interests within the context of any of the following B.S. degree programs: biology, animal sciences, biochemistry, microbiology, plant biology, or zoology. Undergraduate students have the opportunity to minor in genetics. See page 100 for the genetics minor requirements. For course entries in genetics, see course descriptions in the online course catalog at www.undergradcat.unh.edu, under GEN, as well as relevant courses listed under the fore-listed departments and programs. Students interested in preparing for graduate work in genetics at UNH or elsewhere should contact the chairperson of the Genetics Program early in their undergraduate careers for advice on courses.

COURSES
GEN 705 Population Genetics 4cr.
GEN 706 Human Genetics 3cr.
GEN 711 Genomics and Bioinformatics 4cr.
GEN 715 Molecular Evolution 4cr.
GEN 723 Quantitative Genetics 4cr.
GEN 735 Qutogenetics 4cr.
GEN 754 Laboratory in Biochemistry and Molecular Biology of Nucleic Acids 5cr.
GEN 766 Environmental Genomics 4cr.
GEN 771 Molecular Genetics 4cr.
GEN 772 Evolutionary Genetics of Plants 4cr.
GEN 774 Plant Biotechnology and Genetic Engineering 3cr.
GEN 775 Plant Biotechnology and Genetic Engineering Lab 2cr.
GEN 782 Developmental Genetics 3cr.
GEN 795 Investigations 1 to 4cr.
GEN 795W Investigations 1 to 4cr.

International Affairs (dual major)
(For program description, see page 131.)

Medical Laboratory Science (MLS)
www.anscandnutr.unh.edu/mls/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Medical Laboratory Science (MLS) Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). The program is ideal for students who are interested in pursuing a challenging and rewarding career in analytical biomedicine. The curriculum for MLS majors provides students with a sound background knowledge in the biological and physical sciences and a quality education in specialized science theory and laboratory skills. In addition, the curriculum offers students an opportunity to become more knowledgeable in the arts, humanities, and social sciences. Students entering the MLS Program can pursue a degree in one of two tracks: 1) a B.S. in MLS-Clinical Track; 2) a B.S. in MLS-Research Track. They will initially enroll in the MLS program without designating a specific MLS track. Students will be informed of the specifics of the MLS-Clinical Track and MLS-Research Track in their freshman year, course, MLS 401, Introduction to Medical Laboratory Science. Also, students may obtain detailed information concerning the two MLS tracks from their academic advisers. A decision to pursue a specific MLS track must be made by the end of the junior year.

NAACLS requires that all MLS students understand the essential functions that will be required of a certified medical technologist. Requirements include: a sound intellect; good motor skills; eye-hand coordination and dexterity; effective communication skills; visual acuity to perform microscopic analyses, or read procedures, graphs, etc.; professional skills such as the ability to work independently, manage time efficiently, and comprehend, analyze and synthesize various materials, as well as have sound psychological health and stability. Contact the MLS Program director for more information.

MLS-Clinical Track
Students selecting the MLS-Clinical Track spend their freshman, sophomore, and junior years and the fall semester of their senior year on the University campus. During the spring semester of the senior year, these students take clinical internship at one of the clinical affiliates. Clinical internship positions are limited. Selection to fill available positions will be based on established criteria published in the MLS Student Handbook, including professionalism, academic performance, interviews, and references.

Students enrolled in the MLS-Clinical Track may choose the generalist option to become certified as a medical technologist or choose to specialize in either clinical microbiology, clinical hematology, clinical immunohematology, or clinical chemistry. Students choosing the generalist option will spend 24-26 weeks at a clinical affiliate where they complete clinical courses in Advanced Clinical Microbiology (MLS 751), Advanced Hematology (MLS 752), Advanced Immunohematology (MLS 753),
and Advanced Clinical Chemistry (MLS 754). Upon successful completion of this program, students are awarded the B.S. degree and are eligible to take the American Society of Clinical Pathologists (ASCP) and National Certification Agency (NCA) certification examinations. Students choosing the categorical option will spend 20–24 weeks at a clinical internship site where they complete either Clinical Microbiology Internship (MLS 761), Clinical Hematology Internship (MLS 762), Clinical Immunohematology Internship (MLS 763), or Clinical Chemistry Internship (MLS 764). Upon successful completion, students are awarded the B.S. degree and are eligible to take the ASCP and NCA categorical examinations in their specialty area.

Graduates of the MLS-Clinical Track perform various medical laboratory tests and provide the diagnostic assistance required in modern patient care. These professionals are vital members of the health care team, performing various analytical procedures in a wide variety of biomedical laboratories. Graduates are employed in hospitals, biotechnology, research, industry, education, and a variety of other health care settings. A list of essential functions necessary for work in a clinical lab is available from the MLS office.

All students participating in clinical courses must purchase liability insurance and show evidence of selected immunizations. Internship fees will be charged by the clinical affiliate in some instances.

**MLS-Research Track**

The curriculum for this track focuses on providing students with a quality education in the fundamentals of biomedical laboratory science and laboratory skills in addition to a broad-based university general education. This track is appropriate for students desiring employment in a wide variety of biomedical research laboratories in universities, medical schools, diagnostic product companies, biotechnology companies, hospitals, government agencies, etc. Students seeking a degree in this track are qualified to seek postgraduation clinical internship if they communicate with their academic advisers as early as possible so that advanced degrees should consult with their academic advisers as early as possible so that advanced degrees in clinical laboratories. This may be done on a full- or part-time basis by taking required courses at UNH or other accredited institutions. Students may challenge MLS clinical course requirements through credit by examination. Written and practical examinations are available in the areas of clinical microbiology, clinical hematology, clinical immunohematology, clinical chemistry, and urinalysis/body fluids. Students interested in the option should contact the MLS Program director.

**MLS Clinical Track**

Clinical Track with the exception of taking a semester of additional courses in a related area, such as:

- PBIO 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids 5 cr.
- MICR 702, Infectious Disease and Health 5 cr.
- MICR 706, Virology 3 cr.
- ANSC 752, Mammalian Cell Culture 5 cr.
- GEN 753, Cytogenetics 4 cr.
- MLS 796, Biomedical Research Internship Var
- MLS and other courses (consult with academic advisers)

Research track students do not take a clinical internship in their senior year.

**MLS-Research Track: Academic Requirements**

Students pursuing a degree in the MLS-Research Track must obtain a grade of C or better in all MLS courses. These students must also have achieved a minimum 2.50 cumulative grade-point average (GPA) at the time of application for clinical internship (junior year), and must maintain that minimum until the internship begins. A personal interview at the clinical affiliate is required. This interview evaluates a student’s understanding of the profession, communication skills, maturity, self-confidence, and supervisory potential. Students must demonstrate these attributes to participate in the clinical courses.

**MLS-Research Track: Academic Requirements**

The students in the MLS-Research Track must meet the UNH requirements for the bachelor of science degree.

**Career Mobility Program**

This option is designed to make the B.S. degree in MLS available to certified laboratory assistants, medical laboratory technicians, military-trained laboratory personnel, and other individuals with at least two years of full-time recent experience in a clinical laboratory. This may be done on a full- or part-time basis by taking required courses at UNH or other accredited institutions. Students may challenge MLS clinical course requirements through credit by examination. Written and practical examinations are available in the areas of clinical microbiology, clinical hematology, clinical immunohematology, clinical chemistry, and urinalysis/body fluids. Students interested in the option should contact the MLS Program director.

**MLS Minor**

Students may obtain a minor in MLS by successfully completing three MLS core courses and two additional approved electives for a minimum of 20 credits. Students interested in the MLS minor should consult the MLS Program director.
Microbiology (MICR)

microbiology.unh.edu/

(For course descriptions, go to www.undergradcat.unh.edu.)

Microbiology explores the world of organisms too small to be seen with the unaided eye. The primary emphasis in the Department of Microbiology is on prokaryotes (bacteria and archaea) and viruses. The curriculum provides basic familiarity with microorganisms, their interactions with other life forms (including humans), and their roles in natural systems and processes.

Baccalaureate degree holders in microbiology secure positions in industry (food and beverage, pharmaceutical, bioproducts, etc.); in city, state, and federal agencies (public health, environmental quality, regulatory, etc.); or in universities or research institutes.

The Department of Microbiology offers programs of study leading to the bachelor of science degree. Microbiology is widely recognized as being both a basic life science and a highly pragmatic applied science. The curriculum within the microbiology program is intended to accommodate the diverse needs of potential students. It provides solid training for individuals intending to enter the workforce or to pursue graduate education in the biological sciences, biomedicine, or biotechnology. It also provides for entry into professional programs such as dentistry, human medicine, or, with little additional preparation, veterinary medicine. The curriculum is appropriate for students planning to enter the workforce immediately upon graduation, as research technicians, applied scientists, or in sales or marketing positions in the life sciences or biotechnological industry. The curriculum is also appropriate for transfer students and those planning to pursue a degree in business, including the M.B.A., for careers in managing diagnostic laboratories or in hospital administration.

Other microbiology-related courses offered in the following programs may be taken with an advisor's permission: animal sciences, biochemistry and molecular biology, plant biology, civil engineering, zoology, or medical laboratory science. Courses in these areas are reviewed periodically by the microbiology faculty to ascertain their suitability for microbiology majors.

Special Problems in Microbiology (MICR 795) is available by permission and allows students the opportunity to conduct semi-independent research projects in conjunction with departmental faculty. Up to 4 credits of Problems in Microbiology may be applied to major requirements, although students may enroll for additional hours.

Students must receive a minimum grade of C in major requirements taught in the College of Life Sciences and Agriculture (e.g., microbiology, biology, or biochemistry). A passing grade in major requirements taught outside the College of Life Sciences and Agriculture (e.g., chemistry, math, or physics) is acceptable.

Students planning to attend graduate or postgraduate professional school or to apply for certification as registered microbiologists through the American Society for Microbiology are strongly advised to take a course in quantitative analysis (CHEM 517-518).

Individuals considering a major in microbiology are strongly encouraged to enroll in MICR 503 and organic chemistry in their sophomore year. Requirements in the biology core curriculum may be deferred until the subsequent year, if necessary.

Students may obtain a minor in microbiology by successfully completing MICR 503 and four additional departmental courses totaling a minimum of 20 credits at the 600 or 700 level. Students must receive a minimum grade of C in major requirements taught in the College of Life Sciences and Agriculture (e.g., microbiology, biology, or biochemistry). BCHM 658/659 may be substituted for one of these courses. A maximum of 4 credits of Problems in Microbiology may be applied to the minor.

Microbiology Curriculum

The microbiology curriculum is satisfied by Group I and Group II course requirements. All Group I courses are required. Two courses from the Group II requirements are also required. The microbiology major B.S. degree requirement is seven microbiology courses totaling a minimum of 28 credit hours at a grade of C or above.

Group I Requirements

MICR 710, Electron Microscopy and Microbial Cytology (and 712, Laboratory)
MICR 711, Genomics and Bioinformatics
MICR 718, Ethics and Issues in Microbiology
MICR 751, Cell Culture
MICR 702, Infectious Disease and Health
MICR 706, Virology and 708, Laboratory
MICR 714, Public Health and Waterborne Diseases
MICR 705, Immunology
MICR 707, Marine Microbiology
MICR 713, Microbes and the Environment
MICR 719, Prokaryote Biodiversity
MICR 766, Plant-Microbe Interactions
NR 706, Soil Microbiology

Electives

(These cannot be taken to fulfill the microbiology major requirement.)
MICR 504, Brewing and Industrial Microbiology
Applications (UNHM)
MICR 600, Field Experience
MICR 603, Bacteriology of Food (UNHM)
MLS 720, Clinical Mycology and Parasitology
PBIO 721, Microscopic Algae
PBIO 752, Mycology
MICR 790, Laboratory Teaching Experience
MICR 795, Problems in Microbiology

1 For students transferring into the microbiology major, the equivalent of two semesters of a laboratory biological science may be accepted with microbiology faculty approval.

2 Premedical and other pre-health students should take one year of organic chemistry.

3 A maximum of four credits of MICR 795 may be applied to the major.
Departmental Honors

Honors in microbiology will be awarded to students who complete 16 credits of honors courses in microbiology (including a minimum of four credits in a senior research project), and who maintain a minimum grade-point average of 3.20 in the major. Students interested in the microbiology honors program should apply to the department before their junior year.

Students wishing to declare a major or minor in microbiology or to be admitted to the microbiology honors program should consult the departmental chair.

COURSES

MICR 444 From Frankenstein to Dolly, and Beyond 4 cr.
MICR 501 Microbes in Human Disease 4 cr.
MICR501H Honors/Microbes in Human Disease 4 cr.
MICR 503 General Microbiology 5 cr.
MICR 504 Brewing and Industrial Microbiology Applications 4 cr.
MICR 600 Field Experience 4 cr.
MICR 600W Field Experience 4 cr.
MICR 602 Pathogenic Microbiology 4 cr.
MICR 603 Bacteriology of Food 4 cr.
MICR 604 Bacteriology of Food Lab 1 cr.
MICR 651 Biotechnology Experience/Biomanufacturing 4 cr.
MICR 655 Biotechnology Experience/Research 4 cr.
MICR 702 Infectious Disease and Health 5 cr.
MICR 704 Genetics of Prokaryotic Microbes 4 cr.
MICR 705 Immunology 5 cr.
MICR 706 Virology 3 cr.
MICR 707 Marine Microbiology 5 cr.
MICR 708 Virology Lab 2 cr.
MICR 710 Electron Microscopy and Microbial Cytology/Electron Microscopy Lab 5 cr.
MICR 711 Genomics and Bioinformatics 4 cr.
MICR 713 Microbes and the Environment 5 cr.
MICR 714 Public Health and Waterborne Diseases 4 cr.
MICR 717 Microbial Physiology 5 cr.
MICR 718 Ethics and Issues in Microbiology 4 cr.
MICR 719 Prokaryote Biodiversity 5 cr.
MICR 720 Marine Microbial Ecology 4 cr.
MICR 751 Cell Culture 5 cr.
MICR 766 Plant-Microbe Interactions 3 cr.
MICR 790 Laboratory Teaching Experience 1 to 4 cr.
MICR 795 Problems 1 to 8 cr.
MICR795W Independent Study 1 to 4 cr.

Nutritional Sciences (NUTR)
www.anscandnrat.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu.)

The science of nutrition is the study of nutrients in food and the body's handling of these nutrients. As an applied science, nutrition is based on biochemistry and physiology but can also include anthropology, economics, genetics, microbiology, pathology, animal sciences, and zoology. Consequently, the nutritionist often cooperates with workers in many different fields. The nutrition program at UNH is designed to permit specialized study in human and/or animal nutrition.

Two curricula are offered to meet the educational needs of students with differing professional aspirations.

Basic Science Curriculum

This curriculum provides students with a solid science background in biology, chemistry, physiology, nutrition, biochemistry, and physics. Upon graduation, students are well prepared for technically oriented jobs in science. This curriculum is also excellent preparation for students planning further education in graduate school or professional schools of medicine and dentistry. Students in this curriculum are required to complete the biology core curriculum: NUTR 400, 750; ANSC 511 and 512; MICR 503; BCHM 658/659; and 12 additional credits from recommended courses in nutrition.

Dietetics Curriculum

Approved by the American Dietetics Association (ADA), the dietetics curriculum prepares students to apply for a post-graduate dietetic internship. Completing this internship and passing the ADA examination are essential for becoming a registered dietitian (RD), requisite for employment opportunities in clinical dietetics and community nutrition. Required courses for this curriculum are NUTR 400, 401, 405, 476, 504, 510, 550, 560, 720, 750, 773, 775, and 780; ANSC 511 and 512; BIOI 411; CHEM 403-404, and 545-546; ENGL 401; HMTG 403; MICR 501 or 503; BCHM 658/659; SOC 500 or PSYC 401; HMP 401; HMP 710; and either PSYC 402, SOC 502, BIOL 528, or HHS 540.

COURSES

NUTR 400 Nutrition in Health and Well Being 4 cr.
NUTR400H Honors/Nutrition in Health and Well Being 4 cr.
NUTR 401 Introduction to the Dietetics Profession 1 cr.
NUTR 405 Food and Society 4 cr.
NUTR 476 Nutritional Assessment 3 cr.
NUTR 503 Principles of Food Service Management 3 cr.
NUTR 504 Managerial Skills in Dietetics 3 cr.
NUTR 510 Nutrition Education and Counseling 4 cr.
NUTR 550 Food Science: Principle and Practice 4 cr.
NUTR 600 Field Experience in Nutrition 1 to 4 cr.
NUTR600W Field Experience in Nutrition 1 to 4 cr.
NUTR 646 Sports Nutrition 4 cr.
NUTR 650 Life Cycle Nutrition 4 cr.
NUTR 680 Practicum in Weight Management 2 cr.
NUTR 699 Independent Study 1 to 4 cr.

College of Life Sciences and Agriculture

Plants Biology (PBIO)
www.pbio.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu.)

Plant biology is the study of plants at the population, organismal, cellular, and molecular level; and the investigation of the uses of plants for food, fiber, recreational, and ornamental purposes. Offerings in marine and freshwater plant biology also are provided and are facilitated by the Jackson Estuarine Laboratory and two marine laboratories where the plant biology faculty maintains an active involvement in teaching and research. The Department of Plant Biology offers three baccalaureate degrees: bachelor of science in plant biology, bachelor of science in environmental horticulture, and bachelor of arts in plant biology. See also programs listed under biology major and marine sciences.

B.S. in Plant Biology

This degree is for students intending to seek employment in agricultural, pharmaceutical, and biotechnology industries; to work in governmental agencies, environmental groups, and consulting firms; to teach secondary education; or to undertake graduate studies in preparation for advanced research and teaching positions. Students interested in university teaching and/or research, and governmental and industrial research, should plan to complete an advanced degree in the field.

Students are required to take the core courses, which include the biology core curriculum, and five plant biology elective courses.

COURSES

NUTR 400 Nutrition in Health and Well Being 4 cr.
NUTR400H Honors/Nutrition in Health and Well Being 4 cr.
NUTR 401 Introduction to the Dietetics Profession 1 cr.
NUTR 405 Food and Society 4 cr.
NUTR 476 Nutritional Assessment 3 cr.
NUTR 503 Principles of Food Service Management 3 cr.
NUTR 504 Managerial Skills in Dietetics 3 cr.
NUTR 510 Nutrition Education and Counseling 4 cr.
NUTR 550 Food Science: Principle and Practice 4 cr.
NUTR 600 Field Experience in Nutrition 1 to 4 cr.
NUTR600W Field Experience in Nutrition 1 to 4 cr.
NUTR 646 Sports Nutrition 4 cr.
NUTR 650 Life Cycle Nutrition 4 cr.
NUTR 680 Practicum in Weight Management 2 cr.
NUTR 699 Independent Study 1 to 4 cr.

CORE COURSES

BIOL 411, Principles of Biology I 4 cr.
BIOL 412, Principles of Biology II 4 cr.
CHEM 403, General Chemistry I 4 cr.
CHEM 404, General Chemistry II 4 cr.
This program is of particular interest to students who intend to utilize their plant biology training in public relations, teaching, or other related careers in combination with a liberal arts background. The program allows students to obtain minors in other fields such as English, history and philosophy of science, international affairs, education, art, etc., to create an interdisciplinary program, or to pursue a double major.

Requirements
PBIO 401, Plant Biology Orientation 1
PBIO 412, Introductory Botany (waived if previous credit received for BIOL 411-412 or equivalent) 4
ZOOL 412, Biology of Animals 4
PBIO 501, Basic Biochemistry or CHEM 545/546, Organic Chemistry and Laboratory 5
BIOL 541, General Ecology 4
PBIO 566, Systematic Botany or PBIO 668, Summer Flora of New Hampshire 4
or PBIO 721, Microscopic Algae 4
or PBIO 722, Marine Phycology 4
or PBIO 604, Principles of Genetics or PBIO 612, Plant Genetics and Reproduction 4
PBIO 701/702, Plant Physiology and Laboratory 5

Upper Level Plant Biology Categories Electives
12 credits minimum
Select courses from several of the five plant biology categories (see B.S. program). PBIO 758 and 774 are also recommended.

General Education
Required: Group 3, CHEM 403-404, General Chemistry Recommended: Group 2, BIOL 528, Applied Biostatistics I Group 8, PHIL 424, Science, Technology, & Society; or HUMA 651, Humanities and Science: The Nature of Scientific Creativity

Other B.A. Requirements
Foreign language (equivalent to one year of college language).

General Science Certification
See pages 34 and 98.

Minors
The Department of Plant Biology offers two departmental minors: a minor in plant biology and a minor in environmental horticulture. These minors are available to all students and are designed to provide a flexible and broad selection of courses to complement any other major area of study.

The specific requirements of the minor in plant biology include PBIO 401, PBIO 412 or equivalent, and a minimum of 15 credits from the following list of courses: PBIO 566, 625, 651, 653, 668, 701/702, 709, 713, 717, 719, 721, 722, 724, 725, 727, 729, 751, 752, 753, 754, 758, 761, 772, 774/775, 795 (maximum of 4 crs.), 796, 789; BIOL 601

The requirements for the environmental horticulture minor are PBIO 401, PBIO 421, and a minimum of 15 credits from the following list of courses: PBIO 405, 547, 565, 566, 572, 612, 650, 651, 652, 653, 678, 679, 689, 701/702; BIOL 601.

For selection of specific courses, students should see the department chair.

Departmental Honors
Honors in plant biology or environmental horticulture will be awarded to students who complete 16 credits of honors courses in plant biology courses (including a minimum of four credits in a senior honors thesis project), and maintain a minimum grade-point average of 3.20 (overall average and in major coursework). Students wishing to apply to the departmental honors program should consult with Professor Garrett Crow.

COURSES
PBIO 400 Plants and Civilization 4 cr.
PBIO 401 Plant Biology Orientation 1 cr.
PBIO 405 Organic Food Production 4 cr.
PBIO 407 Sustainable Gardening 4 cr.
PBIO 412 Introductory Botany 4 cr.
PBIO 421 Introductory Horticulture 4 cr.
PBIO 421H Honors Introductory Horticulture 4 cr.
PBIO 501 Basic Biochemistry 4 cr.
PBIO 503 Introduction to Marine Biology 4 cr.
PBIO 546 Plants, Soils, and Environment 4 cr.
PBIO 547 Environmental Horticulture 4 cr.
PBIO 565 Turf Management 4 cr.
PBIO 566 Systematic Botany 4 cr.
PBIO 572 Plant Propagation 4 cr.
PBIO 600 Field Experience 1 to 4 cr.
PBIO 600W Field Experience 1 to 4 cr.
PBIO 612 Plant Genetics and Reproduction 4 cr.
PBIO 625 Introduction to Marine Botany 4 cr.
PBIO 650 Crop Production Technologies 3 cr.
PBIO 651 Plant Pathology 4 cr.
PBIO 652 Culture of Vegetable Crops 3 cr.
PBIO 653 Forest and Shade Tree Pathology 4 cr.
PBIO 668 Summer Flora of New Hampshire 4 cr.
PBIO 678 Nursery Crop Production 4 cr.
PBIO 679 Landscape Management 3 cr.
PBIO 689 Greenhouse Crop Management 4 cr.
PBIO 701 Plant Physiology 3 cr.
PBIO 702 Plant Physiology Laboratory 2 cr.
PBIO 709 Plant Stress Physiology 3 cr.
PBIO 713 Biochemistry of Photosynthesis 4 cr.
PBIO 714 Electron Microscopy 2 cr.
PBIO 715 Electron Microscopy Lab 3 cr.
PBIO 717 Biology of Lakes 4 cr.
PBIO 719 Field Studies in Lake Biology 4 cr.
PBIO 721 Microscopic Algae 4 cr.
PBIO 722 Marine Phycology 4 cr.
PBIO 723 Marine Flora of New Hampshire 4 cr.
Tourism Planning and Development
(TOUR)
www.dred.unh.edu/TOUR.htm
(For course descriptions, go to www.undergradcat.unh.edu.)

Tourism creates immense economic activity, totaling more than $4 trillion dollars of world spending activity. Tourism is also an integral part of New England's economy. Experience has shown that the public and private sectors of the tourism industry benefit substantially from proper planning. Those locations with the best planned and managed tourism developments are likely to be the most successful tourist destinations from the standpoint of providing both high-quality tourist experiences and bringing substantial economic benefits with minimal disruptions to the social and natural environment. In response to these needs, the Department of Resource Economics and Development offers a bachelor of science degree in tourism planning and development from regional and international perspectives.

The tourism planning and development curriculum provides students with the skills and knowledge necessary to plan, develop, and manage natural, cultural, and financial resources in an environmentally responsible manner. The program utilizes an interdisciplinary approach to provide students with a strong liberal education supplemented by a broad professional understanding of tourism planning and its role in local, state, national, global economic, and social development. Students study both the social and environmental sciences in order to better understand the complexity of natural and social systems. The program emphasizes the practical application of planning and economic theory to the planning for the development of tourism resources.

Curriculum Structure
All majors must complete a core curriculum and choose one of two concentrations: international development or regional tourism planning.

Core Courses
The core curriculum is composed of the following courses:
- TOUR 400, Introduction to Tourism
- TOUR 500, Agriculture and Natural Resource Product Marketing
- TOUR 550, Tourist Characteristics and Behavior
- TOUR 560, Special Topics
- TOUR 570, Marketing Communications Research: Methodological Foundations
- TOUR 592, International Experience
- TOUR 794, Tourism Internship
- TOUR 794 involves a 14–16 week, full-time, supervised internship, and enables students to meet and work in association with representatives from the public and private sectors of the tourism industry.

International Tourism Development Concentration
This concentration area prepares students to work in the dynamic and challenging environment of international tourism development. Depending on interests, language skills, and international experiences, students may expect to find employment in settings such as national tourism offices, international tourism organizations, national and foreign consultants, and multinational tourism destination projects. In addition to the required core courses, students who pursue the international tourism development concentration must complete the following requirements: TOUR 792, International Experience; two TOUR electives; competency in a foreign language (i.e., functional reading, writing, and speaking ability equivalent to the third-year second-semester level); and two additional electives that will enhance students' career opportunities in the international area.

Regional Tourism Planning Concentration
This concentration area prepares students to obtain professional roles in planning in the public or private sectors of the tourism industry. Depending on interests and technical skills, students may expect to find employment in settings such as local and regional economic development organizations, chamber of commerce offices, convention and visitor bureaus, state and federal offices of tourism development, local and regional planning commissions, and resort communities. In addition to the required core courses, students who pursue the regional tourism planning concentration must complete the following requirements: TOUR 798, Independent Study in Tourism; two TOUR electives; and all the requirements for a minor in community planning.

New England Regional Student Program
The B.S. in tourism planning and development program 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 Rhode Island, Connecticut, Massachusetts, Vermont, and Maine receive some preferential admission consideration and, if admitted, pay the UNH in-state tuition rate plus 50 percent. Students who are interested in the tourism planning and development program should contact Robert A. Robertson, 309 James Hall, (603) 862-2711.

COURSES
- TOUR 400 Introduction to Tourism 4 cr.
- TOUR 510 Tourism and Global Understanding 4 cr.
- TOUR 550 Tourist Characteristics and Behavior 4 cr.
- TOUR 560 Special Topics 4 cr.
- TOUR 615 Tourism Planning and Development 4 cr.
- TOUR 633 Economics of Travel and Tourism 4 cr.
- TOUR 700 Marketing Communications Research: Methodological Foundations 4 cr.
- TOUR 705 Ecotourism: Managing for the Environment 4 cr.
- TOUR 767 Social Impact Assessment 4 cr.
- TOUR 792 International Experience 1 to 4 cr.
- TOUR 794 Internship 4 to 12 cr.
- TOUR 798 Independent Study 1 to 4 cr.
- TOUR 798W Independent Study 1 to 4 cr.
Wildlife Management
www.unh.edu/natural-resources/ug-wild.html
(For course descriptions, go to www.undergradcat.unh.edu.)

The wildlife curriculum is for students interested in the ecology, conservation, and management of wild animals. It is designed to provide a knowledge of wildlife species and their various forest, field, and wetland habitats. Students are prepared for employment with public and private agencies in wildlife management, or for continued study at the graduate level.

Fieldwork is carried out during the academic year on local and regional wildlife areas. Majors are assisted and encouraged to obtain summer employment related to their career objectives.

The degree earned is a bachelor of science with a major in wildlife management. The program is administered in the Department of Natural Resources.

Freshman Year
BIOL 411, Principles of Biology I
BIOL 412, Principles of Biology II
ENGL 401, Freshman English
MATH 424B, Calculus for Life Sciences, or MATH 420, Finite Mathematics
NR 400, Professional Perspectives in Natural Resources
NR 401, Introduction to Natural Resources
NR 425, Field Dendrology
NR 433, Wildlife Ecology
Elective, physical science or General Education elective

Sophomore Year
BIOL 528, Applied Biostatistics I
CHEM 403, General Chemistry
CHEM 404, General Chemistry
ENGL 501, Introduction to Creative Nonfiction, or ENGL 502, Technical Writing, or ENGL 503, Persuasive Writing
EREC 411, Environmental and Resource Economics Perspectives
NR 527, Forest Ecology, or BIOL 541, General Ecology
NR 655, Vertebrate Biology
NR 658, Introduction to Geographic Information Systems
ZOOL 542, Ornithology, or ZOOL 712, Mammalogy, or Elective

Junior Year
NR 602, Natural Resources and Environmental Policy
NR 615, Wildlife Habitats
NR 737, Wildlife Population Dynamics
ZOOL 625, Principles of Animal Physiology

ZOOL 690, Evolution, or ZOOL 665, Conservation Genetics
ZOOL 710, Ichthyology, or ZOOL 713, Animal Behavior, or ZOOL 733, Behavioral Ecology

Senior Year
NR 629, Silviculture or equivalent
NR 636, Wildlife Techniques
NR 738, Wildlife Policy and Management
NR 775, Natural Resources Senior Project
Elective
Elective
Elective

Electives should be used to satisfy remaining general education requirements and the wildlife major requirements in the areas of communication skills and physical sciences (one course in each area-pertinent courses are listed in the detailed wildlife curricular guidelines available from the department).

Students interested in the wildlife management major may consult with the program coordinator, Peter Pekins, James 214, (603) 862-1017.

General Science Certification
See pages 34 and 98.

Zoology (ZOOL)
zoology.unh.edu/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Department of Zoology has a primary responsibility for undergraduate and graduate instruction in fundamental aspects of animal biology, including the principles of form, function, development, and diversity produced by animal evolution. The teaching program provides a broad coverage of basic biological processes in invertebrate and vertebrate animals at the cellular, organismic, population, and community levels. Students receive background for a variety of professional positions in the public and private sector, and for graduate programs in the biological sciences including health-related fields. The department offers the bachelor of arts, bachelor of science, master of science, and doctor of philosophy degrees.

Zoology faculty contribute significantly to the biology core curriculum, marine biology minor, genetics program, University honors program, ocean projects, and undergraduate research opportunity programs, and courses at the Shoals Marine Laboratory.

There is a strong teaching and research emphasis on ecological and physiological processes in aquatic animals or ecosystems. This focus is enhanced by the geographical location of the University and the availability of facilities for aquatic research. 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, and the presence of two coastal marine laboratories, as well as estuarine and freshwater laboratories.

The zoology major builds from the common background of the biology core curriculum, with ample time for third- and fourth-year students to concentrate in specialized disciplines such as marine and freshwater biology, behavior, cell and developmental biology, ecology, evolution, fisheries, physiology, and neurobiology. Zoology majors must complete 32 credits from courses in the biological sciences approved by the department with a 2.00 average. Students must receive a minimum grade of C- in major requirements taught in the College of Life Sciences and Agriculture (e.g., zoology, microbiology, biology, biochemistry). A passing grade in major requirements taught outside the College of Life Sciences and Agriculture (e.g., chemistry, mathematics, physics) is acceptable. Minimum requirements for the B.S. in zoology are as follows: completion of the biology core courses and required courses in animal morphology, physiology and development, plus advanced electives in zoology and other biological sciences. The B.A. in zoology has a foreign language requirement in lieu of one advanced elective. B.A. students also have somewhat more flexibility when choosing courses from the biology core.

Students who are interested in a zoology major should consult the department's undergraduate adviser or chair.

General Science Certification
See pages 34 and 98.

COURSES
ZOOL 400 Professional Perspectives in Zoology 1 cr.
ZOOL 401 Human Biology 4 cr.
ZOOL 412 Biology of Animals 4 cr.
ZOOL412H Honors/Principles of Zoology 4 cr.
ZOOL 460 Biological Illustration 2 cr.
ZOOL 474 Introduction to Marine Science 4 cr.
ZOOL 503 Introduction to Marine Biology 4 cr.
ZOOL 507 Human Anatomy and Physiology 4 cr.
ZOOL 508 Human Anatomy and Physiology 4 cr.
ZOOL 510 Field Ornithology 4 cr.
ZOOL 518 Vertebrate Morphology 5 cr.
ZOOL 529 Developmental Biology 4 cr.
Departments

Animal and Nutritional Sciences

Majors: Animal Sciences (Bioscience and Technology, Equine Sciences, Preveterinary Medicine), Dairy Management, Medical Laboratory Science, Nutritional Sciences

Chairperson: Thomas L. Foxall

Animal Sciences Faculty


Affiliate Professors: Ronald E. Rompalla, Elizabeth Smith, Martin Stokes

Associate Professors: Patricia D. Beeler, Elizabeth P. Boulton, Peter S. Erickson, David H. Townsend, Paul C. Tsang

Adjunct Associate Professor: Richard F. Taylor

Affiliate Associate Professors: John A. Ryan, Arthur F. Stucchi

Assistant Professor: Deena J. Small

Affiliate Assistant Professors: Deborah Brough, Donald Collins, Paul F. Cotter, Jill Polito, Bo Rueda, Rose Schwab, Glenn T. Shwaer, Susan Slack, Mark R. Windt

Clinical Professors: Joseph J. Moore, Roger E. Wells

Clinical Associate Professor: Wendell P. Davis

Education Coordinator: Ellen J. Dijkstra Dukes

Teacher/Trainer: Sarah Hamilton

Technical Specialist/Medical Technologist: Donna-Rae M. Grant, Claire Tapply

Veterinary Pathologist: Alice D. Roudabush

Nutritional Sciences Faculty

Professors: Gale B. Carey, Joanne Curran, Celentano, Anthony R. Tagliaro

Associate Professors: Dennis J. Bobilya, Colette H. Janson-Sand

Clinical Assistant Professors: Joanne D. Burke, Ruth A. Reilly

Extension Professor: Catherine A. Violette

Lecturers: Ingrid Lofgren, Jesse Stabile Morrell

Biochemistry and Molecular Biology

Major: Biochemistry

Chairperson: Anita S. Klein

Professors: Rick H. Cote, Clyde L. Denis, Thomas M. Laue, Samuel C. Smith, Stacia A. Sower

Research Professor: Vernon N. Reinhold

Associate Professors: John J. Collins, Anita S. Klein, Andrew P. Laudano, W. Kelley Thomas

Research Associate Professor: William A. Gilbert

Assistant Professors: Lisa B. Clark, Charles E. Warren

Research Assistant Professor: Thomas P. Moody

Microbiology

Major: Microbiology

Chairperson: Louis S. Tisa

Professors: Aaron B. Margolin, Thomas G. Pistole, Frank G. Rodgers

Associate Professor: Lonie S. Tisa

Assistant Professors: Lisa B. Clark, Vaughn S. Cooper, Elise R. Sullivan, Cheryl A. Whistler

Natural Resources

Majors: Environmental Conservation Studies, Environmental Sciences (Hydrology, Soil and Watershed Management, Ecosystems), Forestry (Forest Management, Forest Science), Wildlife Management

Chairperson: William H. McDowell


Research Professors: Changsheng Li, Frederick T. Short

Affiliate Professors: Christopher Eagar, Jeffrey H. Gove, William B. Leak, Rakesh Minocha, Paul Edwin Sendak, Tim D. Smith

Associate Professors: Kimberly J. Babitt, Mimi Larsen Becker, Mark J. Ducey, Paul C. Johnson, Thomas D. Lee, Jonathan R. Pennock

Research Associate Professors: David M. Burdick, Stephen H. Jones

Affiliate Associate Professors: Linda S. Heath, David Y. Hollinger, Peter A. Maddison, Lawrence J. Prelli

Assistant Professors: Serita D. Frey, Kelly L. Giraud, George C. Hurr, Scott V. Ollinger

Research Assistant Professors: Jacqueline Ann Aikenhead-Peterson, Andrew B. Cooper, Adrienne I. Kovach, Mary E. Martin

Affiliate Assistant Professors: Matthew J. Baber, Ria Breijart, Willard N. Brownell, Jill L. Bubier, Bert Cohen, Richard Hallett, Roger J. MacGibbon, Marie-Louise Smith, Mariko Yamashita

Adjunct Faculty: Richard J. Desseve, Steven J. Hundley, Sidney A.I. Pilgrim

Extension Professors: Karen P. Bennett, Frank S. Mitchell, Sarah S. Smith

Extension Associate Professor: Julia M. Peterson

Extension Assistant Professor: Darrel F. Covell
Plant Biology
Majors: Environmental Horticulture, Plant Biology

Chairperson: Garrett E. Crow
Affiliate Professors: Clinton J. Dawes, Rakesh Minocha, Walter C. Shortle, Kevin T. Smith
Affiliate Associate Professor: Janet R. Sullivan
Research Assistant Professors: Rosanna Freyre, Dennis E. Mathews
Affiliate Assistant Professor: Jianhua Li
Extension Professors: Alan T. Eaton, Catherine A. Neal, Cheryl A. Smith, Stanley R. Swier
Extension Associate Professor: Rebecca Grube

Resource Economics and Development
Majors: Community Development, Environmental and Resource Economics, Tourism Planning and Development

Chairperson: John M. Halstead
Community Development Faculty
Coordinator: Kelly L. Giraud
Professors: John M. Halstead, Bruce E. Lindsay
Associate Professors: Alberto B. Manalo, Douglas E. Morris, Robert A. Robertson
Assistant Professor: Kelly L. Giraud
Instructor: Mary Adamo Robertson

Environmental and Resource Economics Faculty
Coordinator: John M. Halstead
Professors: Lyndon E. Goodridge, John M. Halstead, Bruce E. Lindsay
Associate Professors: Alberto B. Manalo, Douglas E. Morris
Assistant Professor: Kelly L. Giraud
Extension Educator: Michael R. Sciabarrasi

Tourism Planning and Development Faculty
Coordinator: Robert A. Robertson
Professors: John M. Halstead, Bruce E. Lindsay
Associate Professors: Alberto B. Manalo, Robert A. Robertson
Assistant Professor: Kelly L. Giraud
Instructor: Mary Adamo Robertson
Extension Educator: Michael R. Sciabarrasi

Zoology
Major: Zoology

Chairperson: James F. Haney
Research Professor: Michael P. Lesser
Associate Professors: Jessica A. Bolker, Marianne Klauser Litvaitis
Research Associate Professors: Molly E. Lutcavage, Karen L. Carleton, Raymond E. Grizzle
Affiliate Associate Professors: Richard Langan, Leslie J. Newman
Assistant Professors: David L. Berlinsky, James E. Byers
Affiliate Assistant Professors: David T. Bernstein, Michele Dionne, Dwight D. Trueblood, Barry J. Wicklow
Adjunct Faculty: Arthur C. Borror, Miyoshi Ikawa, John J. Sasner, Edward K. Tillinghast
Associate Extension Faculty: Jeffrey A. Schloss
The Whittemore School of Business and Economics prepares students for future careers in management, public service, research, and education. The liberal arts are the basic foundation of the curriculum, and management of change in a global community is the major emphasis. Each department and program has its unique disciplinary tradition and the simultaneous commitment to broad educational excellence in critical thought, verbal and written communications, quantitative skills, computer literacy, and ethical reasoning. International awareness and cross-cultural understanding are essential components of the educational experience of Whittemore School students. The educational process encourages the integration of practice and theory through student interaction with businesses, public agencies, and faculty research.

The Whittemore School’s undergraduate curricula combine a breadth of liberal education with specifics of professional education in business administration, economics, and hospitality management. Undergraduates enrolled in the Whittemore School programs take a substantial part of their coursework, normally over 50 percent, in other colleges in the University in order to fulfill the general education requirements. Beyond those requirements, students are encouraged to elect additional courses in the arts, the behavioral and social sciences, the humanities, mathematics, and the natural sciences. Thus, students who complete the Whittemore School programs in business administration, economics, and hospitality management are prepared for employment and graduate study in both these and adjacent fields.

The Whittemore School offers a minor in business administration, economics, and hospitality management. Within the limits of its resources, the Whittemore School also serves the needs of undergraduates elsewhere in the University 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 Whittemore School courses are open to nonmajors who have the prerequisite preparation.

A maximum of 32 credits in courses offered by the Whittemore School of Business and Economics may be taken by non-Whittemore School students.

Degree Requirements

The Whittemore School offers a bachelor of arts degree program in economics and bachelor of science degree programs in business administration, economics, and hospitality management. Students who desire a professional career in public accounting are advised to follow the five-year program leading to a bachelor of science in business administration and a master of science in accounting degree (see page 123, Accounting Program of Study, for details). Application for admission to this highly selective program is made in the junior year.

Course listings for business administration are found under accounting and finance (ACFI), business administration (ADMN), decision sciences (DS), management (MGT), and marketing (MKTG). Candidates for a degree must satisfy all of the University general education requirements for graduation as well as the particular requirements of their individual major programs. In addition, candidates must complete a math course (400 level). Economics majors must also satisfy specific requirements associated with the bachelor of arts degree (see page 18). No Whittemore School course may be taken on a pass/fail basis by a student majoring in business administration, economics, or hospitality management.

In order to graduate, students must achieve a grade-point average of at least 2.30 (2.00 for the B.A. in economics) in the major courses and a minimum grade of C- (for ADMN 403, students must obtain credit) in each major course. Any WSBE major required course in which a grade below C- is obtained must be repeated. No more than two WSBE courses may be repeated and each course may be repeated at most one time.

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Course listings for business administration are found under accounting and finance (ACFI), business administration (ADMN), decision sciences (DS), management (MGT), and marketing (MKTG). Candidates for a degree must satisfy all of the University general education requirements for graduation as well as the particular requirements of their individual major programs. In addition, candidates must complete a math course (400 level). Economics majors must also satisfy specific requirements associated with the bachelor of arts degree (see page 18). No Whittemore School course may be taken on a pass/fail basis by a student majoring in business administration, economics, or hospitality management.

In order to graduate, students must achieve a grade-point average of at least 2.30 (2.00 for the B.A. in economics) in the major courses and a minimum grade of C- (for ADMN 403, students must obtain credit) in each major course. Any WSBE major required course in which a grade below C- is obtained must be repeated. No more than two WSBE courses may be repeated and each course may be repeated at most one time.
Modifications tend to occur in major programs during the four-year period of a student's undergraduate career. Students are expected to conform to these changes. Students transferring into the Whittemore School from other universities must have business, economics, and hospitality management courses reviewed and approved by the faculty through the Whittemore School Undergraduate Programs Office to be considered for major requirements. Transfer credit is normally granted only for 400 and 500-level courses.

For information concerning advanced degrees, see the Graduate School Catalog.

Advising System

Undergraduate advising in the Whittemore School is carried out jointly by academic advisers and the faculty. The academic advisers are based in the Whittemore School Undergraduate Programs Office, where student academic records are kept. The advisers assist students in program planning, preregistration, understanding and meeting general academic requirements, and general academic and career decision making. In addition, the advisers coordinate study abroad and domestic exchange and honors programs. The faculty draw on their own experience, expertise, and interests in helping students with course, program, and career selection.

The peer advising system, established in 1984, was created for the purpose of introducing freshmen to the college experience. Selected upperclass students provide a positive resource to guide freshmen. The program's goals are, through a mandatory yearlong program, to familiarize students with their major, college, and University; to support students in their personal growth; to develop personal responsibility; and to encourage freshmen to use the advising services on campus.

Undergraduates are encouraged to develop an advisory relationship with one or more faculty members with whom they have mutual interests. All students are urged to seek as much assistance as they need, from whatever source, but are reminded that theirs is the ultimate responsibility for knowing and meeting the various academic requirements for a degree.

Independent Study/Internship

Juniors or seniors in the Whittemore School 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 semester in which the project is to be undertaken. Independent study normally involves research, while internships are usually undertaken in cooperation with an off-campus organization and involve a nonroutine 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 is necessary. Students may earn no more than 16 credits 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 and Exchange Programs

The Whittemore School encourages qualified students to participate in programs of international work and study. The Whittemore School has international exchanges including Grenoble, France, and Budapest, Hungary.

Students may also elect to take a dual major in international affairs, offered in conjunction with the program for international perspectives (see page 131).

Information on all other international programs can be obtained from the sponsoring department or the Center for International Education, Hood House, Room 204.

Five-Year Programs

Four-One Program: B.S.-M.S.A.

The American Institute of Certified Public Accountants (AICPA), the national association of professional accountants, has 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 Whittemore School 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 junior year. Details are provided in the Programs of Study sections of the UNH undergraduate and graduate catalogs.

Nonmajors

The Whittemore School also offers courses for nonmajors. Students interested in these courses should contact the undergraduate programs office.

Minor

The Whittemore School faculty has developed a group of courses for nonmajors that, if available and when combined with certain elective courses, can constitute a minor in business administration. A list of minor requirements is available at the Whittemore School Undergraduate Programs Office, Room 120, McConnell Hall.

Programs of Study

Business Administration (ADMN)

wsbe.unh.edu/WSBE_UndergradProgs/undergrad_progs.cfm

(For course listings, see Accounting and Finance, page 127; Decision Sciences, page 127; Management, page 128; and Marketing, page 128. For course descriptions, go to www.undergradcat.unh.edu.)

The business administration program provides training for individuals interested in managerial or administrative careers in business or in public or private institutions.

Since most graduates of the program embark upon business careers, the program emphasis is in that direction. However, the skills acquired through the business program are readily applicable to the problems faced by not-for profit institutions such as hospitals, school systems, government departments, and other socially oriented organizations, the program's objectives have been broadened to include all types of administration.

The curriculum offers professional education in the basic theories, principles, concepts, and analytical tools used by successful modern administrators, combining them with an introduction to the functional areas of management. Additionally students develop expertise in a particular area of business by earning an option within the business administration degree program. At the same time, typical students achieve a well-rounded education by selecting courses in the liberal arts and the sciences from other colleges and schools in the University.
The business administration program comprises ten four-credit business administration courses (ADMN prefix) representing foundational business knowledge and skills, one 1-credit business administration course to develop and demonstrate proficiency with computer applications, two four-credit economics courses (ECON prefix), and one 400-level course in mathematics (MATH prefix). All but one of these required courses are generally completed in the first five semesters of enrollment at WSBE, leaving the student with the flexibility in the final three semesters at WSBE to earn an option in one of the offered areas. University general education requirements and other non-WSBE classes are generally taken throughout a student's time at UNH.

While taking the ten core business administration courses, a student will gain an introduction to all of the major areas of business. Using this knowledge, students decide upon an area of business in which they desire to concentrate. Within the business degree program, students must designate an option. The latest a student may declare an option is during the fall semester of their junior year, typically during pre-registration for spring courses. Students are encouraged to discuss their interests with several faculty members and an academic adviser in this decision-making process. The options currently offered in the business administration program are listed here. 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 abreast of these changes, through WSBE's Undergraduate Programs Office.

**Options in the Business Administration Program:**

- Accounting
- Entrepreneurial Venture Creation
- Finance
- Information Systems Management
- International Business and Economics
- Management
- Marketing
- Student-Designed

Options comprise a minimum of four courses, but requirements do vary by option. Due to the specialized nature of some career fields, course requirements are greater in some options than others.

A typical plan of study is given below. The options have different requirements, which are provided later. However, a detailed schedule of study for each option is not provided here. Students should check with the WSBE Undergraduate Programs Office for specific recommendations regarding scheduling of courses in the option areas and the suggested plan of study.

**Freshman: Fall**
- ADMN 400, Introduction to Business
- ADMN 403, Computing Essentials for Business (1 credit, credit/fail grading)
- ECON 401, Macro Economics or 402, Micro Economics
- MATH 420, Finite Math or 424A, Calculus for Social Sciences

**Freshman: Spring**
- ADMN 410, Management Information Systems
- ECON 401 or 402
- ENGL 401

**Sophomore: Fall**
- ADMN 420, Business Statistics
- ADMN 502, Financial Accounting

**Sophomore: Spring**
- Students typically declare an option during this semester.
- ADMN 503, Managerial Accounting

**One or two of the following courses**
- ADMN 601, Introduction to Financial Management
- ADMN 611, Behavior in Organizations
- ADMN 640, Quantitative Decision Making
- ADMN 651, Marketing

**Junior: Fall**
- Must declare an option by this semester.
- Take the remaining 600-level courses from the Sophomore Spring list.

**Junior: Spring**
- *Course(s) in option area

**Senior: Fall**
- *Course(s) in option area
- ADMN 703, Strategic Management: Decision-Making (or take in Senior Fall term)

**Senior: Spring**
- *Course(s) in option area
- ADMN 703, Strategic Management: Decision-Making (if not taken in Senior Fall term)

*Depending of the choice of option and the specific requirements thereof, students may be able to take WSBE or non-WSBE electives for some of these courses.

The **Option in Accounting** provides students with opportunities in a variety of fields, including internal audit, external audit, tax preparation and planning, and consulting. Demand for accountants has been consistently strong. The goal of the accounting option is to prepare students for a career in accounting and the qualifications to obtain certifications, such as Certified Management Accountant (CMA), Certified Internal Auditor (CIA), and Certified Fraud Examiner (CFE). The accounting option also prepares students to enter the Master of Science in Accounting program offered by WSBE. Obtaining a Master's degree is a necessary requirement for taking the CPA exam in most states, including Massachusetts and Maine.

**Required**
- ACFI 622, Intermediate Financial Accounting II
- ACFI 723, Advanced Managerial Concepts and Applications
- ACFI 724, Auditing
- ACFI 726, Taxation and Management Strategy
- MGT 647, Business Law I

In addition, one course chosen from the following
- ACFI 725, Financial Statement Analysis
- ACFI 750, Internship in Accounting
- ACFI 752, Independent Study in Accounting (including Tax Challenge)
- ADMN 799, Honors Thesis in Accounting

The **Option in Entrepreneurial Venture Creation (EVC)** is designed for students who intend to start a high-growth business, work for a new venture or become involved in a new venture creation within an established organization. The EVC Option fosters an entrepreneurial culture throughout the program. The priority is real-world learning in the high growth environment of entrepreneurial ventures. The program includes active student participation, a seminar format, field trips to entrepreneurial ventures and guest speakers. Each student participates in a senior project and an internship at a high tech start-up.

**Required**
- MKTG 798, New Product Development or MKTG 798, Market and Opportunities Analysis
- DS 741, Private Equity/ Venture Capital
- DS/MGT 742, Internship in Entrepreneurial and Management Practice
- MGT 732, Exploration in Entrepreneurial Management

The **Option in Finance** provides students with opportunities in a variety of disciplines including banking, insurance, corporate finance, investment management, and risk management. Finance majors are in excellent demand. The goal of the finance option is to expose the student to all three major branches of finance: investments, corporate, and
financial institutions. At the same time, the option allows the student some flexibility in choosing courses. The option helps students planning to sit for the Chartered Financial Analyst (CFA) Level I exam, the Certified Financial Manager (CFM) exam, and the Certified Financial Planner (CFP) exam.

**Required**
- ACFI 701, Financial Policy
- ACFI 702, Investments Analysis

In addition, two of the following:
- ACFI 703, International Financial Management
- ACFI 704, Derivative Securities and Markets
- ACFI 705, Management of Financial Institutions

The **Option in Information Systems Management** provides students with both business problem-solving skills and in-depth technical knowledge. This unique combination of skills is in short supply, and the employment outlook is outstanding. The program concentrates on two areas: 1) organizations, with an emphasis on business processes, and 2) technology, with an emphasis on analysis, design, implementation, and management of an organization's information systems. Students take courses from the computer science department and WSBE in completing the option, and a senior-level industry project is a core component of the program.

**Required**
- Information Systems Development: Currently CS 405, Visual Basic I, or equivalent. The Faculty Coordinator of the option must approve any substitute course for CS 405.
- DS 773, Database Management Systems
- DS 774, Electronic Commerce Systems
- DS 798, Topics in Information Systems Management: specific course topic may change from year to year.

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 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.

**Required**
- ECON 645 International Economics

Three (3) of the following:
- ACFI 703, International Financial Management
- MGT 755, International Management
- MKTG 760, International Marketing
- ECON 611, Intermediate Macroeconomics
- ECON 746, International Finance

One of the following:
- 4-credit graded internship at an international organization
- 1-semester Study Abroad Experience. At least one course (3-4 UNH credits) must be pre-approved by the IBE Option Coordinator and responsible department chair and satisfactorily completed, in order for this to count toward the option.
- ACFI 704, Derivative Securities and Markets
- ECON 668, Economic Development
- ECON 692, International Economic Integration
- ECON 745, International Trade
- ECON 747, Multinational Enterprises

The **Management Option** provides students with opportunities to develop a substantial foundation in the principles of managing the human, organizational, and capital resources of the firm in a strategic manner to enhance organizational competitiveness. Courses emphasize problem-solving, planning, and interpersonal skills related to leadership in the new economy, managing innovation and change, and international and cross-cultural issues in business. Future career paths include consulting, supervision, program management, or pursuit of graduate education in management or law. This is an excellent option for students who see themselves as “big picture people” and business generalists.

**Required**
- MGT 614, Organizational Leadership and Structure
- MGT 701, Business, Government, and Society

In addition, two 600- or 700-level MGT courses. Current offerings include, which may change from year to year:
- MGT 647, Business Law I (or MGT 648 Business Law II; MGT option students can count at most one Business Law course toward the MGT option)
- MGT 713, Leadership Assessment and Development
- MGT 732, Exploration in Entrepreneurial Management
- MGT 755, International Management
- MGT 798, Applied Management Seminar (open only to MGT option students with GPA of at least 3.20)
- MGT 798, Topics in Management (topics will change from year to year)

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. The option addresses key linkages critical to effective customer and product 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. Students can earn an option in marketing by successfully completing the requirements in the following table. In addition, a technology track can be added to the marketing option by successfully completing the two additional information systems management courses noted in the table.

**Required**
- MKTG 753, Consumer/Buyer Behavior
- MKTG 762, Marketing Workshop
- MKTG 798, Market and Opportunity Analysis

In addition, choose at least one of the following:
- MKTG 751, Advertising and Promotion
- MKTG 752, Marketing Research
- MKTG 798, Brand Management

Optional Technology Track in Marketing Option:
- In addition to the above requirements, students complete the following courses:
- DS 773, Database Management Systems
- DS 774, Electronic Commerce Systems

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 academic director of undergraduate business programs and the Whittemore School Dean's Office.

Students applying for this option will normally be expected to have a grade point average of at least 3.0.

The student-designed option in business administration shall consist of at least five Whittemore School courses, at least three of which shall be from the business administration departments (currently accounting and finance, decision sciences, management, and marketing).
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.

Graduate work in economics can lead to careers in college teaching, research in public and private agencies, and business consulting. Those interested in studying economics at the graduate level should ask their economics professors what undergraduate coursework is appropriate and which graduate schools would be suitable.

Courses in economics are open to nonmajors on a space-available basis. Students majoring in other programs have found that certain economics courses are useful supplements to their own majors and a help in gaining employment. For example, political science majors can profit from studying public economics, economic development, and international economics. Mathematicians and engineering students might elect to study econometrics and intermediate microeconomics. Environmental conservation majors could choose to study ecological or energy economics. For more information on economics electives, please consult the Whittemore School Undergraduate Programs Office (McConnell 120) or the chairperson of the economics department.

The department offers the choice of a B.A. degree or a B.S. degree in 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 to 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.

B.A. economics majors must complete eight courses in economics plus ADMN 420 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. These courses must include ECON 605, 611, 726, and 775. In addition, majors must complete MATH 424A, ADMN 403, 410, 420, 502, and 503.

Major credit toward ECON 605 and/or 611 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.

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 (page 18).

The economics department offers three specialized options within the bachelor of arts. By selecting economics electives from an approved list, a student majoring in economics can graduate with an option in financial and managerial economics, international and development economics, or public policy economics.

A suggested plan of study for B.A. economics majors follows

**Freshman Year**

ECON 401, 402, Principles of Economics (Macro and Micro); MATH 420 or MATH 424A

ADMN 403, Computing Essentials for Business

**Sophomore Year**

ADMN 420, Business Statistics; ECON 605, Intermediate Microeconomic Analysis; ECON 611, Intermediate Macroeconomic Analysis

**Junior and Senior Years**

Economics electives (at least 4)

A suggested plan of study for B.S. economics majors follows

**Freshman Year**

ECON 401, 402, Principles of Economics (Macro and Micro); MATH 424A

ADMN 403, Computing Essentials for Business

**Sophomore Year**

ADMN 420, Business Statistics; ADMN 605, Intermediate Microeconomic Analysis; ECON 611, Intermediate Macroeconomic Analysis

**Junior and Senior Years**

ECON 726, Introduction to Econometrics; ECON 775, Applied Research Skills for Economists; Economics electives (at least 3)
A minor in economics consisting of five courses is also available. At least three of these courses must be taken at UNH. For more on the minor and options within the major, consult the Whittemore School Undergraduate Programs Office.

<table>
<thead>
<tr>
<th>COURSES</th>
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<tr>
<td>ECON 401 Principles of Economics (Macro)</td>
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<td>ECON 402 Principles of Economics (Micro)</td>
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<tr>
<td>ECON 401H Honors/Principles of Economics (Macro)</td>
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<tr>
<td>ECON 402H Honors/Principles of Economics (Micro)</td>
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<td>ECON 515 Economic History of the United States</td>
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<td>ECON 605 Intermediate Microeconomic Analysis</td>
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<td>ECON 605W Intermediate Microeconomic Analysis</td>
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<td>ECON 607 Ecological Economics</td>
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<td>ECON 611 Intermediate Macroeconomic Analysis</td>
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<td>ECON 615 History of Economic Thought</td>
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<td>ECON 635 Money and Banking</td>
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<td>ECON 641 Public Economics</td>
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<td>ECON 642 Health Economics</td>
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<td>ECON 645 International Economics</td>
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<td>ECON 653 Law and Economics</td>
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<td>ECON 655 Labor Economics</td>
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<td>ECON 656 Labor Economics</td>
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<td>ECON 658 Organizational Economics and Architecture</td>
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<td>ECON 668 Economic Development</td>
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<td>ECON 669 Women and Economic Development</td>
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<tr>
<td>ECON 680 Economics of Electronic Commerce</td>
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<td>ECON 685 Study Abroad</td>
<td>1 to 16 cr.</td>
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<tr>
<td>ECON 686 Study Abroad</td>
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<td>ECON 695 Independent Study</td>
<td>2 to 12 cr.</td>
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<tr>
<td>ECON 696W Supervised Student Teaching Experience</td>
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<td>ECON 698 Topics</td>
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<td>ECON 725 Mathematical Economics</td>
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<td>ECON 726 Introduction to Econometrics</td>
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<td>ECON 736 Seminar in Monetary Theory and Policy</td>
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<td>ECON 741 Introduction to Public Policy</td>
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<td>ECON 746 International Finance</td>
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<td>ECON 747 Multinational Enterprises</td>
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<td>ECON 755 Labor Economics</td>
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<td>ECON 768 Seminar in Economic Development</td>
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<tr>
<td>ECON 775 Applied Research Skills for Economists</td>
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<tr>
<td>ECON 795 Internship</td>
<td>1 to 16 cr.</td>
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<tr>
<td>ECON 798 Economic Problems</td>
<td>2 or 4 cr.</td>
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<tr>
<td>ECON 799 Honors Thesis</td>
<td>4 to 8 cr.</td>
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Hospitality Management (HMGT)
wsbe.unh.edu/Dept_HospMgmnt/home.cfm
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Raymond J. Goodman, Jr.
Professor: Raymond J. Goodman, Jr.
Associate Professors: Joseph F. Durocher, Jr., Udo Schlentrich
Assistant Professors: Carola Raab, Dina Marie V. Zemke
Affiliate Assistant Professor: Sylvia H. Marple

The program in hospitality management is an integral part of the offerings of the Whittemore School. It is one of only a few programs worldwide that is accredited by both the American Assembly of Colleges and Schools of Business-AACSB and the Accreditation Commission for Programs in Hospitality Administration-ACPHA. Students may earn up to six total credits in internships, independent studies, field experience, and supervised student teaching experiences.

A required plan of study is given below

**Freshman Year**

HMGT 401, The Hospitality Industry: An Historical Perspective and Distinguished Lecture Series
HMGT 403, Introduction to Food and Beverage Management
HMGT 557, Food and Beverage Operations Management
ADMN 403, Computing Essentials for Business
ADMN 502, Introductory Financial Accounting
ECON 401, Principles of Economics (Macro) and ECON 402, Principles of Economics (Micro)

**Sophomore Year**

HMGT 554, Lodging Operations Management, or ADMN 420, Business Statistics
HMGT 616, Uniform Systems for the Hospitality Industry
Four University general education courses

**Junior Year**

HMGT 600, Hospitality Marketing Management
HMGT 603, Service Industries Management
HMGT 625, Hospitality and Employment Law
HMGT 635, Hospitality Human Resource Management
ADMN 611, Behavior in Organizations
Three hospitality, business, or University general education courses

**Senior Year**

HMGT 655, Hospitality Finance and Development
HMGT 703, Strategic Management in the Hospitality Industry
Two Hospitality management electives and three business or University general education courses

Group B includes most of the functional hospitality and business disciplines required to develop into a successful manager. A wide range of elective courses, independent studies, and internships can complement the required curriculum. In addition, the program requires completion of one semester of a 400-level math course.

To graduate, students must obtain a 2.30 grade-point average in all major required courses and a minimum grade of C- in each major course. Graduates of this program who are qualified for, and interested in further allied studies, are well prepared for advanced degree programs in hospitality, tourism, business, institutional, or health administration. Students may earn up to six total credits in internships, independent studies, field experience, and supervised student teaching experiences.

In order to have a well-rounded university education, students take courses in liberal arts as well as foundation courses in business administration and economics. The hospitality management curriculum builds upon this foundation and provides experience and in-depth education in the lodging and food service-related industries, as well as the broader industries that comprise the hospitality discipline. Each course includes an international component.

With our on-campus learning laboratory, the New England Center Hotel and Conference Center, the program includes a mix of practical experiences along with classroom activities. These practical experiences are provided by major consulting projects to industry as part of classroom activities, lecture series, seminars, and field trips; a minimum of 800 hours approved work experience or practicum; and by involvement in the food service and lodging operations at the New England Center.

The Department of Hospitality Management offers eighteen required courses and four hospitality electives in three groupings. Group A consists of eight core courses taken in the freshman and sophomore years.
A minor in hospitality management comprises five courses. The four listed below are required.

HMGT 401, Hospitality Industry: Historical Perspectives and Distinguished Lecture Series
HMGT 554, Lodging Operations Management
HMGT 567, Food and Beverage Operations Management
ADMN 502, Introductory Financial Accounting

Choose one of the following:
HMGT 661, Meetings and Conventions Management
HMGT 681, Resort Management
HMGT 771, Beverage Management
HMGT 777, Casino Management
HMGT 772, Senior Living Industries Management
HMGT 750, Senior Operations Seminar

Departments

Accounting and Finance (ACFI)
wsbe.unh.edu/Dept_AcctFinance/home.cfm
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Ahmad Etebari
Professors: Ahmad Etebari, Fred R. Kaen
Associate Professors: Afsahad J. Irani, Catherine A. Plante
Assistant Professors: John R. Becker Blease, Stephen J. Ciccone, Toni Q. Smith, Stefanie Tate, Le Xu
Lecturer: Edwin Nelson
Adjunct Faculty: William F. Knowles

Accounting and finance are fundamental academic disciplines in business schools. Accounting provides the basic language of businesses and the underlying structure for information systems. Finance provides important knowledge about asset management, capital markets, and risk strategies. This department coordinates the options in accounting and finance.

COURSES
ACFI 620 Topics in Accounting 4 cr.
ACFI 622 Intermediate Financial Accounting II 4 cr.
ACFI 640 Topics in Finance I 2 to 4 cr.
ACFI 701 Financial Policy 4 cr.
ACFI 702 Investments Analysis 4 cr.
ACFI 703 International Financial Management 4 cr.
ACFI 704 Derivative Securities and Markets 4 cr.
ACFI 705 Financial Institutions 4 cr.
ACFI 720 Topics in Finance II 4 cr.
ACFI 722 Advanced Managerial Accounting Concepts and Applications 4 cr.
ACFI 724 Auditing 4 cr.
ACFI 725 Financial Statement Analysis 4 cr.
ACFI 726 Topics in Managerial Accounting 4 cr.
ACFI 740 Topics in Accounting I 4 cr.
ACFI 750 Internships in Accounting 1 to 4 cr.
ACFI 751 Internships in Finance 1 to 4 cr.
ACFI 752 Independent Studies in Accounting 1 to 4 cr.
ACFI 753 Independent Studies in Finance 1 to 4 cr.
ACFI 754 Honors Seminar in Accounting and Finance 4 cr.

Decision Sciences (DS)
wsbe.unh.edu/Dept_DecSciences/home.cfm
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: A. R. Venkatachalam
Professors: Steven F. Bolander, Barry Shore, Jeffrey E. Sohl, A. R. Venkatachalam
Associate Professors: Roger B. Grinde, R. Daniel Reid, Christine M. Shea, Craig H. Wood
Assistant Professors: Pamala Dembla, Eleanne M. Solorzano, Theophanis Stratopoulos, Honggeng Zhou
Instructor: Peter W. Royce

The Department of Decision Sciences brings together faculty with special expertise in business statistics, decision support systems, management information systems, management science, production/operations management, operations research, and manufacturing strategy. This department coordinates the options in information systems and Entrepreneurial Venture Creation.

In addition, Technology and Operations Management (TOM), currently available as a concentration, is designed to prepare students for professional careers in the management of manufacturing and service operations. Typical opportunities for TOM graduates are in production management, purchasing, technical sales, material resource management, new product development, quality management, and supply chain management.

Required
DS 754, Resource Management
DS 755, Manufacturing Management
DS 758, Strategic Management of Operations

Note: Students taking these three courses will earn a “concentration” in TOM. A concentration is a defined collection of three courses in a particular area. A concentration is recognized by the Whittemore School but does not appear on the transcript.

COURSES
DS 630 Quantitative Methods 4 cr.
DS 650 Operations Management 4 cr.
DS 670 Management Information Systems 4 cr.
DS 698 Topics 4 cr.
DS 741 Private Equity/Venture Capital 4 cr.
DS 742 Internship in Entrepreneurial and Management Practice 4 cr.
DS 754 Resource Management 4 cr.
DS 755 Manufacturing Management 4 cr.
DS 758 Strategic Management of Operations 4 cr.
DS 773 Database Management Systems 4 cr.

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International Affairs (dual major)
(For program description, see page 131.)

Management (MGT)
wsbe.unh.edu/Dept_Management/home.cfm
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Michael J. Merenda
Professors: Ross J. Gittell, Allen M. Kaufman, Michael J. Merenda
Associate Professors: Carole K. Barnett, Vanessa Urch Druskat, Peter J. Lane, William Naumes
Assistant Professors: Jun Li, Anthony T. Pescosolido
Affiliate Assistant Professor: Margaret Naumes
Adjunct Faculty: Eric Herr

The study of management focuses on how organization members develop and use strategies, structures, and the accompanying social, political, legal, economic, and technical processes needed to compete in national and global markets. Courses cover such topics as leadership, decision making, ethics, adaptation, innovation, organizational learning and change, human resource management, governmental policy making, and industrial economics. The department's approach to teaching involves educational methods that promote conceptual, behavioral, and analytic competence through experiential learning, self-awareness, theoretical mastery, and case studies. A major emphasis is on action learning through group projects. This department coordinates the option in management and the student-designed option.

COURSES
MGT 580 Introduction to Organizational Behavior 4 cr.
MGT 614 Organizational Leadership and Structure 4 cr.
MGT 647 Business Law I 4 cr.
MGT 648 Business Law II 4 cr.
MGT 701 Business, Government, and Society 4 cr.
MGT 713 Leadership Assessment and Development 4 cr.
MGT 732 Exploration in Entrepreneurial Management 4 cr.
MGT 742 Internship in Entrepreneurial and Management Practice 4 cr.
MGT 755 International Management 4 cr.
MGT 798 Topics 4 cr.

Marketing (MKTG)
wsbe.unh.edu/Dept_Marketing/home.cfm
(For course descriptions, go to www.undergradcat.unh.edu.)

Chairperson: Charles W. Gross
Professor: Charles W. Gross
Assistant Professors: Ludwig A. Bstieler, Amy Kallianpur, Stefan G. Nicovich, Jeong Eun Park
Adjunct Faculty: Jacalyn L. Cilley

The marketing curriculum is designed to help students explore the exchange process between a business or institution and its customers or memberships. A marketing exchange occurs when a person gives up something he or she values (e.g., money, time, or effort) for something he or she wants or needs from the business or institution (e.g., goods or services). Marketing is the function in the organization which is responsible for determining what those needs and wants are, how they might be met, and how to communicate with prospective customers about how the organization can meet their needs.

Careers for students interested in marketing include jobs in marketing and product management, sales, advertising, retailing, and marketing research. Opportunities exist in consumer and industrial products at all levels of the marketing channel from manufacturer to wholesaler to retailer; for goods as well as services; and within for-profit and not-for-profit organizations. This department coordinates the option in marketing.

COURSES
MKTG 550 Survey of Marketing 4 cr.
MKTG 750 Strategic Marketing 4 cr.
MKTG 751 Advertising and Promotion 4 cr.
MKTG 752 Marketing Research 4 cr.
MKTG 753 Consumer/Buyer Behavior 4 cr.
MKTG 754 Retail Management 4 cr.
MKTG 755 Marketing of Services 4 cr.
MKTG 756 Franchising 4 cr.
MKTG 758 Marketing on the Internet 4 cr.
MKTG 760 International Marketing 4 cr.
MKTG 761 Sales Management 4 cr.
MKTG 762 Marketing Workshop 4 cr.
MKTG 798 Topics 4 cr.
MKTG 798W Topics 4 cr.
Special University Programs

Honors Program

University-Wide Programs
International Research Opportunities Program (IROP)
Undergraduate Research Opportunities Program (UROP)

Interdisciplinary Programs
Earth, Oceans, and Space
Computer and Information Technology Minor
Gerontology
Intercollege Courses
International Affairs
Marine Sciences
Race, Culture, and Power
Student-Designed Majors
Technology, Society, and Values
War and Peace Studies

Preprofessional Programs
Prelaw
Premarketed/Prehealth Care Professional

Off-Campus Programs
UNH/UNH M Cross Registration
Consortium (NUIUC) Student Exchange Program
New England Subdegree Exchange Program
Exchange Programs Within the U.S.

Study Abroad Programs
Other Programs
Reserve Officer Training Corps Programs

Interdisciplinary Programs
(Founded under their separate colleges and schools)
African American studies minor, page 24
American studies minor, page 25
Asian studies minor, page 25
Biography, page 106
Canadian studies minor, page 26
Community development, page 106
Dual degrees, page 18
Environmental and resource economics, page 110
Environmental conservation, page 107
Environmental engineering minor, page 78
Five-year B.A.-M.B.A. program, page 46
Five-year B.A.-M.Ed. program, page 34
Five-year B.S.-M.Ed. program, page 34
Five-year B.S.-M.S.A. program, page 122
Genetics minor, page 100
History and philosophy of science minor, page 26
Humanities major and minor, page 42 and 43
Independent study and projects in the College of Engineering and Physical Sciences, page 64
Interdisciplinary mathematics (5 options), page 79
Justice studies minor, page 28
Latin American studies minor, page 28
Linguistics major, page 49
Materials science minor, page 82
Nutritional sciences, page 115
Religious studies minor, page 29
Second majors, page 19
Student-designed majors, page 133
Wildlife management, page 118
Women's studies major and minor, pages 29 and 61

Honors Program

The following section describes University-wide programs; interdisciplinary study opportunities; preprofessional programs (prelaw, premed/prehealth); off-campus and study abroad programs; and other special programs at UNH.

University-Wide Programs

International Research Opportunities Program (IROP)

IROP offers students opportunities for advanced research at the undergraduate level in an international setting, and enables students to collaborate with both UNH faculty members and foreign researchers. IROP integrates an international experience and global awareness with an undergraduate's program of study. IROP awards fellowships to students through a competitive application process; these grants support nine weeks of research during the summer, when students work with the research partners of
UNH faculty. Students accepted into the program complete language, cultural, and research training before leaving the U.S., and share their research and cultural experience upon returning. Projects may include library and archival research, laboratory and field research, creative works and interpretive performance: in short, the full spectrum of inquiry supported by the University of New Hampshire. Research opportunities are available throughout the world. For more information, please contact Prof. Georgeann Murphy, program coordinator, IROP Office, Hood House, (603) 862-1933.

Undergraduate Research Opportunities Program (UROP)

Students can enhance their undergraduate education through collaborative research projects with faculty members. The Undergraduate Research Opportunities Program offers participants the chance to improve research skills and to acquire an understanding of the nature of research in an academic field. Students may apply to the program to receive academic year awards and summer fellowships in support of their research projects. They may conduct their research on campus or at appropriate research sites in the United States and abroad. Participation in the program can also aid students in making choices and developing plans concerning careers and graduate schools. For information, please contact Donna Brown, director, UROP Office, Hood House, (603) 862-4323.

Interdisciplinary Programs

Earth, Oceans, and Space

The Institute for the Study of Earth, Oceans, and Space (EOS) is devoted to obtaining a scientific understanding of the entire Earth system and its environment in space. Research in EOS ranges from the most distant and energetic phenomena in the universe, to the deepest regions of the ocean. EOS scientists are also exploring processes on the Sun, solar influences on Earth and its magnetosphere, the chemistry and dynamics of the atmosphere, changing climate, and large-scale ecosystems in terrestrial and marine environments—emphasizing the complex impacts on and by humans.

The institute brings together a common theme several established research groups on campus: the Space Science Center, the Climate Change Research Center, the Complex Systems Research Center, and the Ocean Process Analysis Laboratory. The primary educational theme of the institute is to support and expand graduate degree programs, training future scientists with a global view. However, EOS faculty teach and mentor undergraduate students as well, and there are numerous opportunities for undergraduates to participate with them in the research activities of the institute.

Computer and Information Technology Minor

The computer and information technology (CIT) minor provides students from a variety of nontechnical fields the opportunity to develop an understanding of, and competency in, using computer and information technology. Graduates from many different fields find the need to have (and demonstrate) computer competency, and this minor is intended to fill that need.

The student who minors in CIT must complete a minimum of 20 credits of CIT courses. All students must take CS 402, Survey of Computer Science, as well as a programming course. The other three courses can be chosen from the options list below.

Credit toward the minor will only be given for courses passed with C- or better, and a 2.00 grade-point average must be attained 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 must be made to the student's adviser and also the minor supervisor.

Requirements
1. CS 402, Survey of Computer Science
2. A programming course chosen from the following:
   CS 405, Introduction to Applications Programming with Visual Basic
   CS 407, Introduction to Computer Programming with Java
   CS 410, Introduction to Scientific Programming
   CS 503, Introduction to Client-Side Web Development

Options (At least two of the Options courses must be 500-level)
CS 401, Computer Applications
CS 403, Online Network Exploration
CS 504, Web Design and Development
CS 505, Database Programming
CS 506, Intermediate Applications Programming with Visual Basic
CS 509, Network/System Administration

Students who wish to minor in computer and information technology should consult Israel Yost, Department of Computer Science, 214 Parsons Hall, (603) 862-2245.

Gerontology

(For course descriptions, go to www.undergradcat.unh.edu.)

The gerontology interdisciplinary minor provides students with the opportunity to examine and evaluate the aging process as it affects the individual and society. Through in-depth inquiry, personal encounters, and classroom discussion, students develop an understanding of aging from a variety of perspectives. Students are encouraged to analyze the historical and philosophical foundations from which policies, programs, and professional activities affecting the aged are developed, implemented, and evaluated.

Gerontology minors are required to take a minimum of 20 credits (five courses) from the following list of courses approved by the Gerontology Interdisciplinary Minor Advisory Committee.

GERO 600, Introduction to Gerontology
GERO 795, Independent Study (a practicum arranged by the coordinator of the minor, or by the appropriate designee)
FS 525, Human Development
HMP 755, Aging and Long-Term Care Policy
KIN 607, Biology of Aging
NURS 535, Death and Dying
NUTR 760, Geriatric Nutrition
OT 501, Developmental Tasks of Adulthood
PSYC 582, Adult Development and Aging
PSYC 741, Cognitive Aging
SW 525, Introduction to Social Welfare Policy
SW 550, Human Behavior and Social Environment I
SW 700, Social Gerontology
SW 701, Women and Aging
SOC 720, Current Developments in the Family: Aging and Late-Life Family

Students who wish to minor in gerontology should consult the School of Health and Human Services Dean's Office.

COURSES
GERO 600 Introduction to Gerontology 4 cr.
GERO 795 Independent Study 4 cr.

Intercollege Courses

(For course descriptions, go to www.undergradcat.unh.edu.)

Intercollege courses are listed below. INCO courses include INCO 401, War; INCO 402, Peace; INCO 404, Honors: Freshman Seminar; INCO 410, College; INCO 450, Introduction to Race, Culture, and Power; INCO 480, Art in Society; INCO 585, 586, Foreign Exchange; INCO 604, Honors: Senior Thesis/Project; INCO 655-656, London Program; INCO 685, 686, Study Abroad; and INCO 698, Summer Research Project, and others.
International Affairs*
(For course descriptions, go to www.undergradcat.unh.edu.)
The Center for International Education offers undergraduate students the opportunity to pursue a dual major in international affairs. The dual major requires completion of the interdisciplinary international affairs program and any other major.

The purpose of the program is to expand students' global horizons, enhance their disciplinary major, and expand their career opportunities into the international arena.

Required Core Courses
IA 401, International Perspectives: Science, Business, and Politics
IA 501, Global Issues in International Affairs
IA 701, Seminar in International Affairs
Four Electives
Choose one from each of the program's four elective groups

Foreign area (to be taken prior to foreign experience)
Science, technology, and the private sector
Public policy
Theory in international affairs

Competency in Geography
Satisfactory score on geography exam given at the end of IA 401

Competency in a Foreign Language
Functional reading, writing, and speaking ability equivalent to the third-year, second-semester level

Foreign Experience
Minimum of eight weeks in a non-English speaking country

The courses in the dual major program are multidisciplinary, taught by faculty from many different departments in the University. They are designed to help students appreciate the complex interrelationships and interdependencies among nations and peoples, and to equip students with the analytical skills and broad perspectives necessary for both public- and private-sector international careers.

*The Department of Civil Engineering has worked with the UNH Center for International Education to develop a dual-major program in civil engineering and international affairs. Civil engineering students participating in this program develop a proficiency in a foreign language and spend at least one semester studying abroad in that language. Students can complete this program in five years or less and do not need to have existing skills in a foreign language to participate. For more information, contact Ray Cook at (603) 862-1411 or by e-mail to ray.cook@unh.edu.

Students who wish to declare international affairs must earn a C or better in IA 401, have declared (or be prepared to declare) a disciplinary major, and have a 2.50 cumulative grade-point average. After declaration, students are expected to maintain at least a 2.50 grade-point average, which is the minimum required for study abroad at UNH.

IA 401, a prerequisite for IA 501, should be taken during the freshman year, and IA 501 no later than spring of the sophomore year. The geography exam will be offered every year at the end of IA 401. Students may take the exam three times, but must pass it before taking IA 701.

The foreign experience (usually completed during the junior year), the foreign experience report, and the foreign language requirement are completed before taking IA 701 in the senior year. To acquire the knowledge, skills, and experience that come from residence in a foreign culture, students may spend an academic year, semester, or summer in an academic institution, in an internship with a private or public organization, or in purposeful travel/research. All foreign experiences must be preapproved by the IA major adviser or the University Committee on International Studies.

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 Center for International Education, Hood House, (603) 862-2398.

Marine Sciences
Undergraduate programs in marine science and ocean engineering at the University of New Hampshire reflect the diversity of the ocean itself and are enriched by easy access to a variety of natural laboratories, including tidal rivers, estuaries, coastal areas, and the open ocean.

Studies in marine science and ocean engineering are offered through various departments of the University. Students identify the discipline (ranging from zoology through earth sciences to mechanical engi-
neering) they like best and pursue marine specializations related to that area of study. Studies can take place in research laboratories on campus as well as at various field stations or aboard UNH research vessels.

**Marine Program**

The Marine Program provides a campus-wide umbrella for marine activities and maintains specialized facilities to support efforts of faculty in individual departments and organized research units. Academic programs are focused broadly on marine biology, ocean engineering, and ocean science, and the Marine Program supports experiential learning opportunities beyond the formal classroom through three centers, the Center for Marine Biology, the Center for Ocean Engineering, and the Center for Ocean Sciences.

Estuarine research is pursued at the Jackson Estuarine Laboratory on Great Bay, which is designated a National Estuarine Research Reserve. The Coastal Marine Laboratory, a major running-seawater facility, is located in nearby Newcastle. Research on salmonids and other freshwater animals is conducted at the Anadromous Fish and Aquatic Invertebrate Research Laboratory, located near the Durham reservoir. The Institute for the Study of Earth, Oceans, and Space is a major center for ocean sciences research. The on-campus Chase Ocean Engineering Laboratory houses both educational and research activities. Off-shore and coastal studies are carried out aboard the University's 50-foot research vessel, the Gulf Challenger, which has docking facilities at the Jackson Lab and at the State Fish Pier in Portsmouth Harbor. During the summer, students may live and study at the Shoals Marine Laboratory on Appledore Island, one of the Isles of Shoals. There UNH and Cornell University cooperatively offer undergraduate courses in marine sciences in a summer field laboratory setting. Each of the marine program facilities features modern specialized equipment and opportunities for undergraduate students to work and carry out independent research.

**Curricula in the Marine Sciences**

There are currently two undergraduate majors and four minors in the marine sciences. The College of Life Sciences and Agriculture offers a B.S. in biology with an option in marine and freshwater biology (see biology under COLSA) and the Department of Earth Sciences offers an option in oceanography as part of its B.A. earth sciences program (see page 71). In addition to these offerings, students can declare a major in any established discipline and augment it with a minor in marine biology, ocean engineering, oceanography, or wetland ecology.

Students are encouraged to declare their intention to follow these programs as soon as possible.

**Marine Biology Minor**

The minor in marine biology is available to all students in the University interested in obtaining a broad background in marine biology. The minor consists of 20 credits with grades of C- 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 a minor adviser. Contact Dr. Larry Harris, (603) 862-3897, Department of Zoology, for more information.

Students who want to minor in marine biology must take one introductory course (ESCI 501, Introduction to Oceanography; ZOOL/PBIO 503, Introduction to Marine Biology; or ZOOL 674, Field Marine Science) and four courses concentrating on an area of interest. For example, a student interested in marine mammals might take Mammalogy (ZOOL 712), Marine Invertebrate Evolution and Ecology (ZOOL 628), Marine Vertebrates (ZOOL 753), and Fisheries Biology (ZOOL 772). Courses commonly taken as part of the minor include BCHM 702; EREC 610, 611; NR 610; PBIO 625, 721, 722, 725, 727; ENE 747; MICR 707, 714; ZOOL/PBIO 503 and ZOOL 610, 611, 628, 674, 710, 711, 720, 722, 730, 750, 751, 753, 772, 773, 775, 795. In addition, students are encouraged to be involved in a research project, either by working in a professor's laboratory or by participating in the Undergraduate Ocean Research Program (TECH 797).

Students should declare their intention to minor in marine biology before the end of the junior year. During the final term, students should apply to the dean to have the minor shown on their transcript.

**Oceanography Minor**

The minor in oceanography is available to all students in the University interested in obtaining a broad background in oceanography and is offered through the Department of Earth Sciences. 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, James Pringle, (603) 862-3000, Department of Earth Sciences.

Required courses include 1) ESCI 501, Introduction to Oceanography; 2) two of the following courses: ESCI 750, Biological Oceanography; ESCI 752, Chemical Oceanography; ESCI 758, Introductory Physical Oceanography; ESCI 759, Geophysical Oceanography; 3) any two of the following courses, or a suitable substitute approved by the minor adviser (at least one of these courses should be in the biological sciences): PBIO 625, 722; CIE 757; ENE 747, 753; ESCI 653, 658, 754, 756, 760, 770, 771; MICR 707; OE 690, 710, 753, 754, 757, 785; EREC 611; TECH 797; ZOOL 503, 560, 674, 720, 725, 730, 751, 753, 772, 775; ZOOL/ESCI/750.

Students are encouraged to declare their intention to minor in oceanography before the end of the junior year. During the final semester, students should apply to the dean to have the minor shown on their transcript.
Wetland Ecology

The minor in wetland ecology, offered through the natural resources department, is available to all students in the University interested in additional background in wetland ecology. More information is available from Dr. David Burdick, (603) 862-5129, natural resources department.

The following courses must be completed with at least a C- or better. No more than 8 credits may be used to satisfy the requirements of both the major and the minor programs: NR 504 Freshwater Resources or NR 703 Watershed WQ Management and 711 Wetland Resources Management and at least one of the following: NR 716 Wetland Delineation; NR 719 Wetland Mitigation and Restoration; or ZOOL 708 Stream Ecology. Elective courses, to make a total of 20 credits, may be chosen from plant survey taxonomy or identification courses, soil survey taxonomy or identification courses; or NR 602, NR 721, ZOOL 725, ESCI 653, NR 527, NR 765, MICR 713.

Students should declare their intention to minor in wetland ecology before the end of the junior year. During the final term, students should apply to the dean to have the minor shown on their transcript.

Schoals Marine Laboratory

The University of New Hampshire, in cooperation with Cornell University, offers a summer field program in marine sciences on Appledore Island of the Isles of Shoals. Undergraduate courses introduce students to a broad array of marine sciences, including oceanography, marine biology, fisheries, and marine resources. Introduction to Marine Science (ZOOL 474), a three-week, 4-credit course, is offered every other summer at the Schoals Marine Lab. It has no prerequisites and satisfies the general education requirement in the biological sciences. The four-week, 6-credit general courses, Field Marine Science (ZOOL 674) and Field Marine Biology and Ecology (ZOOL 675), are offered in June and mid-July, respectively, each summer. They draw upon the backgrounds of numerous faculty and others associated with marine science and fisheries. There are daily lectures and work in laboratory and field. The courses are graded on a letter-grade basis; at least one full year of college biology or the equivalent is a prerequisite.

Other credit courses are offered in marine botany, invertebrate zoology, experimental ecology, ornithology, animal behavior, fish ecology, coastal ecology and bioclimatology, wetlands, marine vertebrates, coastal policy, underwater research, and biological illustration.

Undergraduate research for credit is an option where students carry out part or all of an independent project at Shoals under the guidance of Shoals faculty. Shoals offers generous financial aid to UNH students outside of the normal UNH financial aid packages. For further information, contact Dr. Jessica Bolker at (603) 862-0071, Department of Zoology.

Diving Program

The UNH diving program offers instruction in SCUBA diving and research diving techniques. It also provides professional diving support for underwater research. The Shoals Marine Laboratory offers courses in marine archaeology and underwater research during the summer, under the guidelines of UNH diving regulations. For further information, contact Liz Kintzing, diving program officer, through the Diving Program Office, Field House, (603) 862-3896.

Marine Research

There are many opportunities for undergraduates to participate in marine research under the supervision of UNH faculty.

The University has a Sea Grant College Program that supports research, teaching, and service projects through numerous partnerships with the National Oceanic and Atmospheric Administration. Marine research projects are also supported through the National Science Foundation, the Environmental Protection Agency, the Office of Naval Research, and other state and federal agencies, foundations and private donors.

Extensive research, interdisciplinary academic programs, and the extraordinary variety of marine environments and facilities allow students to observe and learn about the frontiers of science and technology being explored in the ocean. For further information about marine opportunities, contact the Marine Program Office in the Jere A. Chase Ocean Engineering Laboratory or through the Marine Program Web site at marine.unh.edu.

Race, Culture, and Power

How does the category of race shape our lives, our politics, and our possibilities? Events in this country and internationally constantly remind us that race is an explosive issue. To be able to function as citizens of the world, one must understand the dynamics of race, culture, and power.

This minor reflects intellectual currents now being felt around the world. It prepares students to live in the twenty-first century. Courses for the minor enable students to develop critical perspectives on the ways in which cultural differentiation and racial explanations have been used to maintain social, economic, and political power and justify inequalities and injustices.

To complete the minor, students are required to take one of the following three courses: INCO 450, an introductory course; ANTH 760: Race in Global Perspectives, or EDUC 797/897; Teaching Race, in addition to 16 credits of electives. Students must earn a C- or better in each course, and must maintain a 2.00 grade-point average in courses taken for the minor.

Elective Courses

Electives are approved for the minor and announced each semester in the Time and Room Schedule. Ordinarily, not more than two electives may be taken from the same academic department. A relevant internship may be substituted for one of the electives. Many electives are special topics and require student petition. Students should consult the minor coordinator before registration.

For more information and to be assigned an adviser for the race, culture, and power minor, contact: Mimi Winder, administrative assistant; Race, Culture, and Power, 329 Huddleston, (603) 862-3753, mimi.winder@unh.edu or Nina Glick Schiller, Race, Culture, and Power coordinator, Department of Anthropology, 315 Huddleston, e-mail nina.glickschiller@unh.edu, (603) 862-1848.

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 Executive Vice President for Academic Affairs. Students who want to design their own majors are expected to give the committee evidence of careful thought and planning.
in a proposal submitted on or before October 15 during the student’s junior year. The committee will convene soon after October 15 to review the proposals.

Submissions after this deadline are strongly discouraged, but if an application is late for reasons beyond the student’s control, the SDM Committee may review the application on a case-by-case basis.

Proposal guidelines are available in the Office of the Provost and Executive Vice President for Academic Affairs and on the Academic Affairs Web site, www.unh.edu/academic-affairs. Click on “Undergraduate Students.”

**War and Peace Studies**

War is the scourge of humankind. Tribes, cities, and nations have gone to war against each other for as long as we have records; only here and there, among some small “pre-civilized” groups, has war been absent or strictly controlled. For as long as we have records, too, we find thoughtful people crying out against war and pleading for peace, arguing for principles to govern war’s conduct and laboring to mitigate war’s effects, imagining a world where war is abolished, and taking steps to bring that world about. As the scale of war has grown to a size now great enough to devastate the entire globe in a single conflict, more and more people have devoted themselves to preventing war and finding acceptable substitutes. In the nuclear era, age-old moral and religious discussion has joined with historical study and practical, even technical, research to produce a set of related disciplines sometimes called “war and peace studies.”

To meet the requirements for the war and peace studies minor, students must complete two core courses (8 credits) and 12 credits of elective courses with a grade of C- or better. Ordinarily no two electives (or no more than 4 credits) may be taken from the same academic department. No elective may count for both a student’s major and the war and peace minor. A relevant internship may be substituted for one of the electives. As they are announced, other relevant courses may be added to the list of acceptable electives. Students may request others not so listed. Courses carrying fewer than four credits will be counted as partial satisfaction of an elective requirement. If a good case can be made for it, a departure from any of these rules may be approved by the adviser for the minor and the coordinator.

All students will be assigned an adviser from the membership of the Committee on War and Peace Studies, ordinarily one not in the student’s major department. The adviser will assist students in constructing a coherent program that suits their particular interests.

The core courses are INCO 401, War, and INCO 402, Peace. Occasionally a new core course may be included.

**Departmental elective courses will include courses such as these**

- AERO 681, National Security Forces in Contemporary American Society (3 cr.)
- CMN 456, Propaganda and Persuasion
- HIST 617, Vietnam War
- HIST 537, Espionage and History
- NR 453, Contemporary Conservation Issues and Environmental Awareness
- POLT 562, Strategy and National Security Policy
- POLT 778, International Organization
- SOC 780, Social Conflict

**Special offerings that may serve as electives**

- ANTH 797, Advanced Topics in Anthropology (e.g., War and Complex Society)
- ECON 698, Topics in Economics (e.g., Economies of War and Peace)
- ENGL 595, Literary Topics; ENGL 693, 694, Special Topics in Literature (e.g., Literature of World War I, Literature of the Vietnam War)
- HIST 600, Advanced Explorations (e.g., Comparative Revolutions)
- HUMA 730, Special Studies (e.g., Nonviolence, Thinking about War and Peace)
- INCO 404P, Honors: Introductory Seminar (e.g., Understanding and Disarmament)
- POLT 660, Special Topics in International Politics (e.g., Arms Control and Disarmament)

For more information, contact either Ken Fuld, Department of Psychology, or Michael Ferber, Department of English.

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**Preprofessional Programs**

**Prelaw**

Many graduates of UNH attend law school. The faculty and staff advisers of the Prelaw Advising Committee work closely with students 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 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. Those skills 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, and experiences that will develop those skills and values. Programmatically, the committee provides a prelaw library, visits to local law schools, and sponsors discussions with law school admission and financial aid representatives, and with members of the legal community. The committee also provides 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 University Advising and Career Center, Hood House, at (603) 862-2046. Additional information is available on the Web at www.unh.edu/prelaw-advising/.

**Premedical/Prehealth Care**

**Professional Study**

The Premedical/Prehealth Care Advising and Career Center, Hood House, provides advising for all students preparing for postgraduate careers in medicine, dentistry, optometry, chiropractic, podiatry, physical therapy, and physician assistant programs (for information on the pre-veterinary medicine option in animal sciences, see page 101). There is no premedical or pre-dental major at UNH, so students are encouraged to major in the subject of most interest to them. A student’s major is not considered in the medical school application process and students from majors in all five UNH colleges have been admitted to postgraduate health professional programs. Though premedical/predental is not a major, interested students are expected to register with the Premedical/Predental Advising Office in Hood House as soon as possible so as to be kept informed of important events, opportunities, and deadlines.
A premedical/predental program at UNH consists of the following:

1. Taking the prerequisite courses for admission to a health professional program. Medical and dental schools generally require biology, physics, general chemistry, and organic chemistry—all two semesters each with laboratory. A semester of biochemistry is also required. A year of English is required, as is one year of math including at least one semester of calculus. Prerequisite courses can be taken as part of a student’s major curriculum, as part of the general education requirements, or as electives.

2. Gaining volunteer/health care experience. Applicants to health professional programs will be expected to demonstrate a sustained involvement in volunteer and community service. A significant portion of this experience must take place in a health professional setting and include direct patient contact. Most students gain this experience by volunteering at a hospital, though volunteer opportunities are available in a wide range of settings, including nursing homes and community clinics.

3. Preparing for the requisite entrance exam. 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 taken by students no earlier than the spring of their junior year and should be taken only if the student has completed or is within a month of completing prerequisite coursework. Students applying for physician assistant and physical therapy programs are required to take the GRE, a more general exam similar to the SAT in structure and content.

Application process

The Premedical/Predental Advising Office works with the Premedical/Predental Advisory Committee—a body of 10-12 UNH faculty members with interest and/or experience in medical/dental education—to provide students with comprehensive confidential recommendation services at the time of application. An orientation meeting is held each September to outline the application process and establish timetables/deadlines. Students should note that the medical and dental school application process begins a full two years before matriculation; i.e., 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 Premedical/Predential Advising Office can provide students with information on competitive grade-point average and entrance exam scores for each of the postgraduate health professional programs.

The Premedical/Predental Advising Office is located in Hood House and can be contacted by phone at (603) 862-2064 or by e-mail at Premed.Advising@unh.edu. The office also has a Web site at www.unh.edu/premed-advising.

Off-Campus Programs

UNH/UNHM Cross Registration

Matriculated students at the University of New Hampshire and the University of New Hampshire at Manchester may take UNH courses at either location. Students must have permission from their academic advisers and must register for the courses on a space-available basis. For more information and special registration forms, students should contact the National Student Exchange Office in Hood House, (603) 862-3485.

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 consortium exchange allows matriculated undergraduates to use educational resources that are not available at the home campus and are considered appropriate for their degree programs. The consortium exchange will be used only when academic reasons or other special circumstances warrant it. Approval of the UNH adviser and college dean is required. Schools in the NHCUC consortium include Colby-Sawyer College, Daniel Webster College, Franklin Pierce College, New England College, Southern New Hampshire University, Rivier College, St. Anselm College, UNH, 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 National Student Exchange Office in 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 2.50 grade-point average, be at least first-semester sophomores, and receive permission from the appropriate university exchange authorities at both the home and host institutions. Interested students should contact the National Student Exchange Office in Hood House, (603) 862-3485.

Exchange Programs Within the U.S.

The University offers many possibilities for exchange study with other American institutions. Exchange programs provide an educational experience in a different environment within the United States. 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 more than 170 colleges and universities throughout the U.S. and its territories (including, but not limited to, Montana, New Mexico, Utah, Colorado, Florida, Alaska, and Puerto Rico). Several historically black colleges and universities are exchange members and several are members of the Hispanic Association of Colleges and Universities. 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 with at least a 2.50 grade-point average, have declared a major, receive permission from their college dean and adviser, and receive permission from the exchange 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 thus 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 National Student Exchange Office in Hood House, (603) 862-3485.

Study Abroad Programs

The University offers opportunities for full-time degree candidates meeting eligibility criteria to study abroad in many foreign institutions. UNH-managed programs are described below. 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 or exchange fee. For information on study abroad programs, students should contact the Center for International Education 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:

1. 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;
2. 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;
3. 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:

1. 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;
2. 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.

Summer Program held at Cambridge University in England. Program participants take courses in English, history, and the humanities, taught by faculty from Cambridge University and UNH. Students live, dine, study, and socialize together at Gonville and Caius College, one of the oldest colleges at Cambridge. The program is open to students who have successfully completed at least one year of college; participation fulfills UNH's general education requirement under Group 5. For more information, contact the director at the Department of English, Cambridge Program Office, 53 Hamilton Smith Hall, www.unh.edu/cambridge.

Lancaster Exchange Program

Lancaster University is a comprehensive university similar to UNH in size, setting, and program offerings. The program allows students to spend a semester or a year in Lancaster while still making normal progress toward their UNH degree. Contact the Center for International Education, Hood House, (603) 862-2398 or study.abroad@unh.edu.

London Program

At Regent's College in the heart of London, the University of New Hampshire sponsors courses in British studies, the arts, humanities, and a wide range of other basic subjects offered during the fall and spring semesters. 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. To be eligible, students must have successfully completed at least one year of college, declared a major, and achieved an overall grade-point average of at least 2.50. Interested students should contact the program coordinator, London Program Office, 53 Hamilton Smith Hall, www.unh.edu/london.

France

Summer French Language Program in Brest

Qualified students in any major may take the equivalent of FREN 503 and/or 504, the UNH intermediate French sequence, the equivalent of FREN 631 and/or 632, and/or FREN 695, a more advanced language course not offered on the UNH campus. A port city in the province of Brittany in western France, Brest is the sister city of Portsmouth, New Hampshire.
The courses are offered summer only in intensive four-week sessions at the Centre International D’Etudes des Langes (CIEL). Students generally live with local families and attend classes a total of 24 hours per week. Credit for courses completed successfully will be automatically transferred to UNH. Application deadline is April 1 for June session and April 15 for July session. For more information contact Barbara Cooper, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-3771.

Junior Year Program in Dijon
The Department of Languages, Literatures, and Cultures sponsors a junior year abroad program at the University of Burgundy in Dijon, France. Students generally live with French families in the heart of this historic city and take classes at the university with French students. Credit for all work completed successfully will be automatically transferred to UNH. The program is open to those who have completed FREN 631-632 and FREN 651-652, with a grade of B- or better. For more information, see Claire Malarte Feldman, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-1303.

Business Administration Program in Grenoble
The New England State Universities offer a spring semester of study in international marketing at the Group ESC Grenoble. This is an opportunity for students interested in international business, economics, and trade to participate in an English-speaking program while gaining exposure to French culture. The semester will begin early in January with a one-week orientation and introduction to France, followed by two weeks of intensive French language. Students will be assessed and placed in the appropriate level.

Students enroll into five or six-week courses and can earn up to 18 credits a semester. Students who successfully complete six courses receive a Certificate in International Business from Group ESC Grenoble. For more information, contact Karen Schwenderman, WSBE, McConnell Hall, (603) 862-3885 or the Center for International Education, Hood House, (603) 862-2398, e-mail study.abroad@unh.edu.

French Program in Paris
A spring semester program for intermediate-level students in Paris, France (see FREN 582/682). The program is open to all qualified students at UNH who have completed FREN 501 or higher. Courses include one French language course and four additional courses taught in English; general education and French minor credit are available. The deadline for applications is October 15, therefore students interested in this program should consult with the UNH on-campus director in the late spring or early in the fall semester. Contact Juliette Rogers, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-1068.

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. Most programs require a minimum grade-point average of 3.00 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. Some programs accept students only for a full year. 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 general education requirements, students submit a Prior Approval 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.

Junior Year Program in Salzburg, Austria
Students who have completed GERM 504 or equivalent may enroll for one or both semesters at the University of Salzburg through the New England Universities Consortium. UNH faculty contact person is Professor Ed Larkin, (603) 862-3549.

Summer Review Course in Rosenheim, Germany
Conducted in early summer in Rosenheim, Germany, this course offers an intensive, three-week review of the basic structures and vocabulary of the German language. Particular emphasis is placed on speaking German in everyday situations. The course is open to students of any major who have successfully completed one year of college German at the elementary level (GERM 401-402) or its equivalent. Contact Professor Ed Larkin, (603) 862-3549 or CIE, (603) 862-2398, e-mail study.abroad@unh.edu.

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 faculty contact person is Professor Nancy Lukens, (603) 862-3450 or CIE, (603) 862-2398, e-mail study.abroad@unh.edu.

German Internship
Students who have completed GERM 504 or equivalent may apply for an unpaid 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 Professor Nancy Lukens, (603) 862-3450.

Guatemala
Discovery Guatemala-Archaeology Semester Abroad
The semester abroad program in Guatemala provides a unique opportunity for advanced undergraduate students to experience Latin American culture while taking part in an ongoing archaeological research project. The main objective of the program is to provide students with an unparalleled experience in Maya archaeology in preparation for further research excellence and graduate careers.

Students spend the first four weeks of the program in Antigua, Guatemala’s former colonial capital, nested in a picturesque valley in the volcanic highlands. While in Antigua students will become immersed in Guatemalan language and culture.
Weekend excursions have been planned to acquire students with the great environmental and cultural richness of the host country. Students continue their Intensive Spanish study for the eleven weeks spent at the field site at San Bartolo. The San Bartolo field camp is located in an uninhabited region of tropical forest, 1 km distance from the archaeological site of San Bartolo. Archaeological Field Methods will be introduced through a series of individual one-week supervised internships with various members of the research team. For more information, contact William Saturno, (603) 862-2518 or Stephen Reyna, (603) 862-1842.

**Hungary**

**Justice Studies Program in Budapest**
The UNH Budapest Program in Justice Studies 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 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. 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. 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. Participating students will meet several times during the spring semester prior to the study abroad semester to prepare for the program. Interested students should contact the Budapest Program in the Justice Studies Office at (603) 862-1716.

**Engineering and Physical Sciences Exchange Program in Budapest**
The College of Engineering and Physical Sciences has arranged an opportunity for its students to spend the fall semester of their junior year at the Budapest University of Technology and Economics (BUTE) in Budapest, Hungary. Courses at BUTE are taught in English and receive prior approval for degree credit. Students studying at Budapest, therefore, can graduate on schedule at UNH. A general education course on the language, geography, and culture of Hungary, taken at BUTE, is strongly suggested. The foreign student office at BUTE will appoint a Hungarian adviser for each student and will assist in obtaining housing either in dormitories, or in apartments. Further information is available from the college's educational assistant and the college's academic counselor, Donna Verschueren; or Marina Markot, coordinator of student programs, Center for International Education, Hood House, or Professor Andrzej Rucinski, Foreign Exchange Program Coordinator, (603) 862-1381. For more information, visit the program's Web site at www.ceps.unh.edu/academics/budapest/.

**WSBE in Budapest**
The Whittemore School of Business and Economics has partnered with the Corvinus University of Budapest (formerly Budapest University of Economics Sciences and Public Administration) to offer students a unique opportunity to live and study in beautiful Budapest, Hungary. This partnership allows WSBE students to take courses at CUB 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 last week of August. A WSBE faculty member meets students at the airport 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, in the future a WSBE faculty member will be teaching at the CUB during the study abroad semester.

**India**

**Living Routes Study Abroad in Ecovillages-India: Sustainability in Practice at Auroville**

Available to students in all majors, the India Sustainability in Practice Semester is an intensive immersion program in community and sustainable development. Students create a learning community within the living community of Auroville, an international Ecovillage along the tropical coast of southern India dedicated to promoting human unity. Through engagement with a holistic approach to world issues that encompasses inner, cultural, and outer processes, students broaden and deepen their understanding of sustainability and ecology. Academic and field-based learning in habitat restoration, local organic food production, teaching in village schools, working with village action groups, and more. Students visit sites including Periyar Wildlife Sanctuary and Mitraniaketan, a Gandhi community in Kerala. They engage in a 40-hour wilderness solo process of self-inquiry and reflection, and overnight at Sri Ramanamaharshii's ashram to climb Arunchala Mountain, the earthly home of the Hindu god Shiva. Fall and spring semesters. Contact Dr. Daniel Greenberg, (888) 515-7333.

**Italy**

**UNH-in-Italy in Ascoli Piceno**

Students may participate in the UNH-in-Italy Program in the medieval city of Ascoli Piceno, for a semester, a year, or a four-week summer session (see ITAL 685-686).

**Academic Year Program.** Students live either with Italian families or in apartments in the heart of the city and take UNH courses, taught in English, by UNH faculty. Students with advanced language skills may take courses taught in Italian. Internships are possible. There is no language prerequisite. Students must have a cumulative grade-point average of at least 2.50 and at least sophomore standing. For further information, contact Piero Garofalo, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-3769.

**Summer Program.** The summer program is a 4-week, 4-credit workshop in painting. Students live in apartments in the historic center of the city. Field trips to such locations as Venice, Rome, Bologna, Perugia, Urbino, Florence, and Assisi are included. For further information contact Grant Drumheller, Department of Art and Art History, Paul Creative Arts Center, (603) 862-1351.

**Japan**

**Kansai Gaidai University, Osaka**

Students may spend one or two semesters at Kansai Gaidai University in Osaka, Japan. Program participants study the Japanese language, business, politics, literature, fine arts, and other courses. Eligibility requirements include a 3.00 grade-point average
and sophomore, junior, or senior standing. Contact the Center for International Education, Hood House, (603) 862-2398 or e-mail study.abroad@unh.edu.

**Kanto Gakuin University, Yokohama**

Students may spend the fall semester at Kanto Gakuin University. Program participants study Japanese language, literature, and culture. Contact the Center for International Education, Hood House, (603) 862-2398 or study.abroad@unh.edu.

**Mexico**

**Puebla Program**

A six-week summer program in Puebla, Mexico open to all students who are interested in taking summer courses at the University of Las Americas. Students must have a cumulative grade point average of 2.50. Credit for courses completed successfully will be transferred to UNH. For more information, contact Professor Lina Lee, Department of Languages, Literatures and Cultures, Murkland Hall, (603) 862-3123, or go to www.unh.edu/spanish/mexico.htm.

**The Netherlands**

**Program at the Hague School of European Studies.**

The Center for International Education administers a semester abroad at the Hague School of European Studies in The Netherlands. All classes are in English. This program is available to sophomores, juniors, and seniors. The Netherlands provides easy access to all of Western Europe and is a wonderful and easy country in which to live and travel. The curriculum at the institute offers a rich international perspective to students. Interested students should contact the Center for International Education, Hood House, (603) 862-2398 or e-mail study.abroad@unh.edu.

**Utrecht University**

The Center for International Education 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. This is an especially good exchange for students wanting to combine a study abroad option with work in their majors.

Utrecht University has strengths in the sciences, especially in health care, the biological sciences, and physics. The veterinary program is the only one in Europe accredited in North America. The School of Economics offers programs in international business, marketing, and finance. The School of Law, open to qualified undergraduates, specializes in international law, comparative citizenship and immigration law, and comparative constitutional studies. In the humanities, advanced undergraduates and graduate students at all levels will find especially good opportunities in Atlantic History, linguistics, early modern studies, anthropology, international relations, women's studies, museum studies, art, European cultural studies, studies in race, immigration, ethnicity, citizenship, justice studies, and American studies. Utrecht University also offers Dutch as a second language, from conversational to intensive and professional, for international students.

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 seventeenth-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, and, as the center of the Dutch rail system, 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). Interested students should contact the Center for International Education, Hood House, (603) 862-2398.

**New Zealand**

**UNH-EcoQuest, New Zealand**

In partnership with the UNH Department of Natural Resources, 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 from a four-course, 15-week fall or spring term for 16 credit hours, or from a two-course, five-week, summer session for 8 credit hours. The UNH EcoQuest Academic program coordinator is Dr. Kimberly Babbitt. Contact Donna Dowal, the UNH-EcoQuest director of admissions, (603) 862-2036.

**Puerto Rico**

**University of Puerto Rico at Mayaguez**

Students may spend one or two semesters at the University of Puerto Rico (UPR) at Mayaguez, the second largest of the three major campuses in the UPR system. While having the opportunity to learn in a Latin American 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 and faculty members from all UNH majors. Since 80 percent of all courses at UPR are taught in Spanish, participants must be proficient in Spanish. Students must contact Paula DiNardo, National Student Exchange Office, Hood House, (603) 862-3485.

**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 e-mail ray.cook@unh.edu.

**Spain**

**Granada Program**

The Granada Program is administered jointly by the Spanish programs of the Universities of New Hampshire, and Connecticut. Students may spend one or two semesters in a program designed for those who have completed SPAN 631 or its equivalent, have a B average in Spanish and a cumulative grade-point average of 2.50, and have at least sophomore status. Courses taught by professors from the University of Granada fulfill requirements for the Spanish major and minor and general education require-
mements in humanities areas. Deadlines for fall applicants is March 1; for spring applicants, October 1. For further information, contact the Spanish Program, Murkland Hall.

Other Programs

Reserve Officer Training Corps Programs
(For course descriptions, go to www.undergradcat.unh.edu.)

The Army and Air Force offer Reserve Officer Training Corps (ROTC) programs leading to a commission as a second lieutenant in their respective services. Both programs are open to men and women. 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 who began ROTC at another institution. In addition to on-campus ROTC course requirements, students must attend an officer preparatory training session for a part of one summer.

ROTC is open to students pursuing a baccalaureate degree who have a minimum of two academic years or more remaining within their degree program. Entering freshmen may preregister for MILT 413 (AROTC) or AERO 415 (AFROTC). Sophomores desiring to enter ROTC should check with either the Army or Air Force enrollment advisers located in Zais Hall.

Two-year ROTC programs are open to students who have two academic years of study remaining at the University. Applicants for the two-year program must attend a six-week training session during the summer immediately before their entry into ROTC.

ROTC scholarships are offered on a competitive basis by both the Army and Air Force. Entering freshmen may compete for four-year scholarships during the last year of high school. Additionally, incoming students with either a four-year or three-year ROTC scholarship may receive a room and board grant for the entire time they are on an ROTC scholarship. Students in a four-year ROTC program and two-year program applicants compete for scholarships covering their remaining academic years. Scholarships pay for tuition, mandatory University fees, and required textbooks for all courses. Limits may be placed on these scholarships dependent upon the type and amount of expenses incurred. 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 programs have administrative and medical requirements which must be met to qualify for a scholarship and commission.

More specific information about ROTC programs may be obtained by contacting the professor of military science (Army ROTC at (603) 862-1078) or the professor of aerospace studies (Air Force ROTC at (603) 862-1480).

COURSES

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<tr>
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<td>National Security Affairs I</td>
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<td>AERO 682</td>
<td>National Security Affairs II</td>
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<td>AERO 695</td>
<td>Officer Internship (Air Force)</td>
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<tr>
<td>MILT 401</td>
<td>Leadership Laboratory I</td>
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<tr>
<td>MILT 402</td>
<td>Leadership Laboratory II</td>
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<tr>
<td>MILT 413</td>
<td>Introduction to ROTC</td>
<td>1 cr.</td>
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<tr>
<td>MILT 414</td>
<td>Introduction to ROTC II</td>
<td>1 cr.</td>
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<tr>
<td>MILT 501</td>
<td>Self/Team Development</td>
<td>2 cr.</td>
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<tr>
<td>MILT 502</td>
<td>Individual/Team Military Tactics</td>
<td>2 cr.</td>
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<tr>
<td>MILT 550</td>
<td>Camp Challenge</td>
<td>4 cr.</td>
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<tr>
<td>MILT 601</td>
<td>Leading Small Organizations I</td>
<td>2 cr.</td>
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<tr>
<td>MILT 602</td>
<td>Leading Small Organizations II</td>
<td>2 cr.</td>
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<tr>
<td>MILT 611</td>
<td>Seminar on Leadership and Management I</td>
<td>2 cr.</td>
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<tr>
<td>MILT 612</td>
<td>Transition to Lieutenant</td>
<td>2 cr.</td>
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<tr>
<td>MILT 695</td>
<td>Officer Internship</td>
<td>1 to 4 cr.</td>
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The Thompson School of Applied Science, established in 1895, is a division of the College of Life Sciences and Agriculture within the University offering the associate in applied science degree. The Thompson School of Applied Science offers 13 program specializations. They comprise a balance of professional, science-related, and general education courses in applied curriculums that prepare students to meet the specific demands of a technical or applied profession, continuing education, and the general demands of life.

The faculty at the Thompson School of Applied Science 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 education; and a commitment to practical, science-based education. They work closely with students, providing academic advising, career counseling, and special assistance when needed.

Located at the western edge of campus, the Thompson School's classrooms, laboratories, and working enterprises are designed for career-related experience under realistic conditions.

Barton Hall contains an animal science lab, a food preparation lab, a state-of-the-art grooming facility, several classrooms, and faculty offices.

Cole Hall includes a 150-seat lecture auditorium, a restaurant-style kitchen and dining area, a student study and lounge area, a computer laboratory, a computer-aided design (CAD) laboratory, a small classroom, and administrative offices.

Putnam Hall houses an architecture lab, a surveying and mapping lab, a Geographic Information System (GIS) lab, an agricultural mechanization shop, classrooms, and faculty offices.

• Students enrolled in Restaurant Management gain practical experience in three campus restaurants: the Dairy Bar; and Stacey's and the Balcony Bistro, both located in Cole Hall.

• Forest Technology students use a sawmill facility near campus to integrate the process of harvesting trees from a managed forest with the production of quality forest products. Students assist in the management of the UNH woodlands (a Certified Tree Farm) by participating in mapping and inventory, and in reforestation and forest protection projects.

• Horticulture Technology students have the use of the Thompson School horticultural facility, with glass and poly covered greenhouses, propagating facilities, refrigerated compartments, display gardens, and the campus arboretum.

• Business students focus on small-to-medium size enterprises and gain real world experience through internships and course experience such as Applied Sales. The capstone course, Business Policy, is designed so students can create their own business to market a product and generate revenues used to support scholarships and special projects.

• Whether the specialty is dairy, equine or small animals, students in Applied Animal Science utilize state-of-the-art facilities on campus, such as the Dairy Center or new Grooming Lab. The University’s herd of Morgans, Thoroughbreds, and Warmbloods are ridden on nearby trails, and in the outside or indoor arenas during class sessions.

• Civil Technology students access the state-of-the-art CAD (computer aided design) lab 24 hours per day, seven days per week. Along with the laboratory, they may also access a National AUTODESK training facility in Cole Hall. These facilities are complemented by the use of GPS (global positioning system) surveying equipment used in the field.

• Dietetic Technician students learn to assess dietary intakes and make nutrition recommendations using the most up-to-date nutrient analysis software. Outside the classroom, students make a positive impact on the lives of others through 450 hours of supervised practice that may include such activities as teaching nutrition to preschool children, providing nutrition education in a clinic for pregnant women, and promoting healthy eating to clients in a weight management program.

• Students majoring in Community Service and Leadership gain enriching experiences working with organizations such as Families First, NH Housing Partnership, Red
Associate in Applied Science Degree

To graduate with an associate in applied science degree, a student must complete specified coursework in general education, technical specialization, and general electives (defined below), with an overall grade-point average of no less than 2.00 (out of 4.00). In addition, students must earn the minimum number of total credits required for each specialization.

General Education

These are courses designed for personal and professional development with special emphasis on the ability to think critically, to communicate effectively, to understand computer technology, and to process quantitative data. In addition, they serve to acquaint the student with some of the major modes of thought necessary to understand oneself, others, society, and the environment. In this area a student must complete:

- one course in computer literacy;
- one course (3–4 credits) in mathematics;
- two courses (6 credits) in communications, to include COM 209, Expository Writing and Reading, plus an elective;
- two courses (6 credits) in social sciences, the arts, or the humanities, to include either SSCI 201 Human Relations, or SSCI 202 Social Issues, plus an elective.

(For course descriptions, go to www.undergradcat.unh.edu.)

COURSES

<table>
<thead>
<tr>
<th>TSAS Communication</th>
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<tr>
<td>COM 209        Expository Writing and Reading 4 cr.</td>
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<tr>
<td>COM 210        Public Speaking 2 cr.</td>
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<td>COM 211        Critical Reading 2 cr.</td>
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<td>COM 212        Technical Writing 2 cr.</td>
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<tr>
<td>COM 291        Studies in Communications 1 to 3 cr.</td>
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<td>MTH 202        Math II 3 cr.</td>
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<tr>
<td>MTH 203        Algebra and Trigonometry 3 cr.</td>
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<td>MTH 206        Basic Calculus 4 cr.</td>
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<th>TSAS Social Science</th>
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<tr>
<td>SSCI 202       Social Issues 4 cr.</td>
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| SSCI 203        Environmental Issues and Society 2 cr. |
| SSCI 204        Leadership Effectiveness and Group Performance 2 cr. |
| SSCI 291        Studies 1 to 4 cr.                      |
| SSCI 292        Studies 1 to 4 cr.                      |

Agricultural Mechanization

| AM 251        Welding and Fabrication Technology 4 cr. |
| AM 261        Internal Combustion Engines I 4 cr.     |
| AM 262        Internal Combustion Engines II 4 cr.    |
| AM 270        Residential Electricity 2 cr.           |
| AM 275        Building Science/Residential Construction 4 cr. |
| AM 280        Technical Computer Literacy/Internet Applications 4 cr. |
| AM 291        Studies in Agricultural Mechanization 1 to 3 cr. |
| AM 292        Studies in Agricultural Mechanization 1 to 3 cr. |

Work Experience

| 297 Work Experience Cr/F |

Technical Specialization

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 Program of Study 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 any courses offered by the Thompson School or from selected University undergraduate courses with adviser approval.

Full-Time and Part-Time Programs

The associate in applied science degree at the Thompson School can be completed by pursuing either a full-time or part-time program. 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 is defined throughout this catalog.

Some students who cannot attend on a full-time, two-year schedule or who wish to spread the financial investment of a college education over a broader period, elect the option of part-time study. This allows students to work toward completion of the degree over an extended period, typically two to five years. The schedule can be shortened or lengthened to meet the needs of the individual student. Part-time degree students register for courses through the UNH Office of Outreach Education and are treated in most respects as full-time students. For further information and a brochure on the part-time program, please contact the Thompson School at (603) 862-1025 or (603) 862-3115.

Admissions

The Thompson School welcomes applications from both high school and adult students.

High school students who plan to enter the Thompson School after graduation will be considered on the basis of high school course selection, academic achievement, class rank, and high school recommendations. Emphasis is placed on the applicant's personal motivation, demonstrated interest in a career field, and preparation for Thompson School programs.

All traditional-age students must submit the results of the Scholastic Assessment Test (SAT-I). Adult students who have been out of high school for a number of years may request that the Office of Admissions waive the SAT-I requirement.

For an adult 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 will 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), Scholastic Assessment Test (SAT-I), and College Level Examination Program (CLEP); letters of reference; previous college study; and military record (if applicable).

A number of Thompson School specializations require satisfactory work in specific high school preparatory courses. These admission requirements are listed under each career specialization in this catalog.

How to Apply

You may request an application for admission and additional information from either of the following offices: UNH Office of Admissions, Grant House, 4 Garrison Avenue, Durham, NH 03824-3510, (603) 862-1360; or Thompson School of Applied Science,
Cole Hall, 291 Mast Road, Durham, NH 03824-3562, (603) 862-1025.

Applications may be submitted at any time during the calendar year. Notice of admission to the Thompson School will normally be sent within 30 days following receipt of all required information.

Please note: Priority deadlines for those students requesting UNH residential housing is February 1 for the fall semester and November 1 for spring semester. Housing assignments will be handled on a space-available basis after February 1. The UNH financial aid deadline is March 1 for the fall semester.

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. Open houses are conducted in the fall and spring. To attend an open house or to arrange your visit, please contact the Thompson School at (603) 862-1025 or visit our Web site at www.unh.edu/thompson-school.

Expenses, Financial Aid, and Scholarships
Costs for students include tuition, 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, page 13) and students majoring at the Thompson School have access to the same student services. (See also Campus Life, page 6; Programs and Services for Students, page 8; Health Services, page 13.) Required curriculum and lab fees for Thompson School programs are listed with each specialization.

For information about scholarships, loans, and work-study, write the Financial Aid Office, Stoke Hall, 11 Garrison Avenue, Durham, NH 03824-3511; or call (603) 862-3600. A financial aid form must be on file to be considered for many scholarships. (See also Financial Aid, page 6.)

The Thompson School and the College of Life Sciences and Agriculture (of which the Thompson School is a division) also provide scholarship opportunities for Thompson School students. Call (603) 862-1025 for a list of these possibilities or visit our Web site at www.unh.edu/tsas/scholarships.

New England Regional Student Program
The Thompson School of UNH participates in the New England Regional Student Program of the New England Board of Higher Education, in 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 50 percent. See the table below for Thompson School programs that are eligible in 2005–2006. 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 or the Thompson School for more information.

Program Abbreviations
The following abbreviations are used to identify courses which are part of Thompson School of Applied Science programs.

- AM: Agricultural Mechanization
- AAS: Applied Animal Science
- ABM: Applied Business Management
- ANSC: Animal and Nutritional Science
- CT: Civil Technology
- COM: Communications
- CSL: Community Service and Leadership
- CD: Community Development
- FSM: Food Services Management
- FORT: Forest Technology
- HT: Horticultural Technology
- MTH: Mathematics
- NUTR: Nutrition
- PBIO: Plant Biology
- SSCI: Social Science
- ZOOL: Zoology

Programs of Study

Thompson School Associate Professors: Dwight E. Barney, Timothy E. Barretto, Charles A. Caramihalis, Matthew C. Chagnon, Kenneth L. Frohner, Benjamin P. Fowler, Rene J. Gingras, M. Katharine Hanson, John L. Hart, Nancy M. Johnson, Dana M. Sansom, David E. Tooch, Steven D. Tuttle, Jerilee A. Zuzula

Thompson School Assistant Professor: Eugene P. Alibrio

sciences, dairy management, nutritional sciences, business administration, and hospitality management. Many other baccalaureate majors are also available. A final cumulative grade-point average of at least 2.50 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 also welcome graduates from the Thompson School, especially those within the University System of New Hampshire.

Transfer Opportunities
UNH invites Thompson School graduates to continue their education at the University. Many of the technical associate degree programs offered by the School have baccalaureate degree counterparts. Specifically, these counterparts include civil engineering, forestry, environmental horticulture, animal
Applied Animal Science

www.unh.edu/tsas/academics/animalscience/

(For course descriptions, go to www.undergradcat.unh.edu.)

Applied Animal Science provides students with hands-on practical skills combined with knowledge and understanding of the latest technology. The core program provides a solid background in anatomy, physiology, nutrition, health, and animal breeding. In addition, students choose a specialization in either equine management, dairy management, or small animal care. Each specialization also allows for choices of elective courses in other areas.

Practical learning experience is provided at the UNH equine facilities and the UNH Dairy Center. The Thompson School also operates its own grooming shop and biology laboratories. The curriculum has a number of animal-related educational programs, including an educational partnership with the NHSPCA in Stratham, N.H., and field trips to many animal-related businesses.

Curriculum Fee
Applied animal science, all specializations: $507*

Applied Animal Science Curriculum Standards
Applied Animal Science students must maintain a minimum 2.00 cumulative grade-point average in AAS classes after 2 semesters (32 credits) to take additional AAS classes. Students with AAS averages lower than 2.00 must repeat courses with lower grades and raise their average to the required 2.00 before taking additional AAS classes. Students must have a minimum cumulative 2.00 grade-point average in AAS classes to qualify for graduation from the program.

Dairy Management
To work in the highly technical, rapidly changing field of dairy management, students must become well versed in the many aspects of dairy farm operation and management. In the dairy management specialization, students put many of the skills learned in the classroom into practice immediately. Students learn to balance rations, identify and treat diseases, read a bull proof, and gain many other skills. They work at the University’s dairy farm, a state-of-the-art teaching and research center, where students work with each other to manage the CREAM (Cooperative for Real Education in Agriculture) herd.

Students learn the business of farming through field exercises in land management, forage production, financial management, and computer use on a dairy farm as well as continued practical experience with cattle. The program prepares students to work both on the farm or in related businesses.

Career Opportunities: Herd manager, agricultural sales and/or service employee, farm manager, artificial insemination (AI) technician, crop manager, farm or farm business owner.

Dairy Management Program of Study

Course, Credits
First Year, Fall Semester
AAS 228, Anatomy and Physiology of Domestic Animals, 4 cr.
AAS 231, Introduction to Animal Science, 4 cr.
AAS 244, Introduction to Dairy Management, 4 cr.
AAS 278, AAS Computer Applications, 1 cr.
COM 209, Expository Writing and Reading, 4 cr.
First Year, Spring Semester
AAS 223, Dairy Selection, 2 cr.
AAS 234, Equipment and Facilities Management, 3 cr.
AAS 239, Fundamentals of Animal Health, 3 cr.
AAS 242, Introduction to Business, 2 cr.
COM 212, Technical Writing, 2 cr.
MTH 202, Math II, 3 cr.
Second Year, Fall Semester
AAS 232, Animal Forages, 3 cr.
AAS 235, Animal Nutrition, 3 cr.
AAS 246, Animal Business Applications, 4 cr.
AAS 275, CREAM (Cooperative for Real Education in Agriculture), 4 cr.
AAS 297, Work Experience (summer), 0 cr.
SSCI class, 2–4 cr.
Second Year, Spring Semester
AAS 240, Animal Breeding, 3 cr.
AAS 275, CREAM Program, 4 cr.
SSCI 201, Human Relations or SSCI 202, Social Issues, 4 cr.

Recommended electives include
AAS 221, Large Animal Behavior and Handling, 2 cr.
AM Agricultural Mechanization courses

Total: 67–70 credits

* This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. 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.

Equine Management

As part of new leisure industries, the equine industry in New England encompasses many different facilities and disciplines. Students in the equine management specialization combine courses in 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. Graduates have a solid basis for direct employment opportunities yet enough flexibility to further their education.

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 compete in intercollegiate shows.

Career Opportunities: Riding instructor, barn manager, breeding farm manager, sales (tack shops, grain stores), horse show manager, veterinary assistant/equine practice.

Equine Management Program of Study

Course, Credits
First Year, Fall Semester
AAS 228, Anatomy and Physiology of Domestic Animals, 4 cr.
AAS 231, Introduction to Animal Science, 4 cr.
AAS 237, Equine Management Techniques, 4 cr.
AAS 278, AAS Computer Applications, 1 cr.
COM 209, Expository Writing and Reading, 4 cr.
First Year, Spring Semester
AAS 223, Dairy Selection, 2 cr.
AAS 234, Equipment and Facilities Management, 3 cr.
AAS 239, Fundamentals of Animal Health, 3 cr.
AAS 242, Introduction to Business, 2 cr.
COM 212, Technical Writing, 2 cr.
MTH 202, Math II, 3 cr.
Second Year, Fall Semester
AAS 232, Animal Forages, 3 cr.
AAS 235, Animal Nutrition, 3 cr.
AAS 246, Animal Business Applications, 4 cr.
AAS 275, CREAM (Cooperative for Real Education in Agriculture), 4 cr.
AAS 297, Work Experience (summer), 0 cr.
SSCI class, 2–4 cr.
Electives 2-5 cr.
Second Year, Spring Semester
AAS 221, Large Animal Behavior and Handling, 2 cr.
AM Agricultural Mechanization courses

Recommended electives include

Total: 67–70 credits

* This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. 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.
Admissions Requirements

Applicants to the dairy management, equine management, and small animal care specializations must present at least one year of satisfactory work in college preparatory biology and two years of college preparatory math. One year of high school chemistry is also highly recommended. Students with weaknesses in these academic areas are encouraged to take refresher classes before starting their coursework in the applied animal science program.

Applied Business Management

www.unh.edu/tsas/academics/business/

(For course descriptions, go to www.undergradcat.unh.edu)

The Applied Business Management program combines classwork and practical experience to give students a thorough understanding of the business field. The core curriculum includes accounting, marketing and sales, human resource management, computer applications, communications, business law and strategic management for small business. Students also select from a variety of UNH electives and internship opportunities.

Practical experience is gained through research projects with local industries, municipalities and state agencies, and student-run businesses. Students may also elect to take internships with area businesses.

Curriculum Fees

Applied Business Management: Business Management $111*

Business Management

Small- to medium-sized businesses represent the largest and fastest growing segment of the state and regional economy. The business management program is specifically designed for students who wish to seek entry-level management positions in existing
firms, prepare for management of a family-owned business, or start a new business. Business management students gain practical exposure to essential topics in business management that prepares them to seek further specialization in a business area or to prepare for transfer to a baccalaureate program.

Career Opportunities: Office manager, entrepreneur, management trainee programs, assistant manager, purchasing and inventory controller, bookkeeper, domestic and international sales professional, business owner.

Business Management Program of Study
Course, Credits
First Year, Fall Semester
ABM 204, Principles of Management, 4 cr.
ABM 205, Applied Financial Accounting, 4 cr.
COM 209, Expository Writing and Reading, 4 cr.
MTH 201, Math I, 3 cr.
or MTH 202, Math II, 3 cr.

First Year, Spring Semester
ABM 207, Applied Marketing, 4 cr.
ABM 208, Managerial Accounting, 4 cr.
ABM 226, Business Computer Applications, 4 cr.
COM 210, Public Speaking, 2 cr.
Electives 4 cr.

Second Year, Fall Semester
ABM 202, Professional Writing, 2 cr.
ABM 206, Human Resource Management, 4 cr.
ABM 214, Applied Sales, 4 cr.
SSCI 201, Human Relations, 4 cr.
Electives 2-4 cr.

Second Year, Spring Semester
ABM 211, Business Policy, 4 cr.
ABM 232, Business Law, 4 cr.
Social Science Elective 2-4 cr.
Electives 4 cr.

Total: 64-66 credits

Admissions Requirements

Students entering the business management program must have a minimum of two years of college preparatory mathematics (preferably three). Several ABM courses require a strong background in basic mathematics and algebra.

COURSES
ABM 202 Professional Writing 2 cr.
ABM 204 Principles of Management 4 cr.
ABM 205 Applied Financial Accounting 4 cr.
ABM 206 Human Resource Management 4 cr.
ABM 207 Applied Marketing 4 cr.
ABM 208 Managerial Accounting 4 cr.
ABM 210 Production/Operations Management 2 cr.

Civil Technology
www.unh.edu/tsas/academics/civiltech/
(For course descriptions, go to www.undergradcat.unh.edu.)

Civil Technology is a dynamic educational opportunity offering skill-based learning through class instruction, extensive laboratory experience, and fieldwork. Students choose from one of the following specializations: architectural technology, construction management, and surveying and mapping.

The cornerstone of the educational experience is instruction in computer-aided design (CAD) using the Thompson School’s state-of-the-art CAD labs. Students in field surveying use the latest surveying equipment and students studying geographical information systems (GIS) use the new GIS Instructional Lab. Additional coursework covers building science, construction contracting, materials, soils, and methodologies of professional practice in the concentration specialties.

Curriculum Fees
Civil technology, all specializations: $74*

* This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. 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.
Construction Management
In the Construction Management specialization, 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 and waste disposal systems, recycling, and effective energy management. Some graduates elect to continue their education in bachelor of science programs in civil engineering or community development, or in the bachelor of engineering technology program in civil engineering.

Graduates of the Construction Management specialization find employment in a variety of building industry-related positions.

Career Opportunities: Construction supervisor, project manager, cost estimator, public works department, contractor, code enforcement officer, construction material tester, land-development planning, site evaluator for building components, construction product manufacturer, product representative, DOT engineering technician.

Construction Management Program of Study

First Year, Fall Semester
CT 220, Professional Practice, 1 cr.
CT 222, Computer Aided Design Level I, 4 cr.
CT 223, Introduction to Surveying and Mapping, 4 cr.
AM 280, Technical Computer Literacy/Internet Applications, 4 cr.
MATH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester
CT 231, Design I, 4 cr.
CT 233, Construction Surveying, 4 cr.
CT 237, Land Design and Regulations, 4 cr.
COM 212, Technical Writing, 2 cr.
or COM 210, Public Speaking, 2 cr.
SSCI 204, Leadership Effectiveness and Group Performance 2 cr.

Second Year, Fall Semester
CT 227, Mechanical and Electrical Systems, 4 cr.
CT 230, Statics and Materials, 4 cr.
CT 247, Construction Contracting, 4 cr.
CT 297, Work Experience, 0 cr.
COM 209, Expository Writing and Reading, 4 cr.

Second Year, Spring Semester
CT 244, Advanced Surveying Computations, 4 cr.
SSCI 202, Social Issues, 4 cr.
*Technical Elective, 4 cr.
Total: 64 credits

Surveying and Mapping
As land values increase and the need to use our natural resources efficiently and to protect our environment becomes more critical, the role of surveyors is expanding. The Surveying and Mapping specialization 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, and satellite positioning technology, the surveyors and mappers of today are at the forefront of acquiring, analyzing, and managing land information.

Career Opportunities: Licensed land surveyor, DOT engineering technician, GIS technician, land development planner, construction surveyor.

Surveying and Mapping Program of Study
Course, Credits
First Year, Fall Semester
CT 220, Professional Practice, 1 cr.
CT 222, Computer Aided Design Level I, 4 cr.
CT 223, Introduction to Surveying and Mapping, 4 cr.
AM 280, Technical Computer Literacy/Internet Applications, 4 cr.
MATH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester
CT 231, Design I, 4 cr.
CT 233, Construction Surveying, 4 cr.
CT 237, Land Design and Regulations, 4 cr.
COM 212, Technical Writing, 2 cr.
or COM 210, Public Speaking, 2 cr.
SSCI 204, Leadership Effectiveness and Group Performance 2 cr.

Second Year, Fall Semester
CT 240, Legal Aspects of Surveying, 2 cr.
and CT 243, Advanced Surveying and Mapping, 2 cr.
CT 247, Construction Contracting, 4 cr.
CT 297, Work Experience, 0 cr.
COM 209, Expository Writing and Reading, 4 cr.
Elective, 4 cr.

Second Year, Spring Semester
CT 244, Advanced Surveying Computations, 4 cr.
SSCI 202, Social Issues, 4 cr.
*Technical Elective, 4 cr.
Elective, 4 cr.
Total: 64 credits

Elective Courses
AM 261, Internal Combustion Engines I
AM 275, Building Science/Residential Construction
CT 227, Mechanical and Electrical Systems
CT 230, Statics and Materials
CT 233, Construction Surveying
CT 234, Soils and Foundations
CT 237, Land Design and Regulations.
CT 240, Legal Aspects of Surveying
CT 244, Advanced Surveying Computations
CT 282, Architecture II (Prereq: Architecture I)

*Technical Elective Courses
CT 235, Introduction to Information Technology
AM 251, Welding and Fabrication Technology
AM 262, Internal Combustion Engines II (Prereq, AM 261)
Other courses by approval

Admissions Requirement
Applicants to the architectural technology, construction management, and surveying and mapping specializations must present at least two years of satisfactory work in college preparatory mathematics.

COURSES
CT 220 Professional Practice 1 cr.
CT 222 Computer Aided Design Level I 4 cr.
CT 223 Introduction to Surveying and Mapping 4 cr.
CT 227 Mechanical and Electrical Systems 4 cr.
CT 230 Statics and Materials 4 cr.
CT 231 Design I 4 cr.
CT 233 Construction Surveying 4 cr.
CT 234 Soils and Foundations 4 cr.
CT 235 Introduction to Information Technology 4 cr.
CT 237 Land Design and Regulations 4 cr.
CT 240 Legal Aspects of Surveying 2 cr.
CT 243 Advanced Surveying and Mapping 2 cr.
CT 244 Advanced Surveying Computations 4 cr.
CT 247 Construction Contracting 4 cr.
CT 281 Architecture I History and Design 4 cr.
CT 282 Architecture II 4 cr.
CT 291 Studies 1 to 3 cr.
CT 292 Studies 1 to 3 cr.
CT 297 Work Experience cr.

Community Service and Leadership
www.unh.edu/tsas/academics/csl/
(For course descriptions, go to www.undergradcat.unh.edu.)

The Community Service and Leadership Program prepares students for influential roles within community organizations by combining hands-on community outreach with an academic study of communities, leadership, citizen influence, nonprofit organization management, and general education.
CSL students participate in faculty-supervised community outreach in a wide variety of locations including schools and other learning-focused agencies, crisis shelters, environmental organizations, animal care facilities, nursing homes, advocacy programs, town offices, citizen groups and other community-related organizations.

Through their coursework, community placements, and individualized plans of study, CSL students learn how to: supervise volunteers, facilitate effective meetings, speak comfortably and knowledgeably to groups of various sizes, analyze community issues and their causes, manage financial information, organize projects and events, research and prepare grant proposals, create effective newsletters, influence public opinion, and organize people to work toward positive solutions for shared problems.

The Community Service and Leadership Program is designed to flexibly and effectively meet the needs of a diverse group of students including recent high school graduates as well as experienced community-service workers.

Curriculum Fee
Community Service and Leadership $52*

Community Service and Leadership Program of Study
Course, Credits
First Year, Fall Semester
COM 209, Expository Writing and Reading, 4 cr.
SSCI 201, Human Relations, 4 cr.
CSL 201, Introduction to Community Service and Leadership, 4 cr.
CSL 200, Technology for Community Service and Leadership, 2 cr.
MTH, Mathematics course, 3 cr.

First Year, Spring Semester
SSCI 202, Social Issues, 4 cr.**
COM 210, Public Speaking, 2 cr.
CSL 205, Communication within Communities, 4 cr.
CSL 202, Introduction to Non-Profit Organizations, 3 cr.
CSL 203, Organizing and Supervising Volunteers, 3 cr.

Summer
CSL 297, Volunteer/Work Experience, 0 cr.

Second Year, Fall Semester
SSCI 204, Group Process and Leadership Development, 2 cr.
ABM 215, Business and the Community, 4 cr., or CD 415, Community Development, 4 cr.
CSL 204, Managing Change and Conflict in Communities, 4 cr.

Second Year, Spring Semester
CSL 206, Literature of Family and Community, 4 cr.
CSL 210, Community Service and Leadership Capstone Seminar, 4 cr.
Electives, 6–8 cr.

Other Associated Courses
CSL 207, Introduction to Non-Profit Budgeting and Accounting Practices, 3 cr.
CSL 208, Essentials of Fund Raising for Community-Based Organizations, 2 cr.
CSL 209, Essentials of Grant Writing for Community-Based Organizations, 2 cr.
CSL 290, Civic and Community Internship, 2–4 cr.
ABM 217, Web Page Programming and Design, 4 cr.

Total: 65–69 credits

COURSES

CSL 200 Technology for Community Service and Leadership 2 cr.
CSL 201 Introduction to Community Service and Leadership 4 cr.
CSL 202 Introduction to Nonprofit Organizations 4 cr.
CSL 203 Organizing and Supervising Volunteers 4 cr.
CSL 204 Managing Change and Conflict in Communities 4 cr.
CSL 205 Literature of Family and Community 4 cr.
CSL 206 Literature of Family and Community 4 cr.
CSL 207 Introduction to Non-profit Budgeting and Accounting Practices 3 cr.
CSL 208 Essentials of Fundraising for Community-Based Organizations 2 cr.
CSL 209 Essentials of Grant Writing for Community-Based Organizations 2 cr.
CSL 210 Capstone Seminar 4 cr.
CSL 290 Civic and Community Internship 2–4 cr.
CSL 291 Studies in Community Service and Leadership 1 to 4 cr.
CSL 292 Studies in Community Service and Leadership 1 to 4 cr.
CSL 297 Work Experience cr.

Food Services Management
The Food Services Management program has two distinct specializations: dietetic technician and restaurant management.

Food Services Management:
Dietetic technician $424*
Restaurant manager $424*

Dietetic Technician Program of Study
Course, Credits
First Year, Fall Semester
FSM 201, Food Preparation Fundamentals, 2 cr.
FSM 278, Applied Principles of Food Preparation Lab, 1 cr.
FSM 228/229, Applied Nutrition for Dietetic Technicians, 4 cr.
MTH 201, Math I, 3 cr.

FSM 203, Principles of Food Services Management I, 3 cr.
COM 209, Expository Reading and Writing, 4 cr.
First Year, Spring Semester
FSM 200, Introductory Chemistry, 3 cr.
FSM 207, Hospitality: Sanitation and Safety, 2 cr.
NUTR 476, Nutritional Assessment, 3 cr.
NUTR 504, Managerial Skills in Dietsetics, 3 cr.
ZOOL 401, Human Biology, 4 cr.

Second Year, Fall Semester
FSM 205 Hospitality Computer Applications, 3 cr.
FSM 275, Diet Therapy, 3 cr.
FSM 290, Managerial and Clinical Dietsetics Practicum, 7 cr.
NUTR 510, Nutrition Education and Counseling, 4 cr.

Career Opportunities: Restaurant owner/manager, caterer, food and beverage sales, food buyer, food and beverage manager, food services director.
**Curriculum Fee**
Forest technology, specialization, $522*

**Forest Technician**
Forest technicians help plan, direct, and operate forestry enterprises. Students in the forest technician specialization 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, trails, and recreational facilities; how to map and survey property; and how to manage woodlands to improve wildlife habitat and conserve soil, water, and other natural resources. Graduates work in the wood products-related industries, in public forestland management agencies, with forestry consulting firms or urban tree care companies, and with a range of conservation organizations. Graduates can become licensed in N.H. to practice forestry on private lands.

**Career Opportunities:** Forestry consultant, fire control technician, mapping technician, GIS technician, timber and log buyer, log scaler, lumber grader, sawmill technician, arborist, urban tree care specialist, timber cruiser/forest inventory technician, forestry equipment/products sales.

**Forest Technician Program of Study**
**Course, Credits**

**First Year, Fall Semester**
- FORT 261, Dendrology, 3 cr.
- FORT 263, Forest Ecology, 3 cr.
- FORT 265, Forest Orientation Seminar, 1 cr.
- FORT 283, Forestry Computer Applications, 1 cr.
- COM 209, Expository Writing and Reading, 4 cr.
- MTH 203, Algebra and Trigonometry, 3 cr.

**First Year, Spring Semester**
- FORT 260, Forest Mapping, 2 cr.
- FORT 266, Forest Surveying, 4 cr.
- FORT 270, Applied Silviculture, 4 cr.
- FORT 280, Aerial Photography Interpretation and Geographic Information Systems, 3 cr.
- SSCI 202, Social Issues, 4 cr.
- Electives 2–4 cr.

**Second Year, Fall Semester**
- FORT 267, Leadership, Supervision, and Safety Practices, 2 cr.
- FORT 269, Wildlife Ecology and Conservation, 3 cr.
- FORT 272, Mensuration, 4 cr.
- FORT 277, Logging, 4 cr.
- FORT 297, Forestry Work Experience, 0 cr.
- COM 210, Public Speaking, 2 cr.
- or COM 211, Critical Reading, 2 cr.
- or COM 212, Technical Writing, 2 cr.

- SSCI 204, Group Process and Leadership Development, 2 cr.
- Electives 2–4 cr.

**Second Year, Spring Semester**
- FORT 273, Management Operations and Analysis, 3 cr.
- FORT 274, Industrial Forest Management Tour, 2 cr.
- FORT 276, Forest Products, 4 cr.
- FORT 278, Forest Insects and Diseases, 2 cr.
- FORT 279, Forest Fire Control and Use, 2 cr.

**Total:** 65–69 credits

**COURSES**
- FORT 260, Forest Mapping 2 cr.
- FORT 261, Dendrology 3 cr.
- FORT 263, Forest Ecology 3 cr.
- FORT 264, Arboriculture 3 cr.
- FORT 265, Forest Orientation Seminar 1 cr.
- FORT 266, Forest Surveying 4 cr.
- FORT 267, Leadership, Supervision, and Safety Practices 2 cr.
- FORT 269, Wildlife Ecology and Conservation 3 cr.
- FORT 270, Applied Silviculture 4 cr.
- FORT 272, Mensuration 4 cr.
- FORT 273, Management Operations and Analysis 3 cr.
- FORT 274, Industrial Forest Management Tour 2 cr.
- FORT 275, Forestry Field Practices 1 cr.
- FORT 276, Forest Products 4 cr.
- FORT 277, Logging 4 cr.
- FORT 278, Forest Insects and Diseases 2 cr.
- FORT 279, Forest Fire Control and Use 2 cr.
- FORT 280, Aerial Photography Interpretation 2 cr.
- FORT 283, Forestry Computer Applications 1 cr.
- FORT 291, Independent Studies in Forest Technology/Urban Tree Care 1 to 4 cr.
- FORT 292, Independent Studies in Forest Technology/Urban Tree Care 1 to 4 cr.
- FORT 297, Work Experience 1 cr.

**Horticultural Technology**

www.unh.edu/tsas/academics/horticulture/
(For course descriptions, go to www.undergradcat.unh.edu.)

Horticultural Technology students study the art and science of applied plant biology, 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 specializations in ornamental horticulture, or landscape operations. Employment opportunities in these areas continue to be excellent. Graduates enter a rapidly expanding job market in greenhouse production, floral design, nursery and garden center management, parks and grounds management, fruit and vegetable production, and landscape design, construction, and maintenance. Many recent graduates have established their own horticulture enterprises, and others continue their education toward a four-year degree in areas such as floral design, environmental horticulture, floriculture/greenhouse management, or business management.

**Curriculum Fee**
Horticultural technology: Both specializations $602*

**Ornamental Horticulture**
Students who prefer to be generalists in horticultural technology may opt for the ornamental horticulture specialization. Students gain the broadest possible background in horticultural technology, a background attractive to employers in all specialty areas. Working closely with a faculty adviser, each student designs his or her own program, taking courses in the curriculum that fulfill the student’s particular needs. They first complete core requirements in the fundamentals of plant growth and development, soils, plant propagation, plant identification, and plant health care. Students may then choose elective coursework combining studies in floriculture, fruit and vegetable production, garden center management, and/or floral design.

**Career Opportunities:** Business owner/manager of garden center, nursery, flower shop, or fruit and vegetable business; greenhouse, nursery, or fruit and vegetable production; floral designer.

**General Ornamental Horticulture Program of Study**
**Course, Credits**

**First year, Fall Semester**
- HT 201, Freshman Seminar, 1 cr.
- HT 205, Plants, People and Place, 2 cr.
- HT 207, Plant Structure, Function and Growth, 4 cr.
- HT 215, Soils and Land Use (Half-term I), 2 cr.
- HT 219, Computers in Horticulture, 1 cr.
- HT 227A, Horticultural Facilities Management, 2 cr.
- COM 209, Expository Writing and Reading, 4 cr.

- * This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. 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.
First Year, Spring Semester
HT 204, Plant Propagation, 4 cr.
HT 217, Soils and Plant Nutrition (Half-term I), 2 cr.
HT 227B, Horticultural Facilities Management, 2 cr.
MTH, Mathematics course, 3 cr.
SSCI 203, Environmental Issues and Society, 2 cr.
HT 234, Pest Management, 4 cr.

Second Year, Fall Semester
HT 227C, Horticultural Facilities Management, 1 cr.
HT 240, Introduction to Floral Design, 2 cr.
HT 275, Floriculture Crop Production, 2 cr.
HT 286, Fruit and Vegetable Production, 4 cr.
HT 297, Horticultural Work Experience, 2 cr.
COM 210, Public Speaking, 2 cr.
 or COM 211, Critical Reading, 2 cr.
 or COM 212, Technical Writing, 2 cr.
HT Electives 3–7 cr.

Second Year, Spring Semester
HT 227D, Horticultural Facilities Management, 2 cr.
HT 258, Herbaceous Ornamental Plants, 2 cr.
HT 276, Bedding Plant Production, 2 cr.
HT 288, Horticultural Business Management, 4 cr.
HT Electives 3 cr.
SSCI 201, Human Relations, 4 cr.
or
SSCI 202, Social Issue, 4 cr.

Total: 66–80 credits

Landscape Operations
Landscape horticulture 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 landscaping increasingly requires a degree of technical and scientific expertise, as well as creativity, artistry, and problem-solving skills. Students in the landscape operations specialization gain a solid foundation in general horticulture and a thorough introduction to the landscape industry. In their classes, students meld theory and practice, and they apply what they learn in weekly lab periods and on-site visits to area operations. Many graduates eventually start their own landscape companies, and others continue their education toward a four-year degree in areas such as landscape architecture, parks and recreation, plant and soil science, environmental science, or business management.

Career Opportunities: Landscape design, landscape construction, garden centers, nurseries, golf courses, schools and parks, private and public grounds maintenance/management.

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<th>COURSES</th>
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<td>HT 219</td>
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<td>HT 227B</td>
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<td>HT 227C</td>
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<td>HT 227D</td>
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<td>HT 234</td>
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<td>HT 240</td>
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<td>HT 250</td>
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</table>
The University of New Hampshire at Manchester was established in 1985 to increase access to a University education for people who live and work in central New Hampshire. The newest college of the University offers associate and selected bachelor's degrees, access to other UNH undergraduate and graduate degree programs, special courses, workshops, seminars, and cultural events for the region.

UNHM Degree Programs

UNHM Professors: Deborah Brown, John J. Cerullo, Thaddeus M. Piotrowski, John P. Resch

Associate Professors: Ralph W. Draper, David A. Forest, Robert E. Jolley

UNHM Associate Professors: Thomas D. Birch, Michael Contarino, Lorraine D. Doucet, Gary S. Goldstein, Jeffrey F. Klenotic, Robert L. Macieski, Fred Metting, Alison K. Paglia, Stephen R. Pugh, Terry M. Savage, John E. Sparrow, Susan A. Walab, Richard A. Zang


UNHM Adjunct Faculty: Peter Haebler

UNHM Lecturers: Walter Alderman, Arkady Belozovsky, Robert M. Pugh

The University of New Hampshire at Manchester (UNHM) offers bachelor of arts degree programs in business, communication arts, English, history, humanities, and psychology and bachelor of science degree programs in computer information systems, electrical engineering technology with an option in computer technology, mechanical engineering technology, nursing (registered nurse certification required), and sign language interpretation. Students are required to satisfy University requirements, which include completion of at least 128 credits, a 2.00 minimum cumulative grade-point average, general education requirements, and, for the bachelor of arts degree, a foreign language requirement. The foreign language is not required in the bachelor of science programs.

Students may also pursue UNH associate in arts or associate in science degree programs full or part time with a choice of concentrations. Requirements for the associate degrees include completion of 64 credits, a 2.00 minimum grade-point average, and an interdisciplinary core course. Those students who complete the last 16 credits of the associate degree with a grade-point average of at least 2.50; earn a cumulative associate degree grade-point average of 2.50 or higher, and are recommended by their academic advisers are guaranteed admission to a baccalaureate program at the University in either Durham or Manchester. The University does not, however, guarantee admission to a specific college or program.

Selected graduate degrees from UNH are also available through the University of New Hampshire at Manchester.

Minors

The following academic minors are available at UNHM for enrolled baccalaureate candidates. Further information may be obtained from the Academic Counseling Office, (603) 641-4170.

American Sign Language and Deaf Studies
Art
Computer Information Systems
Education
English
History
Humanities
Illumination Engineering
Philosophy
Political Economy
Political Science
Psychology
Sociology
Women's Studies

Pre-Majors

Students entering the associate in arts program in general studies may prepare for transfer admission to many baccalaureate degree programs available through the University's Manchester and Durham campuses. By working closely with an academic adviser, general studies students can select structured course plans or pre-majors that are compatible with almost every baccalaureate major.
Certificate Programs for Professional Advancement

UNHM’s credit certificate programs are designed for individuals who want to enhance their credentials for a new position or to take the first step toward a college degree. The programs also meet the needs of working professionals with postsecondary degrees who need to expand their knowledge or update their skills.

Each program provides a concentrated learning experience in a specific subject area designed for students with varied educational backgrounds and experience. Students must complete four required courses at UNHM in their chosen program to earn a certificate. The college’s accessible course schedules allow students to attend day or evening classes, full or part time.

Communication Skills for Managers (4 courses, 16 credits)
The fundamentals of oral and written communications are presented in this certificate program. Critical thinking is emphasized. Students learn to read, write, and speak more effectively both personally and professionally.

Business and Accounting Skills for Managers (4 courses, 16 credits)
Students gain a basic understanding of American businesses and how they work. A general overview of the functional areas in business as well as fundamental concepts of accounting, finance, and the use of computers to manage information is presented in the coursework.

Human Behavior Studies (4 courses, 16 credits)
An understanding of psychological, cultural, and social aspects of human behavior is developed in this program. The coursework explores how culture and intellect influence behavior and communication with others.

College Transition Program

The University of New Hampshire at Manchester’s College Transition Program (CTP), enables students to begin their University studies as candidates for the associate in arts degree while receiving an intensive yearlong (two semesters) plan of academic support and study skill enhancement.

Students are identified as CTP eligible during the standard admission application review process and may enter the program for the fall semester. Typically, CTP students register for credit-bearing courses on a part-time basis. CTP students are required to supplement their academic schedules with noncredit coursework to strengthen study skills.

Attendance at the New Student Orientation and enrollment in the CTP studies lab are required for all CTP students. After orientation, CTP students work closely with academic advisers to design appropriate course plans, establish performance goals, determine which learning support services are required, and monitor academic achievement.

Students who successfully complete two semesters of CTP may continue on to earn their associate degree through either full-time or part-time study.

UNHM Application Deadlines

The application deadline for the fall semester is June 15 and for the spring semester is November 1. For priority consideration for financial aid, the application deadline is May 1 for the following academic year.

For More Information

UNHM courses are listed online at www.undergradcat.unh.edu. To receive a UNHM bulletin, catalog, or more specific information on UNHM courses and programs, contact the Office of Admissions, University of New Hampshire at Manchester, University Center, 400 Commercial Street, Manchester, NH 03101, e-mail UNHM.admissions@unh.edu, phone (603) 641-4150; fax (603) 641-4125; TTY/TTD (603) 641-4308.

COURSES

<table>
<thead>
<tr>
<th>Administration</th>
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<tr>
<td>ADM 400 Introduction to Business</td>
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<tr>
<td>ADM 430 Introduction to Business Statistics</td>
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<td>ADM 532 Introduction to Financial Accounting</td>
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<td>ADM 533 Introduction to Managerial Accounting</td>
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<td>ADM 601 Financial Management</td>
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<td>ADM 610 Marketing Principles and Applications</td>
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<td>ADM 620 Organizational Behavior</td>
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<td>ADM 650 Operations Management</td>
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<td>ADM 675 Special Topics Business Administration</td>
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<td>ADM 685 Applications in Business Management</td>
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<td>ADM 695 Independent Study in the Economic Policy of Business</td>
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<tr>
<td>ADM 701 Business, Government and Society</td>
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<td>ADM 750 Business Internship Seminar</td>
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<td>ADM 760 Applied Senior Project</td>
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<td>ADM 770 Special Topics Senior Seminar</td>
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American Sign Language

| ASL 435 American Sign Language I | 4 cr. |
| ASL 436 American Sign Language II| 4 cr. |
| ASL 531 American Sign Language III| 4 cr. |
| ASL 532 American Sign Language IV | 4 cr. |
| ASL 599 Special Topics in American Sign Language/Deaf Studies | 1 to 4 cr. |
| ASL 621 Advanced American Sign Language Discourse for Interpreters | 4 cr. |

Biology

| BIOL 413 Principles of Biology I | 4 cr. |
| BIOL 414 Principles of Biology II | 4 cr. |
| BIOL 520 Our Changing Planet | 4 cr. |

Bioscience

| BSCI 405 Diversity of Life | 4 cr. |
| BSCI 406 Human Organism | 4 cr. |
| BSCI 421 Diseases of the 21st Century | 4 cr. |
| BSCI 422 Biotechnology and Society | 4 cr. |
| BSCI 431 It’s a Small World: Microbes, the True Masters of our Planet | 4 cr. |

Communication Arts

| CA 450 Introduction to Public Speaking | 4 cr. |
| CA 501 Internship/Communication in the Urban Community | 1 to 4 cr. |
| CA 502 Image and Sound | 4 cr. |
| CA 503 Techniques for News Reporting | 4 cr. |
| CA 504 Film Criticism | 4 cr. |
| CA 506 Gender | 4 cr. |
| CA 508 Conflict in Relational Communication | 4 cr. |
| CA 510 Language and Interaction | 4 cr. |
| CA 512 Scriptwriting | 4 cr. |
| CA 513 Radio News Production | 4 cr. |
| CA 514 Fundamentals of Video Production | 4 cr. |
| CA 515 Advanced Video Production | 4 cr. |
| CA 516 Speechwriting | 4 cr. |
| CA 520 Special Topics in Applied Communication | 1 to 4 cr. |
| CA 525 Media Programming | 4 cr. |
| CA 526 Organization of Newswork | 4 cr. |
| CA 527 History of Film | 4 cr. |
| CA 528 Media Policy and Law | 4 cr. |
| CA 530 Celluloid Relationships | 4 cr. |
| CA 531 History and Organization of Advertising | 4 cr. |
| CA 535 Marital Communication | 4 cr. |
| CA 539 Communicating in Families | 4 cr. |
| CA 550 Special Topics in Communication Organization, History, and Policy | 1 to 4 cr. |
| CA 600 Research Methods in Media | 4 cr. |
| CA 601 Research Methods in Relational Communication | 4 cr. |
| CA 610 Communication Technologies and Culture | 4 cr. |
| CA 611 Theories of Relational Communication | 4 cr. |
| CA 612 Narrative | 4 cr. |
| CA 615 Film History/Theory and Method | 4 cr. |
| CA 618 Documentary | 4 cr. |
| CA 720 Seminar | 4 cr. |
| CA 795 Independent Study | 1 to 4 cr. |
### Computer Information Systems

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<td>CIS 411</td>
<td>Introduction to Computer Applications</td>
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<td>CIS 425</td>
<td>Introduction to Computer Programming</td>
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<td>CIS 490</td>
<td>Doing Research on the Internet</td>
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<td>CIS 495</td>
<td>Introduction to Web Authoring</td>
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<td>CIS 510</td>
<td>Fundamentals of Computer Information Systems</td>
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<td>CIS 515</td>
<td>Multimedia: Introduction and Applications</td>
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<td>CIS 520</td>
<td>Database Design and Development</td>
<td>4 cr.</td>
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<td>CIS 542</td>
<td>Operating System Applications</td>
<td>4 cr.</td>
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<td>CIS 550</td>
<td>Networking Computers</td>
<td>4 cr.</td>
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<td>CIS 560</td>
<td>Computer Law and Ethics</td>
<td>4 cr.</td>
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<td>CIS 590</td>
<td>Introduction to JavaScript</td>
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<td>CIS 599</td>
<td>Special Topics</td>
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<td>CIS 610</td>
<td>System Analysis and Design</td>
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### Economics

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<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
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<td>ECN 411W</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4 cr.</td>
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<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
<td>4 cr.</td>
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<td>ECN 412W</td>
<td>Introduction to Microeconomic Principles</td>
<td>4 cr.</td>
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<td>ECN 540</td>
<td>Law and Economics</td>
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<td>ECN 625</td>
<td>Regulation of Business</td>
<td>4 cr.</td>
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<td>ECN 635</td>
<td>Money, Banking and Macroeconomic Activity</td>
<td>4 cr.</td>
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<td>ECN 640</td>
<td>Business Law and Economics</td>
<td>4 cr.</td>
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<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ECN 670</td>
<td>Public Sector Economics</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>

### English Composition and Writing

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 301</td>
<td>Introduction to College Composition and Reading</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>

### Engineering Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ET 601</td>
<td>Data Structures and Data Bases</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>3 cr.</td>
</tr>
<tr>
<td>ET 627</td>
<td>Advanced Developmental Theory of E-Commerce</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 630</td>
<td>Analytical Methods in Engineering Technology</td>
<td>3 cr.</td>
</tr>
<tr>
<td>ET 639</td>
<td>Heating, Ventilation and Air Conditioning I</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 640</td>
<td>Heating, Ventilation and Air Conditioning II</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 641</td>
<td>Production Systems</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 644</td>
<td>Mechanical Engineering Technology Concepts in Analysis and Design</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 645A</td>
<td>Instrumentation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 647</td>
<td>Advanced Perspectives on Programming</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 667</td>
<td>Graphics and Animation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 671</td>
<td>Digital Systems</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
<td>4 cr.</td>
</tr>
<tr>
<td>ET 675</td>
<td>Electrical Technology</td>
<td>4 cr.</td>
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<tr>
<td>ET 677</td>
<td>Analog Systems</td>
<td>4 cr.</td>
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### Humanities

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<tr>
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<tr>
<td>HUMA 411</td>
<td>Humanities I</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HUMA 412</td>
<td>Humanities II</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HUMA 519</td>
<td>Classical Greece</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HUMA 622</td>
<td>Studies of Freedom and Liberty</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HUMA 630</td>
<td>Development of Early Christianity</td>
<td>4 cr.</td>
</tr>
<tr>
<td>HUMA 632</td>
<td>Beginning and the End of the Western World</td>
<td>4 cr.</td>
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</table>

### Sign Language Interpreting

<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>INTR 430</td>
<td>Introduction to Interpretation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>INTR 438</td>
<td>A Sociocultural Perspective on the Deaf Community</td>
<td>4 cr.</td>
</tr>
<tr>
<td>INTR 439</td>
<td>Ethics and Professional Standards for Interpreters</td>
<td>4 cr.</td>
</tr>
<tr>
<td>INTR 540</td>
<td>Comparative Linguistic Analysis for Interpreters</td>
<td>4 cr.</td>
</tr>
<tr>
<td>INTR 549</td>
<td>Special Topics</td>
<td>1 to 4 cr.</td>
</tr>
<tr>
<td>INTR 630</td>
<td>Principles and Practices of Consecutive Interpretation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>INTR 636</td>
<td>Principles of Simultaneous Interpretation</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>

### Additional Courses

- **UNHM Independent Study**
  - UMS 599 Independent Study 1 to 4 cr.

- **UNHM Special Topics**
  - UMST 500 Internship 1 to 4 cr.
  - UMST 521 Tutor Development 2 or 4 cr.
  - UMST 522 Tutor Development II 2 or 4 cr.
  - UMST 599 Special Topics 1 to 4 cr.

In addition to the above courses, the following courses are regularly offered at the University of New Hampshire at Manchester. Descriptions of these courses can be found online at www.undergradcat.unh.edu.

**ANTH 411W**
- ARTS 480, 501, 532, 536, 544, 546, 551, 567, 570, 571, 572, 573, 574, 601, 608, 632, 633, 646, 651, 667
- BCHM 658, 659
- BIOL 541, 604
- CHEM 403-404, 545, 546
- CMN 455, 456, 457, 500
- CS 403, 407, 410
- EDUC 500, 700, 701, 703, 705, 706, 707, 750, 795, 796
- ESCI 401, 409
- ENGL 400, 401, 401A, 500, 501, 503, 511, 513, 514, 515, 516, 517, 519, 521, 523, 608, 609, 625, 627, 628, 632, 650, 651, 657, 685, 693, 694, 710, 716, 742, 743, 744, 745, 768, 773, 774, 775, 780, 784, 791, 792, 795, 797, 798
- FREN 401-402, 501, 526
- GEOG 401, 402, 581
- HIST 410, 421, 422, 435, 436W, 497, 500, 506, 511, 595, 596, 600, 603, 605, 608, 611, 612, 617, 640, 641, 651, 652, 656, 690, 695, 698, 797
- ITAL 401, 402
- MATH 301, 302, 418, 420, 425, 426, 527, 528
- MICR 503, 504, 603
- MUSI 401, 511
- NURS 606, 617, 622, 645, 656, 703, 719, 794
- NUTR 400
- PHIL 401, 412, 430, 447, 450
- PHYS 407-408
POLT 401, 402, 403, 505, 507, 508, 520, 521, 555, 560, 562, 762
PSYC 401, 402, 502, 513, 531, 553, 561, 581, 582, 591, 710, 711, 758, 762, 791, 793, 795
SOC 400W, 515, 520, 530, 540W, 597, 680W
SPAN 401-402, 501
THDA 435, 450
WS 401
ZOOL 402
The Office of Outreach Education and Summer Studies (OES) oversees the public enrollment of credit courses and UNH Summer Studies (what was once part of the Division of Continuing Education). This office concentrates on making the University's credit courses available to all citizens of New Hampshire and beyond. Through this public access system or through the Pre-Admission Program (see below), it is possible to complete many of the general education and first year program requirements in many areas of study offered by the University without matriculating into the University.

OES also initiates and partners with academic departments on innovative institutes, seminars, and special programs for academic credit in order to extend UNH's expertise and meet the needs of the state, the New England region, and beyond.

In addition, OES offers some practical, career-oriented electives at the undergraduate level. The faculty of these courses is drawn from UNH and from experts in business, industry, education, and health care.

Contact information for registration is (603) 862-2015; nonmatriculated students seeking academic advising services should call (603) 862-1548 or come to Verrette House; and faculty and administrators should call (603) 862-1937 for more information.

Pre-Admission Program
The Pre-Admission Program is intended for students unsure of being admitted directly into a baccalaureate program and students who wish to demonstrate their academic abilities first. Students take 11 credits or less (12 with permission) for at least two semesters as nondegree students and are eligible to apply for financial assistance by completing the Free Application Federal Student Aid (FAFSA) application for the Stafford or Plus Loan. After acceptance to the program, students must complete a learning contract with their adviser. Students simply complete a reactivation form to apply for admission to a four-year program when certain academic criteria outlined on the learning contract is met. Application to the pre-admission program is made through the Office of Admissions and registration of courses is through the Office of Outreach Education and Summer Studies. Jane Wickey in the OES office in Verrette House provides advising and academic services.

Full Time Special Student Status
Full Time Special Students have been given permission by the Admissions Office to take more than 12 credits, usually only for one semester. In evaluating requests to enroll full time as nondegree students, the Admissions Office applies the same criteria used in the review of applicants for admission to degree candidacy. Students approved for full time special status must pay full time undergraduate tuition and fees when they register. The OES Academic Services Coordinator advises students.

Part-time Special Students

Graduate. Students holding a bachelor's degree or equivalent from a regionally accredited college or university may register for undergraduate or graduate level classes.

Special graduate students often take prerequisite courses in order to qualify for matriculation into graduate programs, others take graduate courses (a maximum of 12 credits is accepted in transfer) before applying, still others wish to advance or change careers or to enter a professional school. Graduate students are advised by the graduate program coordinator of the department they wish to enter and pay graduate student tuition rates. Students requesting to take nine or more graduate credits must receive permission from Jane Wickey in the OES advising office, and pay full time admitted graduate tuition and fees.

Undergraduate. Most students not formally admitted into a degree program register as part time (11 credits or less) nondegree students and enroll through the Office of Outreach Education and Summer Studies. Most students are nontraditional and/or transfer students who wish to eventually matriculate. Nontraditional students may also wish to take courses to advance or change careers or simply for personal
enrichment. Traditionally aged students often begin to take courses part time and work toward eventual matriculation; still others are formerly admitted UNH students who seek readmission but need to take courses to improve their academic records first. In addition, many students from other colleges and universities take UNH courses while on an approved leave of absence and during the summertime. Special students, who wish to take 12 credits (usually for only one semester) must show a certain level of academic achievement, gain permission from the OES academic services coordinator, and pay a special full time tuition rate. Non-degree students are expected to pay in full for their courses when they register. Special students must have a high school diploma or a GED.

Prerequisites
All students are responsible for satisfying course prerequisites. Course descriptions, including prerequisites, can be found on the UNH Web site. Instructors may require students to withdraw from a course if they are not adequately prepared for the level of work.

Academic Standards and Expectations
A cumulative grade-point average of 2.00 (C grade) is the minimum acceptable level for undergraduate work at the University. The records of special undergraduate students are examined periodically, and academically deficient students may be warned or excluded from registering. All nondegree students are expected to become familiar with and adhere to the current UNH Student Rights, Rules and Responsibilities document found on the UNH Web site.

Academic Support Services
Nondegree special students are expected to seek out and utilize the support services available to them at the University. These include the Center for Academic Resources, The Writing Center, ACCESS (for students with disabilities), the Mathematics Center, and professional academic advising services from various departments including the Office of Outreach Education. For a complete list of services and resources available to nondegree students, please visit the OES office or refer to www.learn.unh.edu.

Other Offerings
Other Summer Studies offerings include noncredit courses and certificate programs; workshops and seminars for business, industry, and the professions; and residential conferences and special institutes for teachers, other professions, students and the community.

Institutes and Conferences
Conferences and institutes in the form of day meetings or residential programs lasting several days or weeks are conducted by the schools and colleges of the University or may be arranged for external groups. Non-university groups who want to hold or cosponsor a conference should call the Summer Studies Office (603) 862-1548 or Conference Services (603) 862-1900.

For More Information
A separate summer catalog is published each year in March and is available from Summer Studies, University of New Hampshire, 6 Garrison Avenue, Durham, NH 03824-3529. Telephone, (603) 862-1548; e-mail, learn.dce@unh.edu; Web site, www.learn.unh.edu.

Summer Studies
www.learn.unh.edu

The University of New Hampshire offers students the opportunity to continue their studies on a year-round basis through multiple terms during the summer months. The summer courses are of the same high quality as those during the regular academic year and require the same level of academic performance.

Summer Studies offerings include a broad range of undergraduate and graduate credit courses in most of the major academic disciplines. Throughout the summer, classes are scheduled in the morning, afternoon, and evening. Special institutes for teachers and other professionals are also offered during the summer and vary in length depending on content.

Enrollment in Summer Studies classes does not imply admission to degree candidacy.

Undergraduate Courses
Undergraduate courses are open to undergraduates from UNH and other colleges, to interested members of the community who have a high school diploma or a GED and who are at least 18 years of age, and to high school students completing their junior or senior year.

Graduate Courses
Graduate courses are open to UNH graduate students and other individuals with a bachelor's degree from a regionally accredited college or university or its equivalent from a foreign institution.
The Graduate School offers a wide range of programs leading to the master's degree, one program leading to the C.A.G.S., and a number of programs leading to the Ph.D. degree. Graduate programs have been developed systematically to achieve academic excellence by careful utilization of institutional resources and regional opportunities. A highly qualified graduate faculty supervises programs and establishes the requirements for admission and degrees, which are administered by the dean of the Graduate School. The Graduate School extends its programs to central and southern New Hampshire through the Center for Graduate and Professional Studies. Located on the campus at the University of New Hampshire at Manchester, the center offers a number of part-time professional master's programs.

Admissions
Persons holding a baccalaureate degree from an accredited college or University and wishing to take graduate-level courses at the University as part of a graduate degree program must apply for admission to the Graduate School. Admission to the Graduate School is both limited and competitive and is based solely upon academic qualifications and potential.

Applications for admission and the Graduate Catalog, containing detailed descriptions of graduate programs, may be obtained from the Graduate School, Thompson Hall, 105 Main Street, Durham, N.H. 03824-3547.

Admission to the 3/2 Program
Undergraduate UNH students may be admitted to one of the approved five-year combined bachelor's/master of business administration programs (see page 122), which normally commence during the fall semester of their senior year. Application to the Graduate School is made during the second semester of the junior year. Interested students should contact the Whittemore School for information.

Financial Assistance
Graduate assistantships are available in most departments. These involve part-time work in connection with the University's instructional or research activities. University awards, such as tuition scholarships, are also available to qualified students. Assistantships and scholarships are awarded on the basis of academic qualifications.

Financial assistance in the form of college work study and loans may be available through the Financial Aid Office.
UNH Center for Graduate and Professional Studies

The Center for Graduate and Professional Studies offers a wide range of post-baccalaureate programs for professionals in business, education, social services, healthcare, government, and related fields. All graduate programs supported by the center are directed by UNH faculty and are administered by the UNH Graduate School. Currently master's degree or other post-baccalaureate courses and programs are offered in Manchester in: Business Administration, Counseling, Educational Administration, Teacher Education, Public Administration, Public Health, Social Work, and Nursing.

Professional Development and Training

Professional Development and Training, part of UNH's Center for Graduate and Professional Studies, serves individuals, businesses, and organizations in New Hampshire and surrounding regions by offering a wide range of professional development opportunities throughout the year, including one-day seminars, special institutes and conferences, and short-term Certificate Programs.

Programs are designed to assist professionals in developing new or advanced knowledge and skills in a variety of fields. Instruction provides a balance of theory and practical skills that participants can immediately apply to the workplace.

Offerings focus on pertinent topics in business, management and supervision, professional coaching, human resources, computers, CAD, teaching and school administration, health and human services, engineering, manufacturing, surveying, soil science, town and state planning, fundraising and grant writing, and more.

Training is offered on the Durham campus, in Manchester, and at the UNH training facility at Pease International Tradeport in Portsmouth.

From time to time, institutes and conferences are held to address current topics of concern at an in-depth level.

Professional Development and Training also offers customized training services—helping companies assess their training needs, and then designing and delivering customized training to meet these needs.
The Honorable
Walter R. Peterson

Stephen J. Reno, Ph.D.
Chancellor, University System
Durham, N.H. (ex officio)

Eugene A. Savage

Merle W. Schotanus

Stephen H. Taylor
Commissioner of Agriculture
Meriden, N.H. (ex officio)

Edwinna Vanderzanden

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Plymouth, N.H. (ex officio)

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Academic Units
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Marilyn Hoskin, Ph.D.

Dean of the College of Engineering and Physical Sciences
Arthur Greenberg, Ph.D.

Dean of the School of Health and Human Services
James F. McCarthy, Ph.D.

Dean of the College of Life Sciences and Agriculture
William R Trumble, Ph.D.

Dean of the Whittemore School of Business and Economics
Stephen F. Bolander, Ph.D.

Interim Dean of the University of New Hampshire at Manchester
Robert E. Jolley, Ph.D.

Associate Vice President for Research and Outreach Scholarship
Julie E. Williams, Ph.D.

Dean of the Graduate School
Harry J. Richards, Ph.D.

Dean and Director of Cooperative Extension
John E. Pike, Ph.D.

Director of the Thompson School of Applied Science
Regina Smick-Attisano, Ed.D.

University Librarian
Claudia J. Morner, Ph.D.
Vice President for Research and Public Service and Professor of Natural Resources and Earth, Oceans, and Space and Chairperson, National Resources and Earth Systems Science Ph.D. Program; B.S., Yale University, 1971; M.E.S., Yale School of Forestry, 1973; Ph.D., Yale University, 1976.

Abrams, Eleanor D. (1994)  
Associate Professor of Education; B.S., University of Massachusetts at Amherst, 1983; Ph.D., Louisiana State University, 1993.

Afolayan, Funso (1996)  
Associate Professor of History; B.A., University of Ife, Nigeria, 1980; M.A., Obafemi Awolowo University, Nigeria, 1984; Ph.D., ibid., 1991.

Aikins, Janet (1979)  
Professor of English; B.A., Grinnell College, 1972; M.S., University of Chicago, 1973; Ph.D., ibid., 1980.

Aitkenhead-Peterson, Jacqueline Ann (2002)  
Research Assistant Professor of Natural Resources; B.Sc., University of Stirling, Scotland, 1995; M.Sc., University of Aberdeen, Scotland, 1996; Ph.D., University of New Hampshire, 2002.


Alexander, Lee (2000)  
Research Associate Professor of Ocean Engineering; Ph.D., Yale University, 1986.

Allbro, Eugene P. (1999)  
Thompson School Assistant Professor of Food Services Management; A.O.S., Culinary Institute of America, 1974; B.A., Rhode Island College, 1973; M.S., Rochester Institute of Technology, 1998.

Assistant Professor of Materials Science; B.A., Harvard University, 1988; Ph.D., Rensselaer Polytechnic Institute, 1993.

Associate Professor of Nursing; B.S.N., Loyola University, 1982; M.S.N., ibid., 1987; Certificate, University of Illinois at Chicago, 1993; Ph.D., University of Wisconsin at Milwaukee, 1996.

Assistant Professor of Theatre and Dance; B.A., Western Illinois University, 1990; M.S.Ed., ibid., 1999; M.E.A., Virginia Commonwealth University, 2002.

Andrew, David S. (1976)  
Professor of Art History and the Humanities; B.A., University of Michigan at Ann Arbor, 1965; M.A., ibid., 1968; Ph.D., Washington University, 1977.

Andrew, Michael D. (1966)  
Professor of Education; B.S., Cornell University, 1960; A.M.T., Harvard University, 1961; Ed.D., ibid., 1969.

Annichiarico, Michael J. (1991)  
Associate Professor of Music; B.M., University of New Hampshire, 1976; M.F.A., Brandeis University, 1981; Ph.D., ibid., 1993.

Professor of Psychology; B.A., University of California at Riverside, 1993; M.A., ibid., 1999; Ph.D., ibid., 2002.

Assistant Professor of Civil Engineering; B.S.C.E., University of Nevada at Las Vegas, 1994; M.S., Arizona State University, 1996; Ph.D., ibid., 2003.

Babbitt, Kimberly J. (1996)  
Assistant Professor of Wildlife Ecology; B.S., University of New Hampshire, 1984; M.S., Texas A & M University, 1988; Ph.D., University of Florida, 1996.

Baber, Kristine M. (1984)  

Bachrach, David (2003)  
Assistant Professor of History; B.A., Carleton College, 1994; M.A., University of Notre Dame, 1997; Ph.D., ibid., 2001.

Assistant Professor of English; B.A., Harvard University, 1988; M.F.A., Columbia University, 1994.

Bailey, Brigitte Gabcke (1987)  
Assistant Professor of English; B.A., University of Virginia, 1977; A.M., Harvard University, 1980; Ph.D., ibid., 1985.

Baker, Alan L. (1972)  
Associate Professor of Plant Biology (Phycology); B.A., State University of New York at Binghamton, 1965; Ph.D., University of Minnesota, 1973.

Baldwin, Kenneth C. (1982)  
Professor of Mechanical Engineering and Ocean Engineering and Director, Center for Ocean Engineering; B.S.M.E., Northeastern University, 1973; M.S.M.E., University of New Hampshire, 1977; Ph.D., University of Rhode Island, 1982.

Ballestero, Thomas P. (1983)  
Associate Professor of Civil/Environmental Engineering; B.S.C.E., Pennsylvania State University, 1975; M.S.C.E., ibid., 1977; Ph.D., Colorado State University, 1981.

Ballant, L. Christian (1967)  
Professor of Physics; B.A., Oberlin College, 1960; M.A., Harvard University, 1961; Ph.D., ibid., 1967.

Banach, Mary (1995)  
Associate Professor of Social Work; B.A., University of Wisconsin at Milwaukee, 1975; M.S.W., New York University, 1978; D.S.W., Columbia University, 1995.

Barney, Dwight E. (1971)  
Thompson School Associate Professor of Applied Animal Science; B.S., University of New Hampshire, 1966; M.S., ibid., 1971.

Barretto, Timothy E. (1986)  
Thompson School Associate Professor of Communications; B.A., University of New Hampshire, 1974; M.A., ibid., 1982.

Bartlett, David S. (2001)  
Associate Director, Institute for the Study of Earth, Oceans, and Space, Director of N.H. Space Grant Program and Research Professor of Earth, Oceans, and Space; B.A., Amherst College, 1971; M.S., University of Delaware, 1976; Ph.D., ibid., 1979.

Bartos, Rudin (1997)  
Associate Professor of Computer Science; M.S., Czech Technical University, 1987; M.S., University of Denver, 1996; Ph.D., ibid., 1997.

Basterra, Maria (2001)  
Assistant Professor of Mathematics; B.S., University of Texas at Austin, 1992; M.S., University of Chicago, 1993; Ph.D., ibid., 1998.

Bauer, Christopher F. (1981)  
Professor of Chemistry; B.S., University of Notre Dame, 1974; M.S., University of Illinois at Urbana-Champaign, 1976; Ph.D., Colorado State University, 1979.

Assistant Professor of Health Management and Policy; B.S., University of Minnesota, 1996; M.P.H., ibid., 1998; Ph.D., ibid., 2003.

Assistant Professor of Economics; B.A., Drew University, 1996; M.A., Syracuse University, 1999; Ph.D., ibid., 2001.

Bean, Christine L. (1990)  
Assistant Professor of Medical Laboratory Science; B.S., University of New Hampshire, 1982; M.B.A., New Hampshire College, 1993; Ph.D., University of New Hampshire, 2004.

Assistant Professor of Physics; Ph.D., University of Texas at Austin, 1994.

Bearfield, Domonic (2004)  
Assistant Professor; B.A., Norfolk State University, 1995; M.A., University of Delaware, 1997; Ph.D., Rutgers University, 2001.

Becker, Mimi Larsen (1993)  
Associate Professor of Natural Resources and Environmental Policy; B.A., Carleton College, 1975; M.A., Duke University, 1989; Ph.D., ibid., 1991.

+Bedker, Patricia D. (1985) Associate Professor of Animal Science; B.S., University of Massachusetts Amherst, 1974; M.S., University of New Hampshire, 1980; Ph.D., Cornell University, 1985.


Bell, Erin S. (2003) Assistant Professor of Civil Engineering; B.S.C.E., Georgia Institute of Technology, 1996; M.S., Tufts University, 1998; Ph.D., ibid., 2003.


Berent, Jean (1983) Professor of Civil Engineering; B.S., Ecole Polytechnique, University of Montreal, 1977; M.S., Stanford University, 1980; Ph.D., ibid., 1983.


Berghlust, Per (2003) Assistant Professor of Physics; B.Sc., University of Lund, Sweden, 1988; Ph.D., University of Texas at Austin, 1993.


Birch, Francis S. (1972) Professor of Earth Sciences; A.B., Harvard University, 1958; M.S., University of Wisconsin at Madison, 1964; Ph.D., Princeton University, 1969.


Bisconti, Toni L. (2001) Assistant Professor of Psychology; B.S., Youngstown State University, 1995; M.A., University of Notre Dame, 1997; Ph.D., ibid., 2001.


+Blanchard, Robert O. (1972) Professor of Plant Biology(Mycology); B.S., University of Southern Maine, 1964; M.Ed., University of Georgia, 1969; Ph.D., ibid., 1971.


Bobick, Melvin T. (1958) Professor of Sociology; A.B., University of Illinois at Urbana-Champaign, 1949; A.M., ibid., 1952; Ph.D., ibid., 1958.

+Bobilya, Dennis J. (1991) Associate Professor of Nutritional Sciences; B.S., Purdue University, 1982; M.S., Michigan State University, 1985; Ph.D., University of Missouri, 1989.


Bolian, Charles E. (1971) Associate Professor of Anthropology; B.A., Mississippi State University, 1965; Ph.D., University of Illinois at Urbana-Champaign, 1975.
Associate Professor of German and the Humanities; A.B., Emory University, 1966; M.A., University of Kansas, 1969; Ph.D., ibid., 1971.

Brown, Warren R. (1972)
Associate Professor of Political Science and the Humanities; B.A., Willamette University, 1966; M.A., Claremont Graduate School and University Center, 1972; Ph.D., ibid., 1976.

Brunet, Stephen Andrew (1998)
Associate Professor of Classics; B.A., Pomona College, 1976; M.A., University of Pittsburgh, 1978; Ph.D., University of Texas at Austin, 1998.

Assistant Professor of Geochemistry; B.A., University of Virginia, 1993; Ph.D., University of California at Davis, 1998.

Bstie1er, Ludwig A. (2001)
Assistant Professor of Marketing; M.B.A., University of Innsbruck, Austria, 1989; Ph.D., ibid., 1997.

Buckley, Louise A. (1994)
Associate Professor, Librarian; B.A., St. John's University, 1979; M.A., ibid., 1981; M.L.S., Rutgers University, 1992.

Bucklin, Ann C. (1992)
Director of UNH Sea Grant College Program and Professor of Zoology and Earth, Oceans, and Space and Genetics; A.B., Oberlin College, 1975; Ph.D., University of California at Berkeley, 1980.

Burdick, David M. (1992)
Research Associate Professor of Marine Wetland Ecology and Restoration; B.S., Hobart College, 1977; Ph.D., Louisiana State University, 1988.

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Dean Emeritus of the College of Engineering and Physical Sciences and Professor Emeritus of Civil Engineering; B.S., University of Maine at Orono, 1952; M.S., ibid., 1957; Sc.D., Washington University, 1961; (1982 to 1995).

Stewart, James A.
Professor Emeritus of Biochemistry; B.A., St. Anselm College, 1963; Ph.D., University of Connecticut, 1967; (1968 to 2001).

Stocking, Marion I.

Stone-McAdams, Deborah E.
Associate Professor Emerita of Education; B.Ed., Plymouth Teachers College, 1940; M.Ed., Boston University, 1951; Ed.D., ibid., 1971; (1962 to 1990).

Suttunberger, Barbara
Associate Professor Emeritus of Occupational Therapy; B.S., Tufts University, 1964; M.S., Boston University, 1975; (1978 to 2003).

Sweet, Paul C.
Coach of Track and Cross Country and Professor Emeritus of Kinesiology; B.S., University of Illinois and the University of Kansas at Urbana-Champaign, 1923; M.S., University of Southern California, 1941; (1924 to 1970).

Szmyjko, Joseph A.

Taft, Charles K.
Professor Emeritus of Mechanical Engineering; B.A., Amherst College, 1951; B.S., Massachusetts Institute of Technology, 1953; M.S., Case Western Reserve University, 1956; Ph.D., ibid., 1960; (1967 to 1991).

Tillinghast, Edward K.
Professor Emeritus of Zoology and Affiliate Professor of Zoology; B.S., University of Rhode Island, 1951; M.S., ibid., 1959; Ph.D., Duke University, 1967; (1967 to 1999).

Tischler, Herbert
Professor Emeritus of Geology; B.S., Wayne State University, 1950; M.A., University of California at Berkeley, 1955; Ph.D., University of Michigan at Ann Arbor, 1961; (1965 to 1997).

Tovey, Barbara S.
Associate Professor Emerita of Philosophy and the Humanities; B.A., Swarthmore College, 1945; Ph.D., University of Massachusetts at Amherst, 1975; (1978 to 1994).

Ulrich, Gael D.
Professor Emeritus of Chemical Engineering; B.S., University of Utah, 1959; M.S., ibid., 1962; Sc.D., Massachusetts Institute of Technology, 1964; (1970 to 1997).

Urban, Willard E., Jr.
Professor Emeritus of Biometrics; B.S., Virginia Polytechnic Institute and State University, 1958; M.S., Iowa State University, 1960; Ph.D., ibid., 1963; (1963 to 1997).

Ury, Ann D.
Associate Professor Emeritus of Occupational Therapy; B.S., University of New Hampshire, 1956; M.A., Brown University, 1968; C.A.S., Rhode Island College, 1973; M.S.W., University of Connecticut, 1985; (1973 to 1997).

Van Alen, Daniel L.

Van Osdel, Donovan H.

Verrette, Paul F.
Professor Emeritus of Music; B.A., University of New Hampshire, 1952; M.A., Boston University, 1971; (1962 to 1995).

Vreeland, Robert P.
Professor Emeritus of Civil Engineering; B.S., Yale University, 1932; M.S., Columbia University, 1933; M.E., Yale University, 1941; (1966 to 1977).

Wallace, Oliver P., Sr.
Professor Emeritus of Forest Resources; B.S., University of New Hampshire, 1937; B.S.F., University of Michigan at Ann Arbor, 1938; M.E., ibid., 1947; Ph.D., ibid., 1954; (1958 to 1982).

Wallace, William H.
Professor Emeritus of Geography; B.S., Beloit College, 1948; M.S., University of Wisconsin at Madison, 1950; Ph.D., ibid., 1956; (1957 to 1997).

Wang, Rosemary Y.
Associate Professor Emeritus of Nursing; Diploma, Good Samaritan School of Nursing, Cincinnati, 1947; B.S., College of Mount St. Joseph, 1959; M.S., Boston College, 1962; Ph.D., ibid., 1982; (1971 to 1999).

Wang, Tung-Ming
Professor Emeritus of Civil Engineering; B.S., National Chiao-Tung University, China, 1945; M.S., University of Missouri at Columbia, 1954; Ph.D., Northwestern University, 1960; (1961 to 1992).

Wear, Robert E.
Associate Professor Emeritus of Kinesiology; B.A., Oberlin College, 1941; M.A., University of Michigan at Ann Arbor, 1946; Ph.D., ibid., 1955; (1964 to 1986).

Weber, James H.
Professor Emeritus of Chemistry; B.S., Marquette University, 1959; Ph.D., Ohio State University, 1963; (1963 to 1999).

Webster, Robert G.
Professor Emeritus of English; B.A., University of New Hampshire, 1926; M.A., ibid., 1930; (1927 to 1970).
EMERITI FACULTY

Weeks, Silas B.

Weiland, Walter E.
Associate Professor Emeritus of Kinesiology; B.S., State University of New York College at Cortland, 1957; M.S., Pennsylvania State University, 1958; Ph.D., ibid., 1964; (1955 to 1981).

Wells, Otho S.
Professor Emeritus of Plant Biology and Extension Horticulturist, Vegetables; B.S., North Carolina State University, 1961; M.S., Michigan State University, 1963; Ph.D., Rutgers, The State University of New Jersey, 1966; (1966 to 1999).

Wetzel, William E., Jr.

Weyrick, Richard R.
Associate Professor Emeritus of Forest Resources; B.S., University of Minnesota, 1953; M.F., ibid., 1961; Ph.D., ibid., 1968; (1964 to 2004).

Wheeler, Charles M., Jr.
Professor Emeritus of Chemistry; B.S., West Virginia University, 1947; M.S., ibid., 1949; Ph.D., ibid., 1951; (1950 to 1983).

Wheeler, Douglas L.
Professor Emeritus of History; A.B., Dartmouth College, 1959; A.M., Boston University, 1960; Ph.D., ibid., 1963; (1965 to 2002).

White, Barbara
Professor Emerita of Women's Studies; A.B., Cornell University, 1964; M.A., University of Wisconsin at Madison, 1965; Ph.D., ibid., 1974; (1976 to 1999).

White, Susan O.

Wicks, John D.
Professor Emeritus of Music; A.B., Harvard University, 1944; A.M., ibid., 1947; Ph.D., ibid., 1959; (1956 to 1989).

Williams, Charles H.
Associate Extension Educator Emeritus and Extension Specialist, Ornamentals; B.S., Pennsylvania State University, 1956; M.S., Michigan State University, 1967; Ph.D., University of New Hampshire, 1981; (1969 to 1998).

Willits, Robin D.
Professor Emeritus of Administration and Organization; A.B., Middlebury College, 1949; B.S., Massachusetts Institute of Technology, 1948; Ph.D., ibid., 1965; (1965 to 1990).

Wilson, John A.
Associate Professor Emeritus of Mechanical Engineering; B.S., Tufts University, 1958; M.S., Northeastern University, 1960; Ph.D., ibid., 1970; (1966 to 1999).

Wing, Barbara H.
Associate Professor Emerita of Spanish; B.A., Middlebury College, 1955; M.A.T., Harvard University, 1956; M.A., Middlebury College, 1971; Ph.D., Ohio State University, 1980; (1970 to 1996).

Wing, Henry J., Jr.
Associate Professor Emeritus of Music; B.M., Oberlin Conservatory, 1952; M.M., ibid., 1953; Ph.D., Boston University, 1966; (1970 to 1996).

Winn, Alden L.
Professor Emeritus of Electrical and Computer Engineering; B.S., University of New Hampshire, 1937; S.M., Massachusetts Institute of Technology, 1948; (1948 to 1983).

Wood, Dorothy
Associate Extension Educator Emerita of Human Development, Hillsborough County; B.S., Boston University, 1949; (1971 to 1989).

Wood, Stephen A.

Wright, Paul A.
Professor Emeritus of Zoology; B.S., Bates College, 1941; A.M., Harvard University, 1942; Ph.D., ibid., 1944; (1958 to 1983).

Wrightman, Dwayne E.
Professor Emeritus of Finance; B.S., Manchester College, 1958; M.B.A., Indiana University at Bloomington, 1959; Ph.D., Michigan State University, 1964; (1964 to 1995).

Yamamoto, Yutaka
Associate Professor Emeritus of Philosophy; B.S., University of California at Berkeley, 1957; M.A., University of Michigan at Ann Arbor, 1967; Ph.D., ibid., 1973; (1973 to 1997).

Yount, John A.

Zabarsky, Melvin J.

Zaso, Gus C.
Associate Professor Emeritus of Tourism Planning and Development; A.B., Syracuse University, 1957; M.A., Central Michigan University, 1962; Re.D., Indiana University at Bloomington, 1965; (1970 to 1997).

Zsigray, Robert M.
Professor Emeritus of Microbiology and Genetics; A.B., Miami University, Ohio, 1961; M.S., Georgetown University, 1967; Ph.D., ibid., 1969; (1970 to 2004).
## Enrollment Statistics—Fall Semester

### UNH Durham

<table>
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<th>Year</th>
<th>Freshman</th>
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<th>Junior</th>
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<th>Graduate—Doctoral</th>
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### Baccalaureate Curricula

#### Life Sciences and Agriculture

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### Health and Human Services

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<td>2002-2003</td>
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<td>375</td>
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<td>446</td>
<td>455</td>
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### UNH Manchester

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<th>Year</th>
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*Master's counts include Certificate of Advanced Graduate Study.*
**Semester I**

**August 29, Monday**
8 a.m. classes begin

**September 5, Monday**
Labor Day holiday, offices closed.

**September 9, Friday**
Last day to withdraw, to drop to part-time, or to reduce part-time load and qualify for tuition refund based on 3/4 difference in tuition.

**September 16, Friday**
Last day to add courses or Honors designation. Last day to drop courses or change to Audit without $25 late fee. Last day to drop Honors designation. Last day to carry more than 20 credits without a surcharge.

**September 23, Friday**
Last day to file Intent-to-Graduate form for December, 2005 graduation without late fee.

**September 30, Friday**
Last day to withdraw, to drop to part-time, or to reduce part-time load and qualify for tuition refund (refund based on 1/2 difference in tuition).

**October 4, Tuesday**
Rosh Hashanah*

**October 10, Monday**
Columbus Day, Fall break, no classes.

**October 11, Tuesday**
Classes follow MONDAY schedule.

**October 13, Thursday**
Yom Kippur*

**October 14, Friday**
Mid-semester. Last day to withdraw from the University without grades of WP or WF.

**November 8, Tuesday**
Election day; no exams may be scheduled.

**November 11, Friday**
Veterans' Day holiday, offices closed, no classes.

**November 23, Wednesday**
Classes follow FRIDAY schedule.

**November 24–25, Thursday–Friday**
Thanksgiving holidays, offices closed, no classes.

**November 28, Monday**
Classes resume.

**December 2, Friday**
Last day an announced oral or written exam may be given before finals.

**December 9, Friday**
Last day of classes. Last day to file Completion of Minor form for December graduates. Last day to change college until January.

**December 12, Monday**
Reading Day. Final exams begin, 6:00 p.m.

**December 13–17, Tuesday–Saturday**
Final exams.

**December 24–January 1**
Holiday break, offices closed.

**December 31, Saturday**
Graduation date (no ceremony).

**Semester II**

**January 16, Monday**
Martin Luther King, Jr. holiday, offices closed.

**January 17, Tuesday**
8 a.m. classes begin. Follow Tuesday schedule.

**January 27, Friday**
Last day to withdraw, to drop to part-time, or to reduce part-time load and qualify for tuition refund based on 3/4 difference in tuition.

**February 3, Friday**
Last day to add courses or Honors designation. Last day to drop courses or change to Audit without $25 late fee. Last day to choose pass/fail grading option.

**February 10, Friday**
Last day to file Intent-to-Graduate card for May 2006 graduation without late fee.

**February 17, Friday**
Last day to withdraw, to drop to part-time, or to reduce part-time load and qualify for tuition refund (refund based on 1/2 difference in tuition).

**March 10, Friday**
Midsemester. Last day to withdraw from the University without grades of WP or WF.

**March 13-17, Monday–Friday**
Spring recess.

**March 20, Monday**
8 a.m. classes resume.

**April 13, Thursday**
Passover*

**April 14, Friday**
Good Friday*

**April 21, Friday**
Orthodox Good Friday*

**May 1, Monday**
Last day an announced oral or written exam may be given before finals.

**May 8, Monday**
Last day of classes. Last day to file Completion of Minor form for May graduates.

**May 9, Tuesday**
Reading Day.

**May 10, Wednesday**
Reading Day; Thompson School final exams begin.

**May 11, Thursday**
AA/Baccalaureate/Graduate final exams begin.

**May 13, Saturday**
Thompson School Commencement ceremony.

**May 15, Monday**
Thompson School final exams end.

**May 18, Thursday**
AA/Baccalaureate/Graduate final exams end.

**May 19, Friday**
Senior Day.

**May 20, Saturday**
AA/Baccalaureate/Graduate Commencement ceremony.

**Summer Session 2006**

**May 22–August 11**

*These holidays, important to many members of the University community, are not University holidays, but they are listed here to facilitate the planning of University events. Faculty and students should be sensitive to the needs of those who celebrate these and other holidays.
DIRECTIONS TO CAMPUS

By Car
FROM BOSTON, MASS. Follow I-95 North. When approaching the Portsmouth, N.H., area, take the exit bearing left, marked “NH Lakes and White Mountains, Routes 4 & 16.” Continue on that road to Exit 6W (Concord-Durham) and follow Route 4 West. Exit at 155A and turn toward Durham. Follow 155A through a short stretch of farmlands and fields to the UNH campus.

FROM HARTFORD, CONN. Take I-84/1-86 East out of Hartford to the Mass. Pike (I-90) to Auburn Exit 10 then East on I-290 to I-495 North. Drive east on I-495 North, Exit 26. Continue north on I-95, then follow the directions above for driving from Boston.

FROM PORTLAND, ME. Follow either I-95 or Route 1 South to the Portsmouth traffic circle. Take the Spaulding Turnpike north to Exit 6W (Concord-Durham). Then follow the directions above for driving from Boston.

FROM CONCORD, N.H. Follow Route 4 East, and take the UNH/Durham exit at 155A. Follow a short stretch of farmlands and fields to the UNH campus.

FROM MANCHESTER, N.H. Take Route 101 to the junction of Route 125. Follow Route 125 North to the Lee traffic circle. Drive east on Route 4, and then follow the directions above for driving from Concord.

FREQUENTLY CALLED NUMBERS

Directory Assistance and Information
University operators .......... (603) 862-1234 (off campus)
Dial 0 (on campus)
Office of Admissions .................. 862-1360
Financial Aid Office ................. 862-3600
Department of Housing ............... 862-2120
Business Services ..................... 862-2230
Registration and Records .......... 862-1505

Academic Advisers
College of Liberal Arts .................. 862-2064
College of Engineering and Physical Sciences .................. 862-1783
School of Health and Human Services .................. 862-1177
College of Life Sciences and Agriculture .................. 862-1451
Whittemore School of Business and Economics .................. 862-3885
Thompson School of Applied Science .................. 862-1025

Health Services .................. 862-1530
Honors Program .................. 862-3928
Orientation Scheduling .................. 862-3488
E-mail: First.Year@unh.edu
Memorial Union and Information Center .................. 862-2600
Off-Campus Housing .................. 862-3612
Traffic Services/Parking .................. 862-1010
University Police .................. 862-1427
The Access Office: Support Services for Students with Disabilities .................. 862-2607
Office of Multicultural Student Affairs .................. 862-2050
The Whittemore Center .................. 862-1379
Campus Recreation .................. 862-2031
Athletics .................. 862-1850

WEB: www.unh.edu
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APPENDIX

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