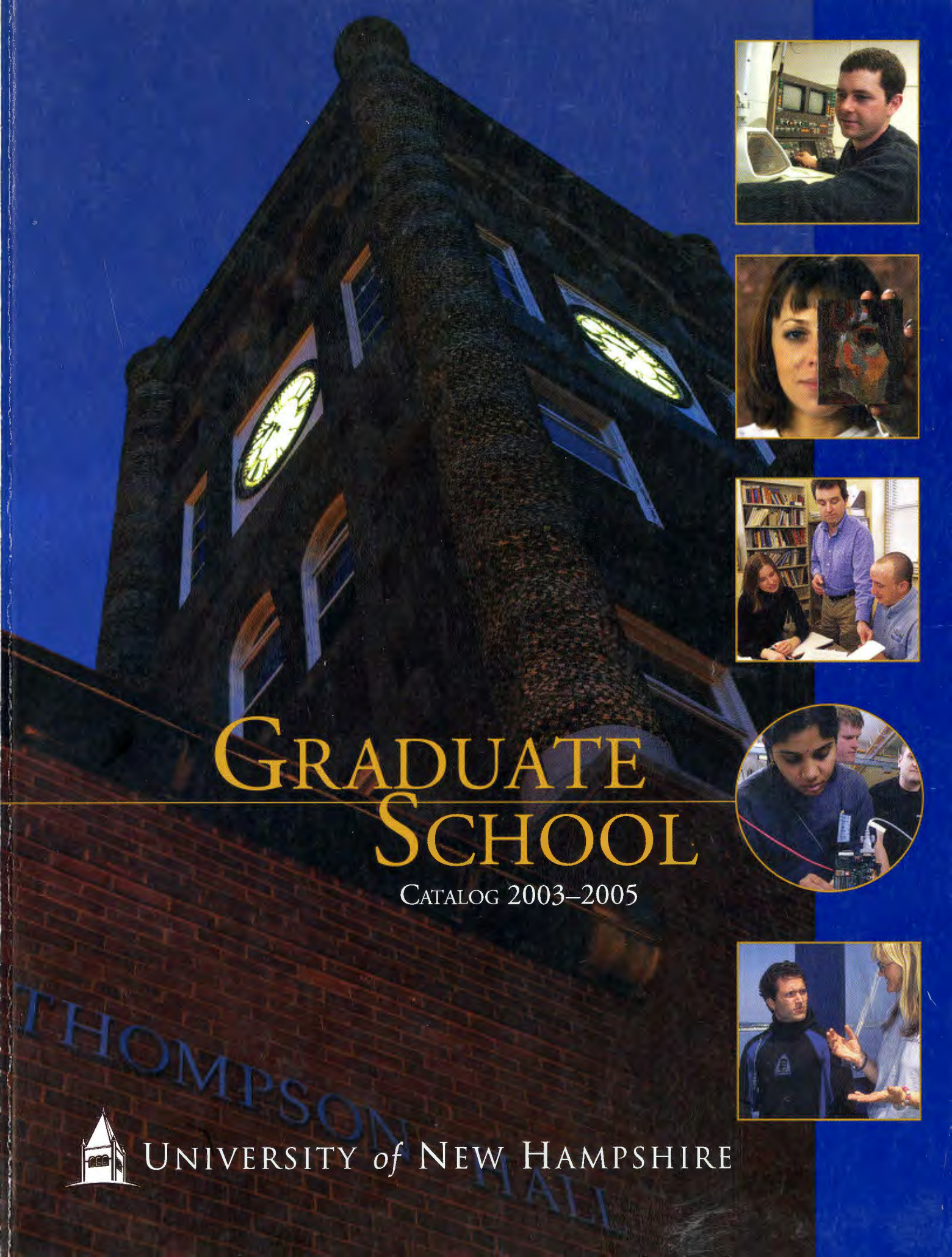


GRADUATE SCHOOL

CATALOG 2003–2005

UNIVERSITY of NEW HAMPSHIRE

THE HIGHEST LEARNING

The University of New Hampshire is a top-tier research university with programs of distinction in the humanities, social and life sciences, physical and geosciences, engineering, and applied professional fields. We take pride in the close, supportive relationships our graduate students enjoy with world-class faculty. We also take pride in the high quality of the research conducted in our labs, centers, and institutes. Whether you want to achieve personal growth and enrichment, prepare for advancement in your chosen career, or earn the valuable credentials needed to launch into a new job or career, graduate study at New Hampshire can help you reach your goal.

Above: Dimond Library. UNH is the only New Hampshire member of the prestigious Boston Library Consortium (BLC), a group of major research centers that share resources. BLC members include the Massachusetts Institute of Technology, Brown University, Boston University, Tufts University, the Boston Public Library, and other institutions.

Cover: Jeff Stubbs, doctoral student, materials science; Nikki McCormick '03G, M.F.A. painting; Jerry Marx, professor of social work; Kiranmai Vedanabhatla, master's degree student, electrical and computer engineering; David Rivers, master's degree student, natural resources.

Graduate School

University of New Hampshire

UNH Fast Facts

- We offer 28 doctoral programs and 83 master's degrees in disciplines ranging from accounting to zoology.
- UNH enrolls 10,900 undergraduates, 2,100 graduate students, and has 600 full-time faculty; graduate programs enroll students from 40 states and 54 countries.
- Our labs, centers, and institutes are research powerhouses, drawing $85 million in research funding in 2002. Over the last four years, research funding at the University has increased by $25.8 million or 43 percent.
- More than 70 UNH faculty members have held a Fulbright fellowship, making UNH one of the top Fulbright campuses in the U.S.
- Our graduate students have been awarded a number of highly competitive fellowships from the EPA, Ford, Fulbright, Merck, NASA, NIH, NOAA and NSF.
- UNH received the 2002 Hesburgh Certificate of Excellence for our Academic Programs in College Teaching.
- UNH ranks #1 in geoscience research citations and #4 in environmental science citations, according to the Institute for Scientific Information.

Local Research, Global Impact

UNH faculty and graduate students are engaged in cutting-edge research and scholarship. Graduate research opportunities are found in our on-campus labs and centers, and in a wide array of educational, corporate, government, and clinical settings. For students like natural resources and environmental science doctoral student Marguerite White, natural field settings represent a living laboratory. Armed with a National Science Foundation fellowship, the former high school chemistry teacher is focusing on the geochemical cycling of methyl bromide, a banned ozone-depleting gas once used worldwide as a pesticide.

"Now that we're phasing out man-made methyl bromide, we want to understand more about how the gas is produced and consumed naturally," says Marguerite, who collected and analyzed various gases from a peat bog in Barrington, N.H. Says Patrick Crill, Marguerite's adviser and researcher at the renowned Institute for the Study of Earth, Oceans, and Space: "Marguerite is doing local-scale research with global implications for our understanding of whether our mitigation strategies work for greenhouse gases."

Editing a Classic

The new 10th edition of *Willard and Spackman's Occupational Therapy* marks the second time Professor Elizabeth Crepeau has co-edited this monumental "bible" of occupational therapy. As a graduate adviser, Crepeau has also helped students publish their research on clinical reasoning in the *American Journal of Occupational Therapy.*

setting the standard

Centers for Scholarship and Research

Office of Sponsored Research
www.unh.edu/osr

Office of Intellectual Property Management
www.unh.edu/osr

Adolescent Resource Center
www.adolescence.unh.edu

Agricultural Experiment Station
www.colsa.unh.edu/aes.htm

Asking the Big Questions

How does the brain work? What can be done to repair damage to parts of the brain affecting learning and memory? For psychology doctoral student Kathy Bailey, "One of the great joys of research is having an opportunity to ask the big questions and design experiments to explore answers." Working with psychology professor Bob Mair, nationally known for his research on the neurobiological basis of memory loss, Kathy studies receptors in the frontal cortex and basal ganglia that may impact spatial memory and learning. Her findings could have implications for future treatments of Parkinson's and Huntington's diseases.

"There is so much important research going on at UNH. If you want to be involved in research that is exciting and fun, there are lots of people who will work with you. This is really the place to be."

—Marguerite White, natural resources and environmental science doctoral student

Bring Your Molecules and Come Here!

The Center for the Advancement of Molecular Interaction Sciences (CAMIS) brings researchers from the academic and industrial communities together with students to explore the molecular interaction sciences—work that has the potential to save the pharmaceutical and medical diagnostics industries millions of dollars.

"Activities we associate with being human are all mediated, to some degree, by specific binding interactions between molecules," explains Thomas Laue, director of CAMIS and professor of biochemistry.

Biomolecular Interaction Technologies Center (BITC)
www.bitc.unh.edu

Browne Center
www.brownecenter.com

The Carsey Institute for Effective Families and Communities
www.carseyinstitute.unh.edu

CATlab
www.catlab.unh.edu/about

Center for Business and Economic Research
orbit.unh.edu/cber/over.htm

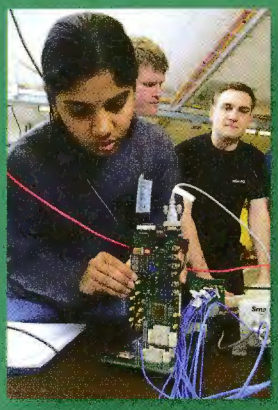
Center for Coastal and Ocean Mapping/ Joint Hydrographic Center
www.ccom-jhc.unh.edu

Discovery: The Sky is the Limit

UNH faculty and student researchers engage issues of major public importance—on land, sea, and in space. GroundWinds is a UNH-led global research effort to use lasers to measure winds from space to better predict the path of dangerous storms. AIRMAP (Atmospheric Investigation, Regional Modeling, Analysis and Prediction) is a collaborative research project that seeks to understand the relationship between climate and air quality in New England in order to better predict weather and pollution trends.

Projects such as these create partnerships between UNH and communities to tackle problems that have environmental, economic, and social consequences. Says Ross Gittell, a business management professor who developed an educational outreach program for AIRMAP: "We want to facilitate communication, learning, and collaboration among scientists, business leaders, and others who might benefit from new uses of air quality information."

collaborations



Making Valuable Connections

During a "plugfest" at the UNH InterOperability Lab (IOL), electrical and computer engineering graduate student Kiranmai Vedanabhatla checks the connections between a Xilinx Virtex II Pro evaluation board and a Spirent Communications device. Connecting and testing is what an IOL plugfest is all about, as vendors come together to test the interoperability and conformance of datacommunications devices within a particular technology.

The UNH students who work at the IOL learn a lot—and make their own valuable connections in the process. Kiranmai's adviser, Professor Michael Carter, notes, "Kiranmai has had the opportunity to work alongside the lead engineers who work for the largest companies in the computer networking field."

How a Dissertation Is Born

How is a doctoral dissertation born? Consider sociology student Nena Stracuzzi. A course on Feminist Perspectives on Health, Medicine, and the Body sparked Nena's interest in whether the antidepressant drug Prozac was marketed more aggressively toward women than men. Her research paper turned into a joint publication project with Linda Blum, associate professor of sociology. "While I was doing that research, I noticed that there were a lot of articles about children on antidepressants," says Nena. "I wondered how parents made those decisions." Her dissertation will explore just that.

setting the standard

Center for Coastal and Ocean Mapping

A pioneer in the field of ocean mapping, Larry Mayer has turned UNH into a world center for training in hydrography—plotting the ocean floor for navigation purposes—and for education in the broader applications of ocean mapping. It is a complex world of three-dimensional detail revealed by multibeam sonar technology.

centers

Center for Freshwater Biology
www.fbg.unh.edu

Center for the Humanities
www.unh.edu/humanities-center

Center for Teaching Excellence
www.unh.edu/teaching-excellence

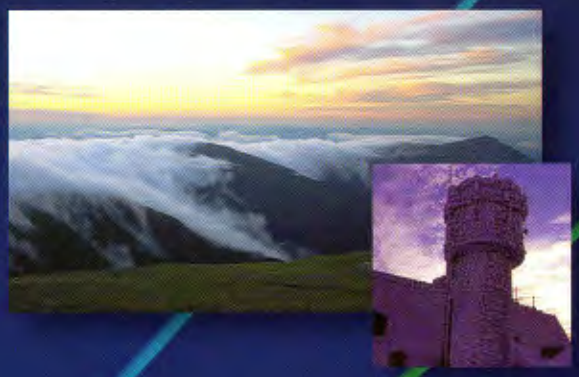
Center for Venture Research
www.unh.edu/cvr

Center to Advance Molecular Interaction Science
www.camis.unh.edu

Child Study and Development Center
www.unh.edu/csdc/geninfo.htm

"I'm doing a climatology study on the correlation between the sea breeze and ozone levels in Portsmouth. Being able to predict the sea breeze could help with energy-use prediction, aviation safety, and human health."

—Sam Miller, earth sciences doctoral student



View from AIRMAP's monitoring site on top of Mt Washington. Inset: Observatory Tower, in which AIRMAP's instrumentation is located (elevation: 6,288 feet).

View from AIRMAP's monitoring site at the Isles of Shoals.

Background photograph: This laser instrument, located at the Mt. Washington Observatory Bartlett Research Facility in central N.H., is part of GroundWinds, a global research project that measures winds from space. A second is at the NOAA Mauna Loa Observatory in Hawaii.

Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) **www.ciceet.unh.edu**

Cooperative Institute of New England Mariculture and Fisheries (CINEMar) **cinemar.unh.edu**

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

Dairy Teaching and Research Center **www.ANSCandNUTR.unh.edu**

Environmental Research Group **www.unh.edu/erg**

- Water Treatment Technology Assistance Center
- Recycled Materials Resource Center
- Bedrock Remediation Center
- Center for Contaminated Sediment Research
- Electrotechnologies Research Program

Be in on the Next Breakthrough

UNH is a land-, sea-, and space-grant university that attracts millions in research funding. UNH labs and centers are research powerhouses that bring together graduate students and faculty to produce breakthroughs in computer interoperability, ocean mapping and hydrographic sciences, cardiac rehabilitation, communication sciences, molecular science, criminal justice, genomics, and many other fields.

Kelley Thomas, co-director of UNH's Hubbard Center for Genome Studies, is the principal investigator for a major initiative funded by the National Science Foundation concerning nematodes, one of the most abundant animal phyla on the planet. The study is part of the foundation's Tree of Life project. "The project aims to develop an evolutionary framework for all organisms," states Kelley, who will lead a global team to develop a database of genetic, morphological, and environmental information to support an understanding of nematodes and how they connect to all other living things.

Adventure Education

The University's outdoor education program has attracted international attention to the Browne Center. Kinesiology professor Michael Gass, who coordinates the center, has presented workshops on adventure and experiential learning on five continents. He has also won numerous awards for his leadership in the field.

setting the standard

centers

Family Research Laboratory
www.unh.edu/frl

Hamel Center for the Management of Technology and Innovation
www.unh.edu/msmot

Hubbard Center for Genome Studies
hcgs.unh.edu

Institute for Policy and Social Science Research **www.unh.edu/ipssr**
- Justiceworks
- UNH Survey Center

A Scholar of Note

Armed with fellowships from UNH, Massachusetts Historical Society, and the McNeil Center for Early American Studies, history doctoral student Peter Leavenworth is studying changes in American popular musical taste between 1770–1820. "My interest is in sacred and theater music, versions of which still exist in shape-note singing and melodrama," says Peter. To guide him in his research and writing, Peter has assembled a dream team of historiographical talent. UNH history professors Jeffrey Bolster, Eliga Gould, and William Harris are not only "historians of the first rank," says Peter, "they're great narrative writers. Today, historians are trying to reach out to nonprofessional readers and give history broader appeal." A professional musician, Peter will document his dissertation by recording a CD of original, relevant music in his home music studio.

Call of the Sea

Scuba diving is a critical skill for marine researchers, and for David Rivers, now a master's degree student in natural resources, diving is almost as compelling as research. "I love to dive," he says. This fall, David, who recently earned a B.S. in marine biology, will continue his research with Professor Fred Short. "Last year, I did an independent study on geese grazing on eel grass. As a result of that study, Professor Short encouraged me to apply for a research assistantship." Short is one of the founders of SeagrassNet, a global monitoring program to investigate and document the status of sea grass resources worldwide.

"All of the work we're doing is at an early stage. Pick a project and it will be new. No one will have done it."

—Darren Bauer, genetics doctoral student

Institute for the Study of Earth, Oceans, and Space (EOS) **www.eos.unh.edu**
- Climate Change Research Center
- Complex Systems Research Center
- Ocean Process Analysis Laboratory
- Space Science Center

Institute on Disability
www.iod.unh.edu

Instrumentation Center
www.unh.edu/instrumentation-center

Joan and James Leitzel Center for Mathematics, Science, and Engineering Education **leitzelcenter.unh.edu**

Community-based Learning

UNH teaching and research are deeply engaged in the life of the community on local, regional, national, and even international scales. This means that, as a student, you have extensive opportunities to engage in meaningful research that is both cutting-edge and relevant to the public good. At UNH, graduate students work with UNH psychologists and family researchers to help communities improve quality of life for the state's families and adolescents; they join cross-disciplinary teams of geoscientists, environmental scientists, and economists to chart ways to study New England's air quality; and they work with local school systems to improve teacher education. Community-based learning instills values and civic awareness that enrich classroom theory and last a lifetime.

Master Storyteller

Alice McDermott '78G, won the 1998 National Book Award for fiction for her fourth novel, *Charming Billy*. A graduate of the creative writing program, her recent books are *At Weddings and Wakes*, and *Child of My Heart*. "I know how much I benefited from this program," says Alice. "When I heard that two graduate students from UNH won the Scribner award for short stories, I wasn't surprised."

setting the standard

"These waters carry not only the freight of our history, but the key to our future quality of life."

—UNH historian Jeffrey Bolster, editor of Cross-Grained and Wily Waters, *a social and maritime history of the Piscataqua River region*

centers

Marine Program **marine.unh.edu**
- The Center for Ocean Engineering
- The Center for Ocean Sciences
- The Center for Marine Biology
- University Diving Program
- R/V Gulf Challenger

Marriage and Family Therapy Center
www.unh.edu/family-studies/mft.html

New Hampshire Industrial Research Center
www.nhirc.unh.edu

New Hampshire Industries Group
www.unh.edu/management/nhind/nhind.htm

New Hampshire Institute for Health Policy and Practice
www.nhhealthpolicyinstitute.unh.edu

Outreach to Adolescence

Recent research has provided insight into adolescent development that has led to changes in policies and programs. Harnessing this research and making it available to professionals, communities, families, and youth in New Hampshire is the mission of the University's new Adolescence Resource Center (ARC). Kristine Baber, ARC's director and an associate professor of family studies, says the center also offers "opportunities for research, programming, and policy development to faculty and graduate students."

For master's degree student Dana Ryder, Baber's course on contemporary issues in adolescent development gave her a new perspective on her job as a family support specialist. "I prefer looking at all aspects of the adolescent including their family, school, and community," says Dana. "I'm interested in creating programs for adolescents at risk."

On the Right Track

What do you do if you find yourself on one career track, when you really want another? If you're Zakiya "Kiki" Proctor you enroll in the Whittemore School's M.S./M.O.T. (master of science in the management of technology) program. Combining coursework in information technology, business, and science and engineering, the M.S./M.O.T prepares students for diverse career tracks. "I'd like to work in pharmaceutical marketing or sales," says Kiki, whose undergraduate major was bioscience. "The program is a great fit."

collaborations

Nanostructured Polymers Research Center **www.unh.edu/apl/nprc.htm**
- Polymer Research Group
- Advanced Polymer Laboratory
- Polymer Nanoparticle Laboratory

New Hampshire Small Business Development Center
www.nhsbdc.org

New Hampshire Water Resource Research Center
www.wrrc.unh.edu

Non-Lethal Technology Innovation Center
www.unh.edu/ntic

collaborations

Professional Programs

The Composed Self

"Drawn to the writing community and teaching philosophy at UNH," Amy Zenger (right) drove from Oregon to New Hampshire to pursue her doctorate in English. Using a nineteenth-century archive of student composition papers—all handwritten and stored at Harvard University—Amy is analyzing how the composition curriculum "intersected with ideas of race and American identity." Her adviser, English professor Tom Newkirk, has authored numerous books, including *The Performance of Self in Student Writing*, which won the David Russell Award from the National Council of Teachers of English.

Gearing Up for Grad School

The McNair Summer Program offers underrepresented college students the opportunity to prepare for graduate school. McNair Fellows undertake graduate-level research in disciplines as varied as computer science, applied math, psychology, communications, and education. "They are an ambitious group," notes Carol Mathews, a doctoral student in education and seminar leader. "We created a relaxed environment that relies on respect and honesty in critiquing each other's work."

setting the standard

The N.H. Small Business Development Center published "Manufacturing: Our Secret Strength—Building on our Advantage," by Whittemore School management professor Ross Gittell. The report discusses ways to strengthen the state's manufacturing in light of economic downturn.

centers

Office of Sustainability Programs
www.sustainableunh.unh.edu

Research Computing Center
www.sr.unh.edu/about/index.html
- InterOperability Lab

Robotics Laboratory
www.ece.unh.edu/robots/rbt_home.htm

Sea Grant Program at the University of New Hampshire
marine.unh.edu/seagrant.htm

"What makes the Center for Graduate and Professional Studies at UNH Manchester work for me? The combination of passionate students and faculty, highly relevant coursework, and hands-on experience."

—Lynda Caine (far left) with classmates and health management and policy professor James Lewis

A graduate degree from the University of New Hampshire is a valuable credential—wherever you happen to be in your career. The Center for Graduate and Professional Studies at the University of New Hampshire at Manchester offers a range of master's degree programs geared for professionals in business, education, public health, social work, and other fields.

As the director of infection control at Manchester's Elliot Hospital, Lynda Caine enrolled in the master's in public health (M.P.H.) program at UNH Manchester "to be better prepared." Two years of part-time study later, she can look with pride to a class paper she wrote outlining plans for a small pox vaccination clinic. The paper has been adopted as the operating manual for the state's department of Health and Human Services. She also sits on the New Hampshire governor's council for dealing with bio-terrorism and SARS.

Shoals Marine Laboratory
www.sml.unh.edu

Speech-Language-Hearing Center
www.unh.edu/communication-disorders/audiology.html

William Rosenberg International Center of Franchising
franchising.unh.edu/mission.htm

Preparing Future Faculty

"It's wonderful to be in this program. Training in my discipline is not the same as training in education. I want to make sure I'm reaching students with a range of learning styles."

—Becky Dunn, doctoral student in animal and nutritional sciences, (cognate in college teaching)

The University of New Hampshire has a strong commitment to preparing future faculty who can teach as well as master a subject. Our Preparing Future Faculty (PFF) program is a national model that can give you the edge you need to turn your hard work into career success. A collaboration between the Center for Teaching Excellence and the Graduate School, PFF includes classes, workshops and seminars that help you learn about teaching strategies, performance evaluation, and how to succeed in academic cultures. Unique cognate, certificate, and master's degree programs are offered.

Grant Writing Prowess Pays

It's one thing to acquire expert knowledge and skill for social work. It's another to be able to write grants that succeed in getting your ideas funded. Graduate students enrolled in social work professor Jerry Marx's course on program and resource development learn how to write grants that stand out from the rest. Nicole LaPointe '01 has a master of social work degree from UNH. Recently, she secured two $600,000 federal grants for programming focused on substance abuse prevention and rural health. Says Nicole, now a community organizer for The Caring Community Network of the Twin Rivers: "I could not have come into the workforce and done this so successfully without Professor Marx's course."

Live, Learn, and Teach

"Uh-oh, trouble in glued-canoe Paradise," says Katie Koster to a student in her summer class. Katie and her co-teachers in Live, Learn, and Teach have developed a curriculum on the Abenaki Indians of New England. "That's what I've really liked about this graduate teaching program," says Katie. "We got to pick the theme and develop the curriculum in our own classroom. The program's staff has been really exuberant and supportive. They stress using community resources. So, for example, we've collected and identified plants from all around the school." UNH offers education master's degrees in dozens of disciplines.

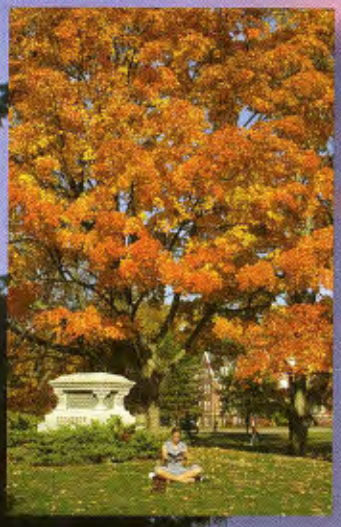
Classroom to Career

Martina Arndt '00G is now assistant professor of physics at Bridgewater State College—thanks in part to internship opportunities made available through the Preparing Future Faculty (PFF) program at UNH. "I wanted a small, public college," says Martina. "The PFF Program prepared me to hit the ground running and contribute immediately to my new department."

As a graduate student at the University of New Hampshire, you join a community of exceptional and highly talented people from around the United States, and the world. There is no "typical" UNH student; however, those admitted to a graduate program at UNH share academic distinction and a commitment to rigorous scholarly effort. Our graduate students hold bachelor's and master's degrees from a wide range of colleges and universities.

Murkland Hall

Hamilton Smith Hall



A fall day on campus

The Center for Graduate and Professional Studies at UNH Manchester

Applying to the University of New Hampshire

Explore UNH

You can begin your exploration of graduate study at UNH by visiting our Web site at www.gradschool.unh.edu. The site contains information on specific degree programs, requirements, faculty research interests, campus resources, as well as departmental contact information for each program. To arrange for a campus visit or to meet with a faculty member or current graduate student, contact the department offering the degree program in which you are interested.

Admissions and Financial Support

All application materials, including criteria, application packet, and forms, are available from the Graduate School or may be found on the School's Web site. Several types of financial support are available to graduate students through the Graduate School and individual departments, most of which are awarded for an academic year commencing in the fall.

Contact Us

Visit us, talk to our faculty and graduate students, and select the program that will help you achieve your goals.

The Graduate School
University of New Hampshire
Thompson Hall, Room 109
105 Main Street
Durham, NH 03824
(603) 862-3000
www.gradschool.unh.edu

www.gradschool.unh.edu

Thompson Hall at sunset

Programs

Master of Arts
- Counseling
- Economics
- English
  - Language and Linguistics
  - Literature
  - Writing
- Environmental Education
- History
  - Museum Studies
- Music
  - Music Education
  - Music History
- Political Science
- Psychology
- Sociology
- Spanish

Master of Science
- Accounting
- Animal Sciences
- Biochemistry
- Chemical Engineering
- Chemistry
- Civil Engineering
- Communication Sciences and Disorders
- Computer Science
- Earth Sciences
  - Geochemical Systems
  - Geology
  - Ocean Mapping
  - Oceanography
- Electrical Engineering
- Family Studies
  - Marriage and Family Therapy
- Genetics
- Hydrology
- Kinesiology
- Management of Technology
- Materials Science
- Mathematics
  - Applied Mathematics
  - Statistics
- Mechanical Engineering
- Microbiology
- Natural Resources
  - Environmental Conservation
  - Forestry
  - Soil Sciences
  - Water Resources
  - Wildlife
- Nursing
- Nutritional Sciences
- Occupational Therapy
- Ocean Engineering
  - Ocean Mapping
- Physics
- Plant Biology
- Recreation Management and Policy
  - Recreation Administration
  - Therapeutic Recreation Administration
- Resource Administration and Management
- Resource Economics
- Zoology

Master of Arts in Teaching
- Elementary Education
- Secondary Education

Master of Education
- Administration and Supervision
- Counseling
- Early Childhood Education
  - Special Needs
- Elementary Education
- Reading
- Secondary Education
- Special Education
- Teacher Leadership

Master of Science for Teachers
- Chemistry
- College Teaching
- English
- Mathematics

Master of Business Administration

Master of Adult and Occupational Education

Master of Arts in Liberal Studies

Master of Fine Arts
- Painting

Master of Public Administration

Master of Social Work

Certificate of Advanced Graduate Study
- Educational Administration and Supervision

Doctor of Philosophy
- Animal and Nutritional Sciences
- Biochemistry
- Chemistry
- Computer Science
- Earth and Environmental Sciences
  - Geology
  - Oceanography
- Economics
- Education
- Engineering
  - Chemical Engineering
  - Civil Engineering
  - Electrical Engineering
  - Materials Science
  - Mechanical Engineering
  - Ocean Engineering
  - Systems Design
- English
- Genetics
- History
- Literacy and Schooling
- Mathematics
- Mathematics Education
- Microbiology
- Natural Resources and Environmental Studies
- Physics
- Plant Biology
- Psychology
- Sociology
- Zoology

Center for Graduate and Professional Studies at the University of New Hampshire at Manchester

Master of Arts
- Counseling

Master of Arts in Teaching
- Elementary Education
- Secondary Education

Master of Education
- Administration and Supervision
- Counseling
- Elementary Education
- Secondary Education

Master of Business Administration
- Health Management

Master of Public Administration

Master of Public Health
- Ecology
- Nursing
- Policy and Management

Master of Social Work

Certificate of Advanced Graduate Study
- Educational Administration and Supervision

About Seacoast New Hampshire

The University of New Hampshire occupies 2,600 acres of woods, water, and classic campus greens in the town of Durham. With the White Mountains a short drive to the north and the seacoast but a few minutes away, the area is rich in recreational opportunities.

UNH students enjoy access to the cultural and educational resources of Boston. The "Hub of the Universe" is an hour away by car, bus, or train. The University's membership in the prestigious Boston Library Consortium gives students "membership" in one of the world's great, extended research communities.

Downtown Durham

Nearby Portsmouth offers strong, year-round arts and theatre scenes and also serves as the historical, cultural, and commercial center of what many students discover is a very special place to live and learn.

The University of New Hampshire is a public institution with a long-standing commitment to equal opportunity for all. It does not discriminate on the basis of race, color, religion, sex, national origin, age, sexual orientation, veteran's status, disability, or marital status in admission or access to, or treatment or employment in, its programs or activities.

Welcome

University of New Hampshire

The following pages describe the graduate programs offered at the University. Program descriptions include faculty, degrees offered, special admission requirements, degree requirements, and courses offered.

Explanation of Arrangement

Courses that have been offered during the past three years are listed in this catalog. These are listed by number, title, and credits only.

For up-to-date information about when a course is offered; who teaches the course; the number of recitations, lectures, labs, and such, students are referred to each semester's on-line *Time and Room Schedule*, which carries a complete schedule of courses for the semester at: unhinfo.unh.edu/registrar/timeroom/timeandroom.html.

Permission of instructor may be required for enrollment in a particular course. Courses are offered subject to adequate student demand. Consult departments for detailed descriptions of current course offerings.

Accounting (ACFI)

www.unh.edu/wsbe/grad

Professors: Ahmad Etebari, John Freear, Fred R. Kaen

Associate Professor: Catherine A. Craycraft

Assistant Professors: John R. Becker Blease, Stephen J. Ciccone, Afshad J. Irani, Toni Q. Smith, Stefanie Tate

Degree Offered: M.S.

The Whittemore School of Business and Economics offers a master of science in accounting degree program. This program has been created in response to a call for a basic change in accounting education issued by the American Institute of Certified Public Accountants (AICPA), the national association of professional accountants, that the CPA designation will need a minimum of 150 hours of education.

In addition to AICPA's call, the American Association of Governmental Accountants and the Institute of Management Accountants have also established 150 hours of collegiate study as a desirable prerequisite for entry into their disciplines. To date, 48 state and territory legislatures have formally addressed the issue of postbaccalaureate accounting education as a prerequisite for the CPA exam and as a requirement for certification and licensing.

The master of science in accounting degree program is designed to address the concerns of the accounting profession within the parameters of the Whittemore School's educational philosophy. This program emphasizes analytical communication skills, while enhancing the basic core of technical accounting knowledge. It mandates 30 hours of postgraduate study. Students awarded a master of science of accounting degree will be competitively equipped to enter the job market in the accounting profession.

Admission Requirements

The primary admission period for the program is the fall. Admission requirements include a personal history that demonstrates high academic achievement, as well as the applicant's potential and desire for graduate study in accounting. Applicants are required to submit copies of prior academic records, current GMAT scores, three references, and a complete Graduate School application. A baccalaureate degree program must be completed prior to beginning the M.S. program. Since the Whittemore School is accredited by the American Assembly of Collegiate Schools of Business, candidates meet the requirements set down by this organization.

The deadline for regular admission is July 1st and for early decision, April 1st. Admission to the program is highly selective and limited, so it is in the applicant's best interest to apply early.

M.S. Degree Requirements

Upon admission to the program, applicants are required to complete 10 courses detailed in the following program outline. All admitted candidates are expected to have completed a series of prerequisite courses. If an applicant has not completed all the prerequisite courses, the admissions committee may offer provisional admission and require that the applicant take the prerequisite courses prior to moving into full degree candidacy.

FALL SEMESTER

Accounting Theory and Research
Topics in Advanced Accounting
Governmental and Nonprofit Accounting
Elective*

Elective*

SPRING SEMESTER

Tax Planning for Business
Ethics and Professional Practices
Advanced Auditing

Master's Project

Elective*

**Candidates will be advised to select appropriate graduate level electives offered by the Whittemore School.*

Courses

ACFI	844	Topics in Advanced Accounting	3 cr.
ACFI	850	Accounting Theory and Research	3 cr.
ACFI	890	Accounting Information Systems	3 cr.
ACFI	895	Governmental and Non-Profit Accounting	3 cr.
ACFI	897	Ethics and Professional Practices	3 cr.
ACFI	898	Master's Project	3 cr.

Animal and Nutritional Sciences (ANSC)

www.anscandnutr.unh.edu

Professors: William E. Berndtson, Gale B. Carey, William A. Condon, Thomas P. Fairchild, Thomas L. Foxall, Charles G. Schwab, Samuel C. Smith, Anthony R. Tagliaferro, Robert L. Taylor, Jr.

Affiliate Professors: Ronald E. Rompalla, Martin Stokes

Associate Professors: Patricia D. Bedker, Dennis J. Bobilya, Elizabeth P. Boulton, Joanne Curran-Celentano, Colette H. Janson-Sand, David H. Townson, Paul C. Tsang

Affiliate Associate Professors: Arthur F. Stucchi, Mark R. Windt, M.D.

Assistant Professors: Peter S. Erickson, Deena Small

Affiliate Assistant Professors: Paul F. Cotter, Glenn T. Shwaery

Clinical Assistant Professor: Ruth A. Reilly

Degrees Offered: M.S., Ph.D.

The Department of Animal and Nutritional Sciences offers graduate programs that may lead to the M.S. degree in animal sciences, M.S. degree in nutritional sciences, or the Ph.D. degree in animal and nutritional sciences. Areas of research specialization include human nutrition, mammalian physiology and pathology, nutritional biochemistry and metabolism, immunology and genetics, cellular biology and metabolism, reproduction and endocrinology, and dairy nutrition. Research activities utilize human, animal, and cell culture systems to investigate nutrient metabolism and a molecular-level understanding of life processes and diseases.

Admission Requirements

Students applying for the M.S. or Ph.D. program will be expected to present recent (within five years) general Graduate Record

Examination (GRE) scores and possess a background in basic biological sciences appropriate for advanced study in the proposed area of specialization. Although not required for candidacy in the Ph.D. program, an M.S. degree is suggested for most students. The student's committee may require certain undergraduate courses as part of the graduate program if additional competencies would be beneficial to the student.

Degree Requirements

M.S. in Animal Sciences

The M.S. degree in animal sciences trains students to gain advanced knowledge and develop research expertise in such areas as biotechnology, cell biology, nutrition, physiology, reproduction, and management of animals. It prepares students for future careers in technical consulting, education, and research in academic, industrial, and government institutions. The program of study must include a minimum of 30 graduate credits and completion of a Master's Thesis. The thesis is expected to be based on original hypothesis-driven research of publishable quality. Six credits of thesis research (ANSC 899) are required. No more than 4 credits of investigations (ANSC 995) can apply. Each candidate must present at least two seminars (exclusive of the thesis defense) and must serve as a teaching assistant for at least one semester. A thesis committee will consist of at least three members of the Graduate Faculty; one of these will be the primary mentor. Students will design a program of study in close consultation with their thesis committee, including their academic courses and scientific research project. Candidates will be required to pass an oral examination based on graduate courses and completed thesis.

M.S. in Nutritional Sciences (Thesis Option)

This option expects students to become actively engaged in a research project related to the nutritional sciences while they also gain a comprehensive understanding of nutritional science through coursework. It emphasizes active participation in original hypothesis-driven research of publishable quality. This option is for students who anticipate a professional career involving research or discovery, with a strong background in the basic biology and chemistry of nutrition. This path may be most appropriate for students who expect to pursue further advanced study, i.e., additional graduate studies or professional school, after graduation.

The program of study must include a minimum of 30 graduate credits and completion of a Master's Thesis based on a research project. Six credits of thesis research (NUTR 899) are required. No more than 4 credits of investigations (NUTR 995) can apply. Each candidate must present at least two seminars (exclusive of the thesis defense) and must serve as a teaching assistant for at least one semester. A thesis committee will be appointed early in the program and consist of at least three members of the Graduate Faculty; one of these will be the primary mentor. Students will design a program of study in close consultation with their thesis committee, including their academic courses and scientific research project. Candidates will be required to pass an oral examination based on graduate courses and completed thesis.

M.S. in Nutritional Sciences (Nonthesis Option)

This option emphasizes coursework in the nutritional sciences while providing students with exposure to theoretical aspects of research and participation in a research project. The research experience is less significant than for the thesis option and usually involves a practical application of nutritional sciences to individuals or a community. This option may be most appropriate for students who anticipate a professional career that emphasizes applied aspects of nutrition, rather than basic biological aspects of nutritional sciences. This path is also preferred by working professionals who are seeking advanced training in nutrition leading to an accredited degree, but who don't have the opportunity to devote a significant amount of time to a comprehensive research project that would be required to produce a thesis.

Students in this program will complete a minimum of 34 credits and a Master's Project. No more than 6 credits of Dietetic Internship may apply. The student's guidance committee will be appointed early in the program and consist of three members of the Graduate Faculty; one of these will be the primary mentor. Students will design a program of study in close consultation with their guidance committee based upon course availability and the individual needs and interests of the student. All master's students are required to present two formal seminars or one seminar per year of enrollment, whichever is fewer (exclusive of the Master's Project summary).

Students pursuing the nonthesis option of the master of science degree program will develop a Master's Project (NUTR 898, 4 credits). This culminating experience involves investigation of a nutritional science issue of interest to the student. The student will identify an appropriate topic with the guidance of her/his guidance committee. The student will prepare a Master's Project proposal, which must be reviewed and approved by their guidance committee. At the conclusion of the Master's Project, the student will submit a written project summary to their guidance committee for final approval. The findings will also be formally presented to faculty and fellow students in a seminar.

Ph.D. in Animal and Nutritional Sciences

The Ph.D. in animal and nutritional sciences trains students to gain advanced knowledge and develop research expertise in such areas as the cellular and molecular biology of various nutrients, nutritional physiology and biochemistry, vascular biology and cardiovascular disease, immunology and genetics, obesity and diabetes, dairy nutrition, human nutrition, reproductive physiology and endocrinology, biotechnology, and biomedicine. It prepares students for future careers in technical consulting, education, and research in academic, industrial, and government institutions. Students with appropriate academic training at the baccalaureate or master's level will design a program of study in conjunction with a faculty guidance committee. Upon completion of all relevant graduate courses, the student will be required to pass a qualifying examination conducted by the guidance committee, which will contain oral and/or written components at the discretion of the committee members. After the student's advancement to candidacy for the Ph.D. degree, a doctoral committee will be appointed to supervise and approve the dissertation. The guidance and doctoral committees will consist of a minimum of five members, usually three from within the Department of Animal and Nutritional Sciences and two from related departments. The dissertation must be based on original hypothesis-driven research of publishable quality. A public presentation of the dissertation research findings will be followed by a final examination, which will be primarily an oral defense of the dissertation. During the tenure of the Ph.D. program, the candidate will be required to serve as a teaching assistant for a minimum of two semesters or to teach a course for one semester. Aptitude in scientific speaking will be developed by presentation of one seminar during each year of enrollment, not including the dissertation defense.

Courses

ANSC 801	Physiology of Reproduction	4 cr.
ANSC 802	Endocrinology	4 cr.
ANSC 804	Principles of Pathobiology	4 cr.
ANSC 806	Human Genetics	3 cr.
ANSC 808	Ruminology	
ANSC 810	Dairy Nutrition	2 cr.
ANSC 814	Research Methods in Endocrinology	5 cr.
ANSC 815	Physiology of Lactation	4 cr.
ANSC 818	Mammalian Physiology	4 cr.
ANSC 824	Reproductive Management and Artificial Insemination	4 cr.
ANSC 827	Advanced Dairy Management I	4 cr.
ANSC 828	Advanced Dairy Management II	4 cr.
ANSC 850	Nutritional Biochemistry	4 cr.
ANSC 851	Cell Culture	5 cr.
ANSC 899	Master's Thesis	6 cr.
ANSC 900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1 cr.
ANSC 901	Introduction to Research	2 cr.
ANSC 904	Amino Acid Metabolism	2 cr.
ANSC 905A	Intermediary Metabolism and Exercise	2 cr.
ANSC 905B	Intermediary Metabolism and Exercise	2 cr.
ANSC 906	Methods in Protein Nutrition and Metabolism	2 cr.
ANSC 909	Contemporary Trends in Reproductive Physiology	4 cr.
ANSC 913	Contemporary Topics in Immunobiology	2 cr.
ANSC 995	Nonthesis Investigations in Animal Science	1 to 4 cr.
ANSC 997	Animal and Nutritional Sciences Seminar	1 cr.
ANSC 999	Doctoral Research	
NUTR 820	Community Nutrition	4 cr.
NUTR 840	Nutrition for Children with Special Needs	2 cr.
NUTR 850	Nutritional Biochemistry	4 cr.
NUTR 860	Geriatric Nutrition	2 cr.
NUTR 873	Clinical Nutrition	4 cr.
NUTR 875	Practical Applications in Medical Nutrition Therapy	3 cr.
NUTR 880	Critical Issues in Nutrition	4 cr.
NUTR 898	Master's Project	4 cr.
NUTR 899	Master's Thesis	6 cr.
NUTR 900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1 cr.
NUTR 910	Mineral Nutrition	2 cr.
NUTR 911	Lipids	4 cr.
NUTR 912	Vitamin Nutrition	2 cr.
NUTR 930	Dietetics Practicum I: Foodservice Systems Management and Community Nutrition	4 cr.
NUTR 931	Dietetics Practicum II: Medical Nutrition Therapy	2 cr.
NUTR 955	Disorders in Energy Balance	4 cr.
NUTR 995	Nonthesis Investigations	1 to 4 cr.
NUTR 996	Contemporary Topics in Biomedical Science and Nutrition	2 cr.

Biochemistry and Molecular Biology (BCHM)

biochemistry.unh.edu

Professors: Rick H. Cote, Clyde L. Denis, Thomas M. Laue, Samuel C. Smith, Stacia A. Sower, William R. Trumble

Research Professor: Vernon N. Reinhold

Associate Professors: John J. Collins, Anita S. Klein, Andrew P. Laudano, G. Eric Schaller, W. Kelley Thomas

Assistant Professors: Lisa B. Clark, Charles E. Warren

Degrees Offered: M.S., Ph.D.

The Department of Biochemistry and Molecular Biology offers the master of science and the doctor of philosophy degrees in biochemistry. The department offers research opportunities in genomics, proteomics, developmental genetics, eukaryotic gene regulation, molecular evolution, molecular genetics, plant biochemistry, physical biochemistry, oncogene function, signal transduction, structure and function of macromolecules, structural glycobiology, transposable elements, molecular endocrinology, biochemical endocrinolgy and neuroendocrinology, and molecular population genetics. Opportunities also exist for interdisciplinary research in marine biochemistry, biochemical nutrition, and cell biology in adjunct facilities on campus.

Admission Requirements

An applicant is expected to have completed basic courses in chemistry, biological sciences, mathematics, and physics. Otherwise well-qualified applicants will be permitted to correct deficiencies in undergraduate education by enrollment in the appropriate courses or by independent study during the first year. All applicants must submit general test scores from the Graduate Record Examination. Applicants from non-English-speaking countries must also provide TOEFL (Test of English as a Foreign Language) scores. In addition, the biochemistry department requires scores from either the Test of Spoken English (TSE) or the Speaking Proficiency English Assessment Kit (SPEAK).

M.S. Degree Requirements

A student will meet the Graduate School's requirements for the master's degree (minimum 30 credits) and will be expected to develop a thesis on a basic research problem or to prepare a report or publication based on original research in biochemistry or molecular biology. Demonstration of proficiency in organic chemistry, physical chemistry, and biochemistry will be assessed in the first year. All candidates for the M.S. degree will be required to pass an oral examination based on the thesis or project report and on the graduate courses completed in the degree program.

B.S./M.S. DEGREE REQUIREMENTS

This accelerated five-year program leading to a combined bachelor and master's degree in biochemistry is designed for highly motivated and qualified undergraduate UNH students seeking additional training to further their career goals as researchers in the life sciences. Admission to the combined degree program is highly competitive. Students wishing to pursue this program must have a grade point average greater than 3.2 at the time of application. A thesis adviser must be identified during the junior year, and the approval of the adviser must be obtained. Prior to the first semester of the senior year, the student must formally apply to the department through the Graduate School and receive early admission. The requirement for the Graduate Record Examinations is waived for combined degree applicants. Thirty credits of graduate level (800–999) coursework (including dual credit courses) must be completed. Six to 8 credits of graduate-level courses 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 must be followed.

Ph.D. Degree Requirements

Doctoral students will be required to complete a dissertation on original research in biochemistry or molecular biology. Demonstration of proficiency in organic chemistry, physical chemistry, and biochemistry will be assessed in the first year. In the second year, students will be required to write and defend a research proposal in an area unrelated to their thesis project. Upon completion of graduate courses recommended by a guidance committee, a doctoral student will be required to pass an oral qualifying examination conducted by the guidance committee. The successful completion of these requirements and advancement to candidacy for the Ph.D. degree must occur at least six months prior to the final oral defense of the Ph.D. dissertation administered by the student's doctoral committee.

Teaching Requirement

Teaching assignments in the laboratory, in lectures, or in an individual instruction format are an essential part of the gradu-

ate academic programs of the department and are designed to give graduate students practical teaching experience. Normally, one year of part-time teaching will be required of each student.

Courses

BCHM 802	Endocrinology	4 cr.
BCHM 811	Genomics and Bioinformatics	4 cr.
BCHM 850	Physical Biochemistry	3 cr.
BCHM 851	Principles of Biochemistry	4 cr.
BCHM 852	Principles of Biochemistry	4 cr.
BCHM 854	Laboratory in Biochemistry and Molecular Biology of Nucleic Acids	5 cr.
BCHM 855	Laboratory in Biochemistry and Molecular Biology	5 cr.
BCHM 861	Cell Signaling Transduction in Health and Disease	3 cr.
BCHM 866	Environmental Genomics	4 cr.
BCHM 871	Molecular Genetics	4 cr.
BCHM 882	Developmental Genetics	3 cr.
BCHM 894	Protein Structure and Function	4 cr.
BCHM 895	Investigations	1 to 4 cr.
BCHM 899	Master's Thesis	6 to 10 cr.
BCHM 902	Endocrine Disruptors/ Neuroendocrinology	3 cr.
BCHM 942	Biochemical Regulatory Mechanisms	3 cr.
BCHM 950	Macromolecular Interactions	3 cr.
BCHM 960	Advanced Topics in Signal Transduction	3 cr.
BCHM 991	Advanced Topics in Molecular Genetics	3 cr.
BCHM 992	Advanced Topics in Molecular Biology	3 cr.
BCHM 993	Advanced Topics in Enzyme Regulatory Mechanisms	3 cr.
BCHM 997	Seminar	1 cr.
BCHM 998	Seminar	1 cr.
BCHM 999	Doctoral Research	

Business Administration (ADMN)

www.unh.edu/wsbe/grad

Professors: Steven F. Bolander, Ahmad Etebari, John Freear, Raymond J. Goodman, Jr., Charles W. Gross, Jonathan Gutman, Francine S. Hall, Fred R. Kaen, Allen M. Kaufman, Michael J. Merenda, Barry Shore, Jeffrey E. Sohl, A. R. Venkatachalam

Associate Professors: Carole K. Barnett, Catherine A. Craycraft, Joseph F. Durocher, Jr., Ross J. Gittell, Roger B. Grinde, William Naumes, R. Daniel Reid, Christine M. Shea, Allen R. Thompson, Rita Weathersby, Craig H. Wood

Assistant Professors: John R. Becker Blease, Ludwig A. Bstieler, Stephen J. Ciccone, Pamila Dembla, Afshad J. Irani, Stefan G. Nicovich, Anthony T. Pescosolido, Toni Q. Smith, Eleanne M. Solorzano, Theophanis Stratopoulos, Stefanie Tate

Degree Offered: M.B.A.

The Whittemore School of Business and Economics offers a program leading to the M.B.A. in formats designed for full-time students, part-time evening students, and practicing managers in a weekend executive program. Each program includes a sequence of required courses, management development residencies and specializations. While each program is offered in a different format the basis of each program is to provide students with an introduction to business practices through theoretical and applied opportunities. All three models are professional and nationally accredited by the Association to Advance Collegiate Schools of Business (AACSB), making these programs the only AACSB-accredited executive and part-time models in New Hampshire.

Admission Requirements

The Whittemore School welcomes applicants with an above average record in any undergraduate specialty. The crucial requirement for admission into the M.B.A. program is a history that demonstrates that the applicant has the potential and desire for graduate study in business. The focus of the student's earlier education is of less importance than evidence of academic ability and potential for becoming a responsible manager and leader. Consequently a portfolio approach to admissions is adopted, in which an applicant's work and military experience along with other indications of maturity, motivation, and self-discipline are considered as well as the applicant's test scores, academic record and demonstration of a competency in quantitative reasoning. All applicants are required to take the Graduate Management Admission Test (GMAT www.gmac.com). Applicants are expected to show competency in quantitative reasoning.

Full-time M.B.A. Degree Requirements

The Whittemore School curriculum for the 19-month full-time program begins each September with a month long residency. This intensive residency provides students with an introduction to the University and the M.B.A. program in addition to providing core competencies and strategies needed to be successful in the program. The remainder of the first year is spent taking the nine required courses over three terms. The second year, again begins with a month-long residency focusing on such topics as information systems, ethics, and preparation for the second-year projects. In the second year, students are actively involved in off-site projects or faculty research. Students can elect to take electives in a variety of disciplines or pursue a specialization. In addition to the courses, students are required to participate in a two-term monthly corporate seminar series each year. Specializations are available in marketing and supply chain management, entrepreneurial venture creation, accounting, management of technology, financial management, or general management.

Part-time M.B.A. Degree Requirements

Part-time students typically begin in September although January admission is also possible. By taking the recommended two courses per term a student can complete the degree in three years. The degree is offered on both the Durham and Manchester campuses. The degree comprises 10 required courses, six electives and three residencies. Each year begins with a residency period that spans several evenings and on Saturday during the month of September. The residency courses cover such topics as: statistics, case analysis, team dynamics, ethics, leadership, project management, and information systems. Specializations are available in marketing and supply chain managements, entrepreneurial venture creation, financial management, or general management. An option in health administration (Manchester campus only) is also available.

HEALTH ADMINISTRATION

The option builds upon the core courses with electives focused specifically on the unique characteristics of the health care industry. Students take such courses as Epidemiology, Health Care Planning, Health Reimbursement, and Health Law and Ethics. All health-related courses are taught either by faculty from the Department of Health Management and Policy, or working health care managers. The specialization requires a supervised internship for all students. Students already working in the health care industry usually may satisfy that requirement in their current setting; for others, the internship may provide an opportunity to explore in a different organizational setting.

Specializations

MARKETING AND SUPPLY CHAIN MANAGEMENT

This specialization covers such topics as market research and analysis, new product and services development to production and final delivery. A cross-functional approach is utilized to teach students how to manage fundamental value processes involved in the production and marketing of goods and services. The specialization

is unique in its integrative emphasis on meeting customer and market needs in an optimally effective and efficient manner given technological and operational constraints.

ENTREPRENEURIAL VENTURE CREATION

This specialization is designed to promote an environment that produces an entrepreneurial culture and promotes learning through experiential, real-world, real-time learning. It provides a basis to learn about the high-growth entrepreneurial venture process of value creation through an application of technology in a dynamic environment. Appropriate for students who intend to start a high-growth business, work for a new venture, become involved in a new venture creation within an established organization or are interested in the field of venture capital.

FINANCIAL MANAGEMENT

Designed for the student that wants to take a coherent set of finance courses offered within the general framework of the M.B.A. The study of finance provides students with opportunities in a wide variety of disciplines including banking, insurance, corporate finance, investment management, and risk management. The field of finance has become popular over the last few years due in part to the increased publicity and growth of the stock and derivative markets.

ACCOUNTING (FULL-TIME PROGRAM)

The accounting specialization builds upon the foundation of Financial and Managerial Accounting. It is designed to introduce students to, and develop an understanding of, three major aspects of accounting critical to management: taxation, ethics, and financial statement analysis. With this specialization, students will have the skills necessary to address a variety of sophisticated business transaction.

MANAGEMENT OF TECHNOLOGY (FULL-TIME PROGRAM)

This specialization 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. It covers all aspects of marketing and supply chain management, from market research to new product and services concept development to organizing for production and delivery. Strives to use a cross-functional approach to teach students how to manage the fundamental value processes involved in producing and marketing goods and services. This specialization is unique in its integrative process on meeting customer and market needs in an optimally effective and efficient manner given technological and operational constraints.

Executive M.B.A. Degree Requirements

The curriculum for practicing managers comprises 17 courses, which include 12 core courses as well as a required Integrative Management Seminar taken each term. The curriculum is tailored and scheduled to meet the needs of individuals working full time at managerial-level jobs. The program emphasizes general management and provides for broad-based exposure to the functional areas of finance and accounting, human resources management, marketing, operations and strategic management. In the second year, all students take a year-long track in International Business and choose between a second track in either Entrepreneurship or Managing Innovation. The program is offered in Durham at the New England Conference Center. The 19-month program begins in early September with a week in residence. Thereafter, classes are held twice each month in all-day Friday and Saturday sessions.

Courses

ADMN 823	Topics in Finance	3 cr.
ADMN 825	Manufacturing Management	3 cr.
ADMN 826	Decision Support Systems	3 cr.
ADMN 829	Financial Policy	3 cr.
ADMN 830	Investments Analysis	3 cr.
ADMN 831	Derivative Securities and Markets	3 cr.
ADMN 832	Exploration in Entrepreneurial Management	3 cr.
ADMN 834	Private Equity/Venture Capital	3 cr.
ADMN 836	Financial Statement Analysis	3 cr.
ADMN 837	Financial Accounting Theory and Applications I	3 cr.
ADMN 840	International Business	3 cr.
ADMN 841	International Management	3 cr.
ADMN 844	Simulation for Business Decision Making	3 cr.
ADMN 846	International Financial Management	3 cr.
ADMN 847	Business Taxation	3 cr.
ADMN 848	Law: Use and Application in Business	3 cr.
ADMN 851	Advertising and Promotion	3 cr.
ADMN 852	Marketing Research	3 cr.
ADMN 855	Marketing of Services	3 cr.
ADMN 859	Managing Technological Innovations	3 cr.
ADMN 863	International Marketing	3 cr.
ADMN 865	Total Quality Management	3 cr.
ADMN 898	Topics	2 to 3 cr.
ADMN 900	Integrative Management Seminar	cr.
ADMN 902	Integrative Management Seminar	cr.
ADMN 905	Integrated Team Projects I	3 cr.
ADMN 906	Integrated Team Projects II	3 cr.
ADMN 907	Basic Managerial and Statistical Concepts	3 cr.
ADMN 908	Intermediate Managerial Concepts	3 cr.
ADMN 909	Information Systems Across the Enterprise	2 to 3 cr.
ADMN 910	Business Forum	1 cr.
ADMN 912	Organizational Behavior	3 cr.
ADMN 914	Integrated Field Project I	3 cr.
ADMN 915	Integrated Field Project II	3 cr.
ADMN 920	Financial Accounting	3 cr.
ADMN 921	Managerial Accounting	3 cr.
ADMN 925	Advanced Organizational Theory	3 cr.
ADMN 926	Management Information Systems	3 cr.
ADMN 927	Introduction to Information Systems	1 to 3 cr.
ADMN 930	Financial Management	3 cr.
ADMN 940	Technology and Operations Management	3 cr.
ADMN 950	Managerial Statistics	2 or 3 cr.
ADMN 955	Quantitative Business Analysis	3 cr.
ADMN 960	Marketing Management	3 cr.
ADMN 970	Economics	3 cr.
ADMN 981	Business, Government, and Society	3 cr.
ADMN 982	Strategic Management: Decision Making	3 cr.
ADMN 985	Organizational Structure and Environments	3 cr.
ADMN 992	Special Projects and Independent Study	1 to 6 cr.

Chemical Engineering (CHE)

www.unh.edu/chemical-engineering

Professors: Dale P. Barkey, Russell T. Carr, Stephen S.T. Fan, Ihab H. Farag, Virendra K. Mathur, Palligarnai T. Vasudevan

Associate Professor: Donald C. Sundberg

Assistant Professor: Nivedita R. Gupta

Degrees Offered: M.S., Ph.D.

The Department of Chemical Engineering offers the master of science degree and chemical engineering Ph.D. option in the Engineering Ph.D. Program.

Admission Requirements

An applicant is expected to have completed a baccalaureate degree or master's degree in chemical engineering. Students with good academic records but with deficiencies in certain areas may be admitted on condition that they complete specified courses without credit to make up for their deficiencies.

M.S. Degree Requirements

A minimum of 30, credits, which must include CHE 913, 915, 916, 923, and 932 is required for the master of science in chemical engineering. The core courses requirement can be waived only in special cases with permission from the department faculty. A thesis (6 credits) is required, unless the candidate is specifically exempted by the faculty because of previous research experience. These candidates must still fulfill the 30 credit minimum requirement.

Ph.D. Option Requirements

Students admitted to the Ph.D. program normally hold master's degrees in chemi-

cal engineering. The program generally requires three years of study beyond the master's degree.

A minimum of 50 credits or 15 courses (whichever comes first) must be completed beyond the bachelor's degree. At least eight of the courses must be at the 900 level. Students who enter the Ph.D. program must pass a written qualifying examination, which consists of five papers on the following topics:

Heat Transfer
Mass Transfer
Fluid Mechanics
Thermodynamics
Kinetics

The qualifying examination is administered after the completion of coursework requirements. The student must prepare a research proposal, which is different from his/her Ph.D. dissertation research and defend the proposal in an oral examination before a committee.

There is no language requirement.

A dissertation based on original research is required. Upon completion of the dissertation, doctoral candidates will take the final oral examination.

Permission of the instructor and consent of the student's adviser are required for enrollment in all chemical engineering courses.

Courses

CHE 801	Introduction to Polymer Engineering	4 cr.
CHE 805	Natural and Synthetic Fossil Fuels	4 cr.
CHE 809	Fundamentals of Air Pollution and Its Control	4 cr.
CHE 812	Introduction to Nuclear Engineering	4 cr.
CHE 844	Corrosion	4 cr.
CHE 851	Process Simulation and Optimization	4 cr.
CHE 852	Process Dynamics and Control	4 cr.
CHE 861	Biochemical Engineering	4 cr.
CHE 862	Biomedical Engineering	4 cr.
CHE 872	Physicochemical Processes for Water and Air Quality Control	4 cr.
CHE 899	Master's Thesis	6 cr.
CHE 913	Advanced Fluid Mechanics	3 cr.
CHE 915	Heat Transfer	3 cr.
CHE 916	Diffusive Mass Transfer	3 cr.
CHE 923	Advanced Chemical Engineering Thermodynamics	3 cr.
CHE 932	Advanced Chemical Engineering Kinetics	3 cr.
CHE 996	Graduate Independent Study	2 to 4 cr.
CHE 999	Doctoral Research	

Chemistry (CHEM)

www.unh.edu/chemistry

Professors: Christopher F. Bauer, N. Dennis Chasteen, Arthur Greenberg, Richard P. Johnson, Howard R. Mayne, W. Rudolf Seitz, Sterling A. Tomellini, Gary R. Weisman, Edward H. Wong, Charles K. Zercher

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

Degrees Offered: M.S., M.S.T., Ph.D.

The Department of Chemistry offers programs leading to the doctor of philosophy and the master of science degrees in the areas of organic, inorganic, physical, and analytical chemistry. The department also offers the master of science for teachers.

Admission Requirements

Admission to the master of science and the doctor of philosophy degrees is based upon a strong undergraduate record and requires satisfactory work in the usual undergraduate courses in inorganic chemistry, analytical chemistry, organic chemistry, and physical chemistry, as well as the normal supporting courses in mathematics and physics. Entering graduate students (except for those desiring the M.S.T. degree) are expected to take proficiency examinations in chemistry to assist in starting each new student's graduate work at the proper level. These examinations will be offered at the beginning of each semester on dates announced in the departmental graduate calendar. Applicants for the master of science for teachers should consult the General Regulations of the Graduate School for special admission requirements.

M.S. Degree Requirements

The master's degree requires completion of coursework appropriate to the student's field of study and the completion of a research problem presented in the form of a thesis. A minimum of 30 credit hours is required.

Master of Science for Teachers Degree Requirements

This degree requires 30 credit hours in graduate-level courses approved by the graduate coordinator. Persons interested in this degree should confer with the department's graduate program coordinator.

Ph.D. Degree Requirements

The doctoral degree requires completion of coursework appropriate to the student's field of study and the completion of a research problem presented in the form of a dissertation. The analytical, inorganic, organic, and physical divisions require expertise in the use of computers. Students will also demonstrate to the guidance committee that they have a broad basic knowledge of the field of chemistry: (1) by completing certain fundamental graduate courses; (2) by means of a series of examinations in the major field; and (3) by presenting and defending an original research proposal before the end of the third year (CHEM 907). The culmination of the program will result in a public thesis defense and acceptance of the dissertation.

Interdisciplinary Programs in Chemistry

Graduate students in chemistry may elect to enter one of the interdisciplinary programs offered jointly with the chemistry department and other departments. In these programs, the graduate student, with the advice of the guidance committee, elects courses in chemistry and in the related disciplines, and writes the dissertation on a research problem appropriate to interdisciplinary treatment. Students interested in these programs should write to the graduate coordinator for further information.

Preparing Future Faculty (PFF)

Students who desire a career in college-level teaching follow their regular degree program in addition to PFF requirements.

Teaching Requirement

All graduate students who are doctor of philosophy or master of science candidates will obtain some teaching experience during their tenure.

Courses

CHEM 800	Chemistry Teaching Seminar	1 cr.
CHEM 808	Spectroscopic Investigations of Organic Molecules	1 to 4 cr.
CHEM 855	Advanced Organic Chemistry	3 cr.
CHEM 862	Instrumental Methods of Chemical Analysis	3 cr.
CHEM 874	Inorganic Chemistry	3 cr.
CHEM 876	Physical Chemistry III	3 cr.
CHEM 895	Special Topics	2 to 4 cr.
CHEM 899	Thesis/Problems	6 to 10 cr.
CHEM 901	Theoretical Organic Chemistry I	4 cr.
CHEM 902	Theoretical Organic Chemistry II	3 cr.
CHEM 903	Advanced Inorganic Chemistry I	3 cr.
CHEM 904	Advanced Inorganic Chemistry II	3 cr.
CHEM 905	Advanced Physical Chemistry I	3 cr.
CHEM 906	Advanced Physical Chemistry II	3 cr.
CHEM 907	Introduction to Research	2 cr.
CHEM 911	Synthetic Organic Chemistry I	3 cr.
CHEM 917	Special Topics in Organic Chemistry	2 or 4 cr.
CHEM 918	Special Topics in Organic Chemistry	2 or 3 cr.
CHEM 926	Physical Chemistry of Solutions	3 cr.
CHEM 930	Advanced Optical Methods	3 cr.
CHEM 931	Advanced Electrochemical Methods	2 cr.

CHEM	933	Chemical Separations	3 cr.
CHEM	934	Chemical Equilibria	3 cr.
CHEM	935	Analytical Instrumentation	3 cr.
CHEM	971	Teaching and Learning Chemistry	3 to 4 cr.
CHEM	995	Colloquium	1 to 4 cr.
CHEM	996	Colloquium	1 to 4 cr.
CHEM	997	Seminar	1 cr.
CHEM	998	Seminar	1 cr.
CHEM	999	Doctoral Research	

Civil Engineering (CIE)

www.unh.edu/civil-engineering

Professors: Jean Benoit, Michael R. Collins, Pedro A. de Alba, David L. Gress, Nancy E. Kinner, James P. Malley

Research Professor: T. Taylor Eighmy

Associate Professors: Thomas P. Ballestero, Raymond A. Cook, Charles H. Goodspeed, Robert M. Henry

Research Associate Professor: Kevin H. Gardner

Assistant Professor: Jo S. Daniel

Research Assistant Professor: Jeffrey S. Melton

Degrees Offered: M.S., Ph.D.

The Department of Civil Engineering offers the master's degree in civil engineering with the following areas of specialization: structural/materials, geotechnical, water resources, and environmental engineering. Interested applicants are encouraged to write to the graduate program coordinator for specific information on current research in the department. An engineering Ph.D. program with an option in civil engineering is also available.

Admission Requirements

An applicant must have completed a baccalaureate degree in engineering, mathematics, or science at an accredited college or university. If coursework or laboratory experience is deficient, an admitted student will be required to fulfill, without graduate credit, all undergraduate prerequisites for graduate courses. In some cases the student's adviser may require additional undergraduate courses in order to achieve a well-integrated program of study.

M.S. Degree Requirements

A student in the master's program may elect either a thesis (minimum of 25 course credits and 6 thesis credits) or nonthesis (minimum of 31 course credits and a 0-credit project) option. For the thesis option, a formal oral presentation/thesis defense is required. A student electing the nonthesis option is required to prepare a noncredit project paper and give a final oral presentation/project defense. In addition to the paper, the nonthesis candidate must pass a departmental comprehensive examination on fundamental engineering concepts prepared and evaluated by the candidate's advisory committee. For graduation, a B average must be achieved. All students are required to register for Civil Engineering Seminar (CIE 900) for one semester.

Ph.D. Option Requirements

Following admission into the program, a guidance committee is appointed for the student by the Dean of the Graduate School upon recommendation of the graduate coordinator. This committee assists in outlining the student's course of study and may specify individual coursework requirements.

Within 18 months after admission, the student must pass both written and oral qualifying exams. The student must successfully complete at least 24 credit hours beyond a master's degree or 49 credit hours beyond a bachelor's degree.

Minor Requirements: An identifiable group of courses (9 credits minimum), approved by the guidance committee, in an area outside of the civil engineering department, must be successfully completed to provide a minor to the Ph.D. degree. A minor may be satisfied by courses taken toward a master's degree other than civil engineering, but the credits will not be applied against the 24 semester credit hour minimum.

Language or Research Tool: Students are required to gain or prove proficiency in a language or research tool in an appropriate area, such as: mathematics, statistics, or data analysis; laboratory analysis or procedures; instrumentation; computer programming; or a foreign language suitable to the area of concentration. The proposed language or research tool must be approved by the guidance committee and may be achieved through the successful completion of coursework, an examination, or both.

Teaching Experience: A minimum of one semester as a teaching assistant or comparable experience is required. The guidance committee will evaluate whether a student's past teaching assistantship satisfies this requirement.

Doctoral Candidates: Upon successful completion of the Ph.D. qualifying examinations and the language or research tool requirement, a doctoral student is advanced to the status of doctoral candidate.

Upon achieving candidacy, a doctoral committee is established. The doctoral committee directs research, conducts a semi-annual review of the student's progress, supervises and approves the doctoral dissertation, and administers the final examination (also known as the dissertation defense).

Upon completion of the dissertation and with the approval of the doctoral committee, the student schedules an oral defense in accordance with the requirements of the Graduate School.

Courses

CIE	821	Pavement Design	3 cr.
CIE	822	Properties and Production of Concrete	3 cr.
CIE	823	Bituminous Materials and Mixtures	3 cr.
CIE	839	Industrial Wastewater Treatment	3 cr.
CIE	840	Public Health Engineering	3 cr.
CIE	841	Open Channel Flow	3 cr.
CIE	842	Solid and Hazardous Waste Engineering	3 cr.
CIE	845	Engineering Hydrology	3 cr.
CIE	847	Introduction to Marine Pollution and Control	3 cr.
CIE	848	Solid and Hazardous Waste Design	4 cr.
CIE	849	Water Chemistry	4 cr.
CIE	855	Design of Water Transmission Systems	4 cr.
CIE	856	Environmental Engineering Microbiology	4 cr.
CIE	857	Coastal Engineering and Processes	3 cr.
CIE	860	Foundation Design I	4 cr.
CIE	861	Foundation Design II	3 cr.
CIE	862	Introduction to Geotechnical Earthquake Engineering	3 cr.
CIE	866	Introduction to Geo-Environmental Engineering	3 cr.
CIE	874	Reinforced Concrete Design	4 cr.
CIE	878	Issues in Engineering Practice and Management	3 cr.
CIE	882	Timber Design	3 cr.
CIE	883	Matrix Structural Analysis & Modeling	3 cr.
CIE	886	Introduction to Finite Element Analysis	3 cr.
CIE	889	Project Management	3 cr.
CIE	891	Prestressed Concrete	3 cr.
CIE	892	LRFD Bridge Design	3 cr.
CIE	893	Structural Design in Steel	3 cr.
CIE	895	Independent Study	1 to 4 cr.
CIE	896	Special Topics	1 to 4 cr.
CIE	897	Special Topics in Environmental Engineering	1 to 4 cr.
CIE	899	Master's Thesis	1 to 6 cr.
CIE	900	Seminar	1 cr.
CIE	940	Hydrologic Monitoring	3 cr.
CIE	942	River Mechanics	3 cr.
CIE	943	Advanced Hazardous Waste and Environmental Sampling and Analysis	4 cr.
CIE	944	Advanced Physicochemical Treatment Design	4 cr.
CIE	945	Advanced Groundwater Topics	3 cr.
CIE	946	Advanced Bioenvironmental Engineering Design	4 cr.
CIE	960	Advanced Soil Mechanics	3 cr.
CIE	961	In Situ Geotechnical Testing	3 cr.
CIE	962	Laboratory Geotechnical Testing	3 cr.
CIE	995	Problems	2 to 4 cr.
CIE	999	Doctoral Research	

College Courses

Graduate School (GRAD)

GRAD	800	Continuing Enrollment	0 cr.
GRAD	885	Graduate Foreign Exchange	1 to 9 cr.
GRAD	900	Master's Continuing Research	0 cr.

Health and Human Services (HHS)

HHS	840	Collaborative Services for Children with Special Needs	4 cr.
HHS	898	Special Topics	1 to 8 cr.

Life Sciences and Agriculture (LSA)

LSA	900	College Teaching	2 cr.
LSA	901	Introduction to Research	1 cr.

College Teaching (GRAD)

www.gradschool.unh.edu/pff

Professors: Christopher F. Bauer, Victor A. Benassi, Walter F. Eggers, Kenneth Fuld, Edward J. O'Brien, Lee F. Seidel, Sally Ward

Affiliate Professor: Daniel Reagan

UNHM Professor: John J. Cerullo

Associate Professors: Victoria L. Banyard, Patricia D. Bedker, Karen Smith Conway, Lina Lee, Dawn C. Meredith

Affiliate Associate Professors: Michael J. Lee, Harry J. Richards

Assistant Professor: Julia E. Rodriguez

Clinical Assistant Professor: Ruth A. Reilly

Degrees Offered: Cognate, M.S.T.

The college teaching program prepares graduate students for academic teaching positions. Students must be ready to teach in their field or discipline effectively upon completion of program requirements. The transfer and relationship between theory and research and instructional practice is emphasized in all courses. It is a University-wide program coordinated by the Office of the Dean of the Graduate School involving the Center for Teaching Excellence and faculty members from many fields and disciplines. Two academic programs are offered: the Cognate in College Teaching and the Master of Science for Teachers (M.S.T.).

Admission Requirements

Applicants to the cognate or M.S.T. programs must have completed one year in a doctoral program at UNH and have the support and recommendation of their doctoral program coordinator. The M.S.T. program is also available to faculty members and doctoral students from other universities. Students in master's only programs at UNH may be eligible to enroll in an M.S.T. as a dual degree.

Cognate in College Teaching Requirements

This program requires the satisfactory completion of 12 academic credits and emphasizes the development of classroom teaching skills in a specific field or discipline. Students elect, with the permission of their graduate coordinator, to add the cognate to their graduate degree. The cognate will be awarded at the time of the award of the qualifying graduate degree. Requirements include 4 credits in the GRAD 950 series, including GRAD 950, Issues in College Teaching. Students also complete a minimum of 4 credits in field and disciplinary studies related to teaching in their specific area of graduate study. A list of approved graduate level courses for field and disciplinary studies is available and includes courses in the GRAD 970 and 980 series. All students also must complete 4 credits in GRAD 990, College Teaching Praxis.

M.S.T. Degree Requirements

Building upon the basic foundation in college teaching, the M.S.T. program adds advanced studies in specific content related to teaching and learning from many fields, the evolving role and function of the professor in higher education and postsecondary academic institution, and specific methods related to pedagogical improvement and research. Completion of the M.S.T. as a dual degree with the Ph.D. may lengthen the time usually needed to earn the doctoral degree. Under no circumstances will the M.S.T. be awarded to a doctoral student who fails to complete the doctoral degree.

Requirements include core requirements of 16 credits from the GRAD 950 and 960 series of courses. Required courses include GRAD 950, 961, and 965. Many GRAD 950 and GRAD 960 series courses are available using alternative scheduling that rely upon computer-mediated interaction with the instructors. Students also complete a minimum of 8 credits in field and disciplinary studies related to their specific area of graduate study. A list of approved courses for field and disciplinary studies is available and includes courses in the GRAD 970 and 980 series. All students also must complete 8 credits in GRAD 990, College Teaching Praxis.

Some graduate programs have requirements that complement the requirements of these University-wide future faculty programs. In these instances, formal articulating agreements insure fully coordinated programs so that students are not required to duplicate requirements. Information on existing articulation agreements is available from the coordinator of this program or specific graduate program directors. Permission to enroll in GRAD 990, Teaching Praxis, is dependent upon the student's readiness to be an effective instructor. Readiness is determined by the coordinator based upon the recommendation of the faculty.

Permission to enroll in GRAD 990 is also based upon the satisfactory completion of prerequisite requirements and the ability to communicate effectively in a college classroom as an instructor. Students may be required to submit evidence to verify this ability to communicate effectively in a classroom as a prerequisite. Responsibilities as a teaching assistant are insufficient to demonstrate the competencies needed to complete GRAD 990, College Teaching Praxis.

Courses

GRAD	940	Foundations in College Teaching	2 cr.
GRAD	941	Teaching Methods in Higher Education	2 cr.
GRAD	942	Teaching in Higher Education	2 cr.
GRAD	945	Advanced Seminar in College Teaching	2 cr.
GRAD	950	Issues in College Teaching	1 cr.
GRAD	951	Teaching with Writing	2 cr.
GRAD	952	College Teaching Mentorship	1 cr.
GRAD	953	Readings in College Teaching	1 to 2 cr.
GRAD	959	Advanced Issues in College Teaching	1 cr.
GRAD	961	Cognition, Teaching, and Learning	2 cr.
GRAD	962	Academic Citizenship	2 cr.
GRAD	963	College Students and the Undergraduate Culture	2 cr.
GRAD	965	Classroom Research and Assessment Methods	2 cr.
GRAD	970	Special Topics in College Teaching	2 to 4 cr.
GRAD	971	Teaching and Learning in Science	3 to 4 cr.
GRAD	972	Laboratory and Field Experience in the Sciences	2 cr.
GRAD	974	Teaching Sociology Seminar	4 cr.
GRAD	975	College Teaching in the Life Sciences and Agriculture	2 cr.
GRAD	976	Seminar in the Teaching of Social and Behavioral Science	3 cr.
GRAD	977	Physics Teaching Seminar	1 cr.
GRAD	978	Teaching Economics	4 cr.
GRAD	979	Issues in Teaching and Learning Physics	1 to 3 cr.
GRAD	980	Preparing to Teach a Psychology Course	2 cr.
GRAD	981	Graduate Seminar in Teaching History	2 cr.
GRAD	990	College Teaching Praxis	3 to 4 cr.
GRAD	995	Independent Study	1 to 4 cr.

Communication Sciences and Disorders (COMM)

www.unh.edu/communication-disorders

Professor: Stephen N. Calculator

Associate Professors: Steven P. Bornstein, Frederick C. Lewis, Penelope E. Webster

Assistant Professor: Michael Fraas

Research Assistant Professor: Rae M. Sonnenmeier

Affiliate Assistant Professor: Lygia Soares

Degree Offered: M.S.

The graduate program integrates an array of academic and clinical experiences to prepare students for a variety of careers in speech-language pathology. Effective September 2004, the program will offer a revised curriculum for a master of science degree program in communications sciences and disorders as well as two options (language and literacy disabilities and early childhood intervention). Graduates work in a range of settings across the U.S. Students learn about the science and art of communication, its processes, and disorders. Faculty and students are actively engaged in research activities. Their projects include examinations of the efficacy of language intervention for adults with aphasia, assessment of central auditory processing, management of dysphagia, functional outcomes of augmentative and alternative communication, role of communication in fostering inclusive education, relationships between oral language and literacy, and ways of enhancing the process of clinical supervision. A special aspect of the program is its clinical supervisors' active engagement in applied research.

Admission Requirements

The Department of Communication Sciences and Disorders offers the master of science degree. Students are prepared to practice in a variety of job settings within the field of speech-language pathology and to meet the academic and practicum requirements of the American Speech-Language-Hearing Association (ASHA) for the Certificate of Clinical Competence in speech-language pathology. The program is accredited by the Council on Academic Accreditation of ASHA. Applicants for admission should possess a bachelor's degree in communication sciences and disorders or its equivalent. The following courses, or their equivalents, are undergraduate prerequisites for the master's program: COMM 521, Anatomy and Physiology of the Speech and Hearing Mechanism; COMM 522, Language Acquisition; COMM 523, Clinical Observation; COMM 524, Phonetics; COMM 704, Basic Audiology; COMM 777, Speech and Hearing Science. In addition, a course in statistics is required. Students are also encouraged, but not required, to have completed introductory coursework in human anatomy and physiology, linguistics and normal human development in preparation for fulfillment of ASHA requirements. Applicants with degrees in related fields may be admitted to the Graduate School as provisional students, with the expectation that they complete the above prerequisites prior to, or concurrent with, graduate courses. A specially designed curriculum is available to provisionally admitted students. They may also choose to complete undergraduate prerequisites through the Division of Continuing Education. Acceptance to the communication sciences and disorders program is based primarily on grade-point average, and GRE (Graduate Exam Record Examination general test scores). Generally, students must have earned a minimum grade-point average of 3.00 to be considered for admission. Letters of recommendation are considered, particularly for the awarding of scholarships, assistantships, and other sources of support.

M.S. Degree Requirements

The following courses are required of all students:

COMM 876 and 877, Ethics/Professional Issues in Speech Language Pathology I and II, 2 cr.; 880, Diagnosis of Speech and Language Disorders, 3 cr.; 890, Advanced Audiology for Speech-Language Pathologists, 3 cr.; 891, Neurology for the Speech-Language Pathologist, 3 cr.; 903, Therapy Process, 2 cr.; 910, Clinical Practicum, 3 cr.; 911, Off-Campus Clinical Practicum, 3 cr.; 920, Seminar (Audiology), 1 cr.; EDUC 920, Theory and Practice of Counseling, 4 cr.; EDUC 981, Methods and Techniques of Educational Research, 4 cr.

NO OPTION

In addition to the 11 core courses listed above, students enrolling in the master of science degree program (no option) will take an additional 11 courses in the following categories, depending on area of interest:

Students will take three of the following courses:

COMM 875	Advanced Language Acquisition	3 cr.
COMM 900	Articulation and Phonological Disorders	3 cr.
COMM 908	Language/Literacy Disorders I	3 cr.
COMM 909	Language/Literacy Disorders II	3 cr.
COMM 912	Language Disorders in Early Childhood 0-5 yr.	3 cr.

Students will take two of the following courses:

COMM 902	Stuttering	3 cr.
COMM 906	Voice Disorders	3 cr.
COMM 907	Seminar in Advanced Aural Rehabilitation	3 cr.
COMM 914	Augmentative/Alternative Communications	3 cr.

Students will take three of the following courses:

COMM 901	Dysphagia	3 cr.
COMM 904	Aphasia	3 cr.
COMM 905	Motor Speech Disorders	3 cr.
COMM 913	Cognitive/Communication Disorders	3 cr.
COMM 920	Seminar (Autism Spectrum Disorders)	3 cr.

Students will take three elective courses.

Electives may be taken within and outside the department.

OPTION IN LANGUAGE LITERACY DISABILITIES

In addition to the 11 core courses listed above, required courses for this option are:

COMM 875	Advanced Language Acquisition	3 cr.
COMM 900	Articulation and Phonological Disorders	3 cr.
COMM 908	Language/Literacy Disorders I	3 cr.
COMM 909	Language/Literacy Disorders II	3 cr.
COMM 912	Language Disorders in Early Childhood 0-5 yr.	3 cr.

Students will also take six elective courses from the three different groups below:

Students will take two of the following courses:

COMM 902	Stuttering	3 cr.
COMM 906	Voice Disorders	3 cr.
COMM 907	Seminar in Advanced Aural Rehabilitation	3 cr.
COMM 914	Augmentative/Alternative Communication	3 cr.

Students will take two of the following courses:

COMM 901	Dysphagia	3 cr.
COMM 904	Aphasia	3 cr.
COMM 905	Motor Speech Disorders	3 cr.
COMM 913	Cognitive/Communication Disorders	3 cr.

Students will take two courses in the Department of Education:

EDUC 806	Introduction to Reading Instruction: Elementary School	4 cr.

EDUC 833	Introduction to Teaching Writing	4 cr.
EDUC 907	Foundations of Literacy Instruction	4 cr.

OPTION IN EARLY CHILDHOOD SPEECH AND LANGUAGE DISORDERS

In addition to the 11 core courses listed above, required courses for this option are:

COMM 900	Articulation and Phonological Disorders	3 cr.
COMM 912	Language Disorders in Early Childhood 0-5 yr.	3 cr.
COMM 20	Seminar (Autism Spectrum Disorders)	3 cr.

In addition, the student will also take 8 elective courses from the four groups below:

Students will take three of the following courses:

COMM 902	Stuttering	3 cr.
COMM 906	Voice Disorders	3 cr.
COMM 907	Advanced Seminar in Aural Rehabilitation	3 cr.
COMM 914	Augmentative/Alternative Communication	3 cr.

Students will take two of the following courses:

901	Dysphagia	3 cr.
904	Aphasia	3 cr.
905	Motor Speech Disorders	3 cr.
913	Cognitive/Communicative Disorders	3 cr.

Students will take two of the following courses:

COMM 908	Language/Literacy Disorders I	3 cr.
EDUC 860	Introduction to the Young Child with Special Needs	4 cr.
EDUC 941	Diversity and Child Development	4 cr.

Students will take one of the following courses:

EDUC 949	Supporting Families of Individuals with Exceptionalities	4 cr.
FS 834	Families, Schools, and Communities	4 cr.
FS 991	Professional Issues for Family Specialists	4 cr.

CLINICAL PRACTICUM

Clinical practicum experiences will be selected according to the desired option to develop practical skills in that area of interest. The number of credits needed by students may vary depending on previous undergraduate experiences. Students must meet the practicum requirements for certification by the American Speech-Language-Hearing Association, including practicum in at least three different practicum sites. All students are required to enroll in 3 credits of 910 and 6 credits of 911 as noted in the core courses listed above.

CONCLUDING EXPERIENCE:

Students must elect a thesis or nonthesis option as a concluding experience.

Written Examination (nonthesis): All students except those selecting the thesis option must pass a written comprehensive examination designed to assess their mastery of the professional concepts of communication sciences and disorders in the areas of mornative processes, pathologies, and remediation.

Thesis Option: Students may elect the option of writing a thesis. Upon completion of the research project, a student must defend the thesis in an oral examination and must gain approval of the thesis committee. In addition to the required coursework specified above, students must register for 6 credits of 899.

Courses

COMM 875	Advanced Language Acquisition	4 cr.
COMM 876	Ethical and Professional Issues in Communication Sciences and Disorders I	1 cr.
COMM 877	Ethical and Professional Issues in Communication Sciences and Disorders II	1 cr.
COMM 880	Diagnosis of Speech and Language Disorders	3 cr.
COMM 890	Advanced Audiology for Speech-Language Pathologists	3 cr.
COMM 895	Special Topics	1 to 3 cr.
COMM 899	Master's Thesis	6 cr.
COMM 900	Articulatory and Phonological Disorders in Children	3 cr.
COMM 901	Dysphagia	3 cr.
COMM 902	Stuttering	3 cr.
COMM 903	The Therapy Process	2 cr.
COMM 904	Aphasia in Adults	3 cr.
COMM 905	Motor Speech Disorders	3 cr.
COMM 906	Voice Disorders	3 cr.
COMM 907	Advanced Seminar in Aural Rehabilitation	3 cr.
COMM 908	Disorders of Language and Literacy I	3 cr.
COMM 909	Disorders of Language and Literacy II	3 cr.
COMM 910	Clinical Practicum	1 to 3 cr.
COMM 911	Off-Campus Clinical Practicum	1 to 3 cr.
COMM 912	Language Disorders Birth to Five	3 cr.
COMM 913	Cognitive Communication Disorders	3 cr.
COMM 914	Augmentative and Alternative Communication	3 cr.
COMM 920	Graduate Seminar	1 to 6 cr.

Computer Science (CS)

www.cs.unh.edu

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

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

Affiliate Associate Professor: Sylvia Weber Russell

Assistant Professors: Michel Charpentier, Alejandro Hausner, Zachary Rubinstein

Affiliate Assistant Professors: Elise H. Turner, Roy M. Turner

Degrees Offered: M.S., Ph.D.

The Department of Computer Science offers programs leading to the master of science and the doctor of philosophy degrees. A major emphasis in these programs is the blending of theoretical and applied aspects of computer science. Students pursuing a specialization in computer science theory are required to develop a strong background in systems and are encouraged whenever possible to identify applications for theory. Similarly, students specializing in applied areas of computer science are required to base their work on strong theoretical foundations.

Admission Requirements

Applicants are expected to have studied high-level language programming, data structures, analysis of algorithms, operating system fundamentals, programming language concepts, and discrete mathematics. Further experience in computer science, mathematics, and/or electrical engineering is beneficial, but not required. In addition, students with a strong academic record, but without a computer science background, may be admitted on a provisional basis. All applicants must submit general test scores from the Graduate Record Examination. Computer science subject test scores are recommended, but not required.

M.S. Degree Requirements

For the M.S. degree, the student may choose among three options: thesis, examination, and project. All options require the completion of CS 900 (1-credit graduate seminar).

The thesis option requires eight additional courses numbered 800 or above (two must be above 900), plus 6 credits of thesis work for a total of 31 credits.

The examination option requires 10 additional courses numbered 800 or above (three must be above 900): four must be distributed among subject categories. The exam option also requires passing a comprehensive written final examination on four subject areas for a total of 31 credits.

The project option requires 10 additional courses numbered 800 or above (three must be above 900): four must be distributed among subject categories. The project option requires 3 credits of additional M.S. project work and the completion of a final project under the direction of a faculty adviser, for a total of 34 credits.

Ph.D. Degree Requirements

Following the student's entrance into the program, a guidance committee will be appointed by the dean of the Graduate School to review the student's preparation for pursuing a particular program and to assist in outlining a program of study. The program of study will include courses in both the theoretical and applied aspects of computer science as determined by the guidance committee. Normally a student will be expected to complete at least the equivalent of 16 semester courses (of at least 3 credits each) beyond the bachelor's degree, or eight courses beyond the master's degree.

In addition, each doctoral student is required to acquire competence in the use of a research tool determined by the guidance committee. The research tool should contribute to the student's dissertation research and is expected to consist of courses from disciplines outside computer science, such as mathematics, engineering, psychology, or linguistics, as determined by the guidance committee.

Every doctoral student must pass a written qualifying exam consisting of two major components: a breadth requirement and a depth requirement. The breadth requirement consists of a written examination covering four major areas of computer science. The depth requirement has three parts: a written survey of relevant literature, a written research report focused on an area of research, and an oral examination.

A student is admitted to candidacy for the Ph.D. after successfully completing the qualifying examination and the research tool requirement. A doctoral committee will be appointed by the dean of the Graduate School for the purpose of approving and monitoring the candidate's dissertation work and administering the final dissertation defense. The doctoral candidate must make a formal presentation of the proposed research work, including both written and oral components, prior to undertaking the major research effort. Upon completion of the research, the candidate must present a written dissertation and a formal oral defense.

Courses

CS	812	Compiler Design	3 cr.
CS	818	Software Engineering	3 cr.
CS	819	Object-Oriented Methodology	3 cr.
CS	820	Operating System Programming	3 cr.
CS	821	Operating System Kernel Design	3 cr.
CS	824	Distributed Operating Systems	3 cr.
CS	825	Computer Networks	3 cr.
CS	830	Introduction to Artificial Intelligence	3 cr.
CS	835	Introduction to Parallel and Distributed Programming	3 cr.
CS	845	Formal Specifications and Verfication of Software Systems	3 cr.
CS	860	Introduction to Human-Computer Interaction	3 cr.
CS	867	Interactive Data Visualization	3 cr.
CS	870	Computer Graphics	3 cr.
CS	875	Database Systems	3 cr.
CS	880	Topics	3 cr.
CS	898	Master's Project	3 cr.
CS	899	Master's Thesis	6 cr.
CS	900	Graduate Seminar	1 cr.
CS	925	Advanced Computer Networks	3 cr.
CS	941	Design and Analysis of Algorithms	3 cr.
CS	959	Theory of Computation	3 cr.
CS	970	Advanced Computer Graphics	3 cr.
CS	975	Object-Oriented Database Systems	3 cr.
CS	980	Advanced Topics	3 cr.
CS	981	Advanced Topics in Database Systems	3 cr.
CS	982	Advanced Topics in Computer Networks	3 cr.
CS	983	Advanced Topics in Artificial Intelligence	3 cr.
CS	985	Advanced Topics in Operating Systems	3 cr.
CS	986	Advanced Topics in Program Correctness	3 cr.
CS	988	Advanced Topics in Computer Graphics	3 cr.
CS	989	Advanced Topics in Algorithms	3 cr.
CS	998	Reading/Computer Science	1 to 6 cr.
CS	999	Doctoral Research	

Earth, Oceans, and Space

www.eos.sr.unh.edu

The Institute for the Study of Earth, Oceans, and Space offers students the opportunity for interdisciplinary study and research. Certain graduate degree programs in earth sciences, physics, natural resources, and zoology may be accessed through the institute as follows: all the M.S. and Ph.D. programs in earth sciences, the specialization in space physics and astrophysics (M.S. and Ph.D.), and the departmental (M.S.) or interdepartmental (Ph.D.) program in natural resources and earth systems sciences. Admission and degree requirements are set by the respective departments or program. See the graduate program descriptions in earth sciences, physics, zoology, natural resources, and the natural resources and earth systems sciences program (NRESS) for admission and degree requirements.

Courses

EOS	810	Introduction to Astrophysics	4 cr.
EOS	812	Physics of the Ionosphere	4 cr.
EOS	813	Biogeochemical Dynamics	3 cr.
EOS	815	Global Atmospheric Chemistry	3 cr.
EOS	816	Atmospheric Aerosol and Precipitation Chemistry	3 cr.
EOS	817	Macro-Scale Hydrology I	4 cr.
EOS	818	Macro-Scale Hydrology II	4 cr.
EOS	824	Introduction to Ocean Remote Sensing	3 cr.
EOS	830	Terrestrial Ecosystems	3 cr.
EOS	831	Systems Approach to Biological Ocean Science	3 cr.
EOS	850	BiologicalOceanography	4 cr.
EOS	854	Ocean Waves and Tides	4 cr.
EOS	864	Introduction to Paleoclimate Analysis	4 cr.
EOS	865	Natural Climate Variability	4 cr.
EOS	895	Topics	1 to 4 cr.
EOS	896	Topics	1 to 4 cr.
EOS	901	Seminar	1 cr.
EOS	930	Modeling of Forest Ecosystems	3 cr.
EOS	955	Geophysical and Astrophysical Fluid Dynamics	3 cr.
EOS	987	Magnetospheres	3 cr.
EOS	988	High Energy Astrophysics	3 cr.
EOS	995	Special Topics	1 to 4 cr.

Earth Sciences (ESCI)

www.unh.edu/esci

Professors: Francis S. Birch, Wallace A. Bothner, S. Lawrence Dingman, Theodore C. Loder III, Larry A. Mayer, Karen L. Von Damm

Research Professors: Janet W. Campbell, Patrick M. Crill, Dork L. Sahagian, Robert W. Talbot, Charles J. Vorosmarty

Associate Professors: J. Matthew Davis, Jo Laird

Research Associate Professors: Jack E. Dibb, Stephen E. Frolking, Michael L. Prentice, Cameron P. Wake, Larry G. Ward

Affiliate Associate Professor: Barry D. Keim

Assistant Professors: Julia G. Bryce, William C. Clyde, Robert J. Griffin, Joseph M. Licciardi, James M. Pringle

Degrees Offered: M.S., Ph.D.

The M.S. degree and the Ph.D. degree are available in the field of earth sciences. The

M.S. is a Department of Earth Sciences program and is described below. The Ph.D. is offered as part of the interdisciplinary and intercollege Natural Resources and Earth System Science (NRESS) program, which is briefly mentioned here, and more completely described under the NRESS heading in this catalog.

M.S. Degrees in the Department of Earth Sciences

The Department of Earth Sciences offers the master of science in earth sciences with options in geology, oceanography, ocean mapping, and a specialization in geochemical systems. The department also offers the master of science degree in hydrology. Graduate students in the department may conduct research through the Institute for the Study of Earth, Oceans, and Space and the Center for Coastal and Ocean Mapping.

Emphasis in the geology option may be placed upon petrology, mineralogy, structural geology, tectonics, geophysics, sedimentation, glacial geology, paleoclimates, glaciology, hydrogeology, stratigraphy, paleontology, low- or high-temperature geochemistry, and isotope geochemistry.

Concentration in the oceanography option may be placed upon chemical, geological, or physical oceanography. Although the broad scope of oceanography will be presented, the program emphasizes estuarine, coastal, continental margin processes and environments, and midocean ridges.

The ocean mapping option is intended for students with an interest in hydrography and hydrographic survey technology.

The geochemical systems specialization is intended for students with an interest in all aspects of geochemistry: bedrock, sediment, water, ice, and air with particular emphasis on interpreting and modeling the interaction of these media, biogeochemistry, air quality, and climate change.

The hydrology degree is intended for students with an interest in fluvial processes, global-scale hydrology, groundwater hydrology, hydroclimatology, surface-water hydrology, water quality, and quantitative hydrology.

The Ph.D. in Earth and Environmental Science

The Ph.D. in Earth and Environmental Science is offered as part of the interdisciplinary and inter-college Natural Resources and Earth Systems Science (NRESS) program. All earth sciences emphases that are available in the Department of Earth Sciences Masters Program (see above) are also available in the NRESS Ph.D. program.

Admission Requirements

An applicant to the M.S. program is expected to have completed one year each of college chemistry, physics, and calculus; to have an undergraduate major or equivalent in geology, chemistry, physics, mathematics, engineering, or the biological sciences; and to present scores from the general test of the Graduate Record Examination. Students lacking some background in a particular area may be admitted provided they are prepared to complete courses, without graduate credit, in which they may be deficient. The program of study (geology, hydrology, oceanography, ocean mapping, or geochemistry) a student wishes to follow, as well as the student's undergraduate major determines the level of preparation necessary. The preparation of each student is determined before the beginning of the first semester in residence in order to plan the course of study. Each entering student is assigned an academic adviser to assist in planning a program of study.

M.S. Degree Requirements

Students in the M.S. programs are required to complete the core curriculum for their respective areas. Students in the thesis option must satisfactorily complete 30 credits, which includes the credits accumulated in the core curriculum. Students in this option must complete a master's thesis (6 credits) and give an oral presentation of the results.

Students in the nonthesis option must satisfactorily complete 34 credits, which includes the core curriculum, a 2-credit directed research project, and a written and oral presentation of that research.

GEOLOGY

The core curriculum for the option in geology normally includes 832, Regional Geology and Advanced Structure; 834, Applied Geophysics; 841, Geochemistry; 997, Seminar in Earth Sciences (1 cr. first year); and 998, Proposal Development (1 cr. first year).

OCEANOGRAPHY

The core curriculum for the option in oceanography normally includes 852, Chemical Oceanography, 3 or 4 cr.; 858, Introductory Physical Oceanography; 859, Geological Oceanography; 997, Seminar in Earth Sciences (1 cr. first year); and 998, Proposal Development (1 cr. first year).

OCEAN MAPPING

The core curriculum for the option in ocean mapping normally includes 858, Introductory Physical Oceanography; 859, Geological Oceanography; OE 810, Ocean Measurements Laboratory; 870, Introductory Hydrography; 871, Geodesy and Positioning for Ocean Mapping; 972, Hydrographic Field Course; 997, Seminar in Earth Sciences (1 cr. first year); and 998, Proposal Development (1 cr. first year).

GEOCHEMICAL SYSTEMS

The core curriculum for the specialization in geochemical systems normally includes three courses from 841, Geochemistry; 846, Analytical Geochemistry; 847, Aqueous Geochemistry; 852, Chemical Oceanography; 864, Paleoclimate Analysis; EOS 813, Biogeochemical Dynamics; EOS 815, Global Atmospheric Chemistry; EOS 816, Atmospheric Aerosol and Precipitation Chemistry; 997, Seminar in Earth Sciences (1 cr. first year); and 998, Proposal Development (1 cr. first year).

HYDROLOGY

The core curriculum for the major in hydrology normally includes 805, Principles of Hydrology; 810, Groundwater Hydrology; 997, Seminar in Earth Sciences (1 cr. first year); and 998, Proposal Development (1 cr. first year).

In each of the above, additional electives are to be selected from 800- and 900-level courses in the department and/or from courses numbered 700 and above in related disciplines outside of the department. More detailed information is available from the department.

Courses

ESCI	803	Fluvial Hydrology	4 cr.
ESCI	805	Principles of Hydrology	4 cr.
ESCI	810	Groundwater Hydrology	4 cr.
ESCI	815	Global Atmospheric Chemistry	3 cr.
ESCI	817	Macro-scale Hydrology I	4 cr.
ESCI	818	Macro-scale Hydrology II	4 cr.
ESCI	826	Metamorphic Petrology	4 cr.
ESCI	832	Regional Geology and Advanced Structure	4 cr.
ESCI	834	Applied Geophysics	4 cr.
ESCI	841	Geochemistry	4 cr.
ESCI	845	Isotope Geochemistry	4 cr.
ESCI	846	Analytical Geochemistry	4 cr.
ESCI	847	Aqueous Geochemistry	4 cr.
ESCI	850	Biological Oceanography	4 cr.
ESCI	852L	Chemical Oceanography Lab	1 cr.
ESCI	852	Chemical Oceanography	3 cr.
ESCI	854	Sedimentary Rocks and Stratigraphy	4 cr.
ESCI	858	Introduction to Physical Oceanography	3 cr.
ESCI	859	Geological Oceanography	4 cr.
ESCI	862	Glacial Geology	4 cr.

ESCI	864	Introductory Paleoclimate Analysis	4 cr.
ESCI	865	Natural Climate Variability	4 cr.
ESCI	870	Introduction to Ocean Mapping	4 cr.
ESCI	871	Geodesy and Positioning for Ocean Mapping	3 cr.
ESCI	895	Topics	1 to 4 cr.
ESCI	896	Topics	1 to 4 cr.
ESCI	897	Colloquium	
ESCI	898	Directed Research	2 cr.
ESCI	899	Master's Thesis	6 cr.
ESCI	903	Advanced Hydrology	3 cr.
ESCI	904	Contaminant Hydrology	3 cr.
ESCI	906	Statistical Hydrology	4 cr.
ESCI	907	Geostatistics	3 cr.
ESCI	952	Advanced Chemical Oceanography	3 or 4 cr.
ESCI	972	Hydrographic Field Course	4 cr.
ESCI	973	Seafloor Characterization	3 cr.
ESCI	993	Advanced Seminar	1 cr.
ESCI	994	Advanced Seminar	1 cr.
ESCI	995	Advanced Topics	1 to 4 cr.
ESCI	996	Advanced Topics	1 to 4 cr.
ESCI	997	Seminar in Earth Sciences	1 cr.
ESCI	998	Proposal Development	1 cr.
ESCI	999	Doctoral Research	

Economics (ECON)

www.unh.edu/wsbe/grad

Professors: Bruce T. Elmslie, Richard W. England, Evangelos O. Simos, James R. Wible

Associate Professors: Karen Smith Conway, Michael D. Goldberg, Marc W. Herold, Ju-Chin Huang, Neil B. Niman, Torsten Schmidt, Allen R. Thompson

Assistant Professors: Chi-Young Choi, Robert D. Mohr

Degrees Offered: M.A., Ph.D.

The economics program offers the master of arts and the doctor of philosophy degrees. The master of arts degree in economics may be a final degree for certain occupations and professions. Most students complete the program as a general rather than a specialized degree. The same fields of concentration in the Ph.D. program are available to the master's student as long as appropriate prerequisites are met. M.A. students who continue in the Ph.D. program may apply their M.A. credit towards the doctoral degree requirements.

The doctoral program in economics is intended for those students who are interested in research and teaching. The program has the following key features: a series of core courses, two fields of concentration, several significant research requirements, comprehensive exams in economic theory and two fields of concentration, and proficiency in one foreign language. Fields of concentration are environmental economics, development and sustainability, international economics, and public economics. Students may also opt for a third field in history of economics thought.

In addition to these requirements, Ph.D. students may opt to seek the cognate in college teaching. This program, pursued simultaneously with the Ph.D., systematically trains students in pedagogical methods to prepare them for the challenging transition to teaching economics at the college level. The culmination of the cognate is the preparation and defense of a teaching portfolio. A notation appears on the student's transcript when the Cognate in College Teaching is awarded.

The economics program is offered through the Whittemore School of Business and Economics. The school's mission statement can be found under the M.B.A. program description.

Admission Requirements

In addition to requirements established by the Graduate School, the results from the Graduate Record Examination general test must be presented.

The master's program seeks students whose undergraduate experience provides evidence of superior ability and indicates the promise of serious scholarship. Undergraduate preparation will usually include exposure to economic reasoning and methodology, including mathematics and statistics. For those whose backgrounds are deficient, remedial work is available.

The doctoral program expects a master's degree in economics. Previous graduate study of economics is required.

M.A. Degree Requirements

Every student must meet the general requirements of the Graduate School and the following requirements of the major:

1. At least 30 total semester hours, which may include 8 hours of thesis;

2. Of the total hours:

   a. a minimum of 12 hours must be in 900-level courses. These courses must be ECON 972 (Macroeconomics I), ECON 976 (Microeconomics I), and ECON 926 (Econometrics I);

   b. in addition, 2 hours must be in the Graduate Economics Seminar;

   c. a maximum of 4 credit hours may be taken in related disciplines in approved 700-level and above courses;

   d. the remaining credit hours are to be taken in 800-level and above courses.

3. Written evidence of proficiency in economic theory (either by passing the qualifying examination in economic theory or by completing a thesis).

Additional requirements may be associated with the concentrations in environmental economics, development and sustainability, international economics, and public economics. Further information about fields of concentration may be obtained from the department chair. A concentration is not required.

Ph.D. Degree Requirements

Ph.D. candidacy requires the following:

1. Completion of core courses: Microeconomics I and II, Macroeconomics I and II, Econometrics I and II, History of Economic Thought, and Topics in Economic Thought and Methodology.

2. Comprehensive exams in microeconomics and macroeconomics.

3. Completion of two fields of concentration (including an exam in each field).

4. Participation in the General Economics Seminar for four semesters.

5. Participation in a research workshop for two semesters.

6. Demonstrated knowledge of one foreign language (which may be waived).

7. An accepted dissertation proposal.

There are eight core courses in the program. The two theory exams may be taken separately. Each of the two fields of concentration consists of two related courses. The foreign language requirement may be waived if the graduate coordinator determines that knowledge of a foreign language is not directly relevant to the student's course of study and research. A continuously integrated approach to research is a highlight of the program. The first and second years, students evaluate research presented to them in the weekly departmental seminar. Beginning in the third year, students participate in the research workshop and present their own research. Students are then encouraged and supported in presenting research papers at professional conferences. This activity brings together students and faculty members and encourages the transition from course-related activities to proposing a dissertation topic.

Cognate in College Teaching

To complete the Cognate in College Teaching program, a student must submit, and have accepted, a letter of application with a curriculum vitae to the graduate dean after at least one year of full-time graduate studies in economics. Admission to the cognate will be decided by the graduate dean, based upon recommendations of the economics graduate program coordinator and Teaching Excellence Program director. The student must complete specific coursework: GRAD 950 (1 credit); three credits from GRAD 950 series or, with permission, GRAD 960 series; ECON 898, Teaching of Economics (4 credit); and GRAD 990, College Teaching Praxis (4 credits). Finally, the student must submit an approved teaching portfolio. Upon completion of all of these requirements, the Cognate in College Teaching is awarded and noted on the graduate transcript. The cognate cannot be awarded except in conjunction with the Ph.D., and none of the course requirements for the cognate can substitute for requirements for the Ph.D.

Courses

ECON	807	Economics of Sustainable Development	4 cr.
ECON	811	Economic Fluctuations	4 cr.
ECON	825	Mathematical Economics	4 cr.
ECON	828	Time Series Analysis	4 cr.
ECON	836	Seminar in Monetary Theory and Policy	4 cr.
ECON	841	Introduction to Public Policy	4 cr.
ECON	842	Public Economics I	4 cr.
ECON	843	Public Economics II	4 cr.
ECON	845	International Trade	4 cr.
ECON	846	International Finance	4 cr.
ECON	847	Multinational Enterprises	4 cr.
ECON	856	Labor Economics	4 cr.
ECON	868	Seminar in Economic Development	4 cr.
ECON	898	Economic Problems	2 or 4 cr.
ECON	899	Master's Thesis	8 cr.
ECON	926	Econometrics I	4 cr.
ECON	927	Econometrics II	4 cr.
ECON	957	History of Economic Thought	4 cr.
ECON	958	Topics in Economic Thought and Methodology	4 cr.
ECON	972	Macroeconomics I	4 cr.
ECON	973	Macroeconomics II	4 cr.
ECON	976	Microeconomics I	4 cr.
ECON	977	Microeconomics II	4 cr.
ECON	988	Graduate Seminar	1 cr.
ECON	995	Independent Study	1 to 6 cr.
ECON	996	Research Workshop	2 cr.
ECON	999	Doctoral Research	cr.

Education (EDUC)

www.unh.edu/education

Professors: Michael D. Andrew, John J. Carney, Todd A. DeMitchell, Ann L. Diller, Janet Elizabeth Falvey, Susan D. Franzosa, Ann Weaver Hart, David J. Hebert, Barbara E. Houston, David L. Howell, Bruce L. Mallory, Sharon N. Oja

Affiliate Professor: Jeanne E. Ormrod

Associate Professors: Eleanor D. Abrams, Grant L. Cioffi, E. Scott Fletcher, Virginia E. Garland, Georgia M. Kerns, Barbara H. Krysiak, Ann L. Loranger, Jane A. Nisbet, Joseph J. Onosko, Judith A. Robb, Paula M. Salvio, Thomas H. Schram, William L. Wansart, Dwight Webb, Ruth M. Wharton-McDonald

Affiliate Associate Professor: Harry J. Richards

Assistant Professors: Leslie J. Couse, Elizabeth A. Finkel, Mary K. Fries, John F. Hornstein, Michael J. Middleton, Justus M. Ogembo, Judy Sharkey

Degrees Offered: C.A.G.S., M.A., M.A.O.E., M.A.T., M.Ed., Ph.D.

The Department of Education offers a variety of programs leading to the master's degree, the doctor of philosophy degree, and the certificate of advanced graduate study.

The master of arts is offered in counseling. The master of arts in teaching is offered in elementary and secondary education. The master of education is offered in administration and supervision, counseling, early childhood education (including an option in special needs), elementary education, reading, secondary education, special education, and teacher leadership. Special education certification is also available to those who complete the M.A.T. or M.Ed. programs in either elementary or secondary education.

The certificate of advanced graduate study is offered in educational administration and supervision. The doctor of philosophy is offered in education and in literacy and schooling.

The department also offers the master of adult and occupational education degree. Graduate students can select one of two areas of concentration: (1) vocational/technical education; or (2) adult education.

The master of science for teachers is offered through the departments of chemistry, English, and mathematics. (See those departments for information.)

Most programs are available to part-time admitted graduate students.

Admission Requirements

In addition to the materials required by the Graduate School, each application must include recent Graduate Record Examination general test scores and a thoughtful, well-written statement of purpose for undertaking graduate study in a particular program.

Individual programs within the department may have additional admissions requirements. Applicants should refer to specific program descriptions. Consultation with a program faculty member is recommended. In all cases, the applicant's relevant experience, references, and professional goals will be considered in the admission process.

Action on applications to Department of Education programs varies by individual program. Admission to programs in early childhood education, educational administration and supervision, and reading is on a rolling basis. Applications for teacher education, counseling (part-time), and special education are acted on during the fall and spring semesters, following deadlines noted in the Graduate School application. Applications for full-time study in the counseling M.Ed. and M.A. programs, as well as the Ph.D. programs in education and in literacy and schooling are acted on only in the spring, following deadlines noted in the Graduate School application. (The middle 50 percent of students admitted to all graduate programs in education the fall 2002 scored between 420 and 550 on the verbal section of the GRE, 450 to 610 on the quantitative section. They also had an average undergraduate grade-point average between 3.04 and 3.58.)

Doctor of Philosophy in Education

Program information: Ann Diller

The Department of Education offers a Ph.D. in education with specialization in fields related to the areas of (1) teacher education, (2) educational leadership and policy studies, (3) curriculum and instruction, and (4) experiential/outdoor education. The doctoral program is designed to engender a broad understanding of the field of education by encouraging focused scholarly inquiry grounded in the reality of educational practice. Professors and students work to place educational issues in a philosophical and socio-cultural context. Collaborative projects sometimes move beyond the boundaries of the University

into local schools and into national and international settings. The program enrolls full-time and part-time students.

An individual program of study is planned by the student and her or his guidance committee. Each student's program includes a set of common core courses, specialized study, integrative coursework, and required research preparation. Students must meet specific University, department, and program requirements. Within this framework individual programs are guided largely by the student's own interests and goals; programs can vary widely from student to student. Students are encouraged to engage in research activities or focused inquiry early in their programs.

The Ph.D. in education provides students with preparation for distinguished leadership in a variety of settings. Graduates hold positions at all levels of schooling, ranging from early childhood to adulthood. Former students are also involved in the administration of schools, colleges and universities in work as policy makers, community agency directors, consultants, and research analysts.

ADMISSION

Students admitted to the program will normally have completed a master's degree in education or a related field and will have worked full time as an educator at the elementary, secondary, or college level. Entering students are expected to have completed graduate-level coursework in educational psychology, curriculum and instruction, educational structure and change, and the philosophical and social foundations of education. Exceptional candidates who do not meet all these course prerequisites will be considered. To apply, candidates must submit a Graduate School application, transcripts of all undergraduate and graduate coursework, and Graduate Record Examination (GRE) general test scores. Candidates must also submit an extended personal essay in addition to the statement required on the Graduate School application. Applicants should contact the Department of Education to obtain a description of this required essay. On-campus interviews are recommended.

DEGREE REQUIREMENTS

Candidates for the degree must (1) meet admission requirements, (2) develop and complete an approved program of study in consultation with their guidance committee, (3) complete required core coursework, (4) all first- and second-year students must undergo an annual assessment review by the Doctoral Advisory Committee, (5) pass a qualifying examination to advance to candidacy, (6) establish a dissertation committee, (7) develop an approved dissertation proposal, (8) write and present the dissertation, and (9) pass the final oral examination.

PROGRAM OF STUDIES

Upon acceptance to the program, students are assigned an adviser. (This is initially an administrative decision.) During the first year of study, students identify, either in consultation with their adviser or with the director of doctoral studies, faculty members to serve as their guidance committee. Programs for the doctoral degree in education are planned individually by students and their guidance committees. The program of study consists of four major elements: (1) common core courses, (2) specialization specific to the student's scholarly interests, (3) integrative studies, and (4) research preparation, including specific advanced research modules. There are five common core courses required of all students: Proseminar in Doctoral Studies, Critical Inquiry in Education, Normative Inquiry in Education, Qualitative Inquiry in Education, and Quantitative Inquiry: Methods and Techniques of Educational Research. Typically students complete 48 to 60 hours in graduate coursework following their matriculation. These hours do not include doctoral research (EDUC 999).

QUALIFYING EXAMINATION

To be advanced to Ph.D. candidacy, students must satifactorily complete qualifying examinations as well as other program requirements. After completing at least two-thirds of their coursework, students may take the qualifying examination. The examination is a written exam to be developed, supervised, and evaluated by the student's guidance committee. The qualifying examination will be used to evaluate the student's (1) general knowledge in the area of inquiry, and (2) fitness for engaging in research, particularly in the subject proposed for the dissertation.

DISSERTATION

To complete the degree, the student must present and defend a dissertation of original research and publishable quality.

Doctor of Philosophy in Literacy and Schooling

Program information: Paula Salvio

The primary purpose of the Ph.D. program in literacy and schooling is to prepare professionals who will conduct research and successfully publish accounts of their work. Within the program and beyond, they study the theory and practice of teaching literacy and become leaders who advocate changes. We want to create classrooms in which the voices of students, as well as those of the teachers, are honored.

Research is usually conducted in natural environments, and study within this program is on a full-time basis. Students' backgrounds vary from educators interested in adult education through preschool. Program graduates work in universities, colleges, and various public or private educational settings.

ADMISSION REQUIREMENTS

Applicants must have at least three years of teaching experience. Although most of our students have a master's degree, it is not required for admission. Applicants must submit a Graduate School application (except for the personal statement); a supplement to the Graduate School application (available from the Writing Lab in the education department); transcripts of all previous coursework; and Graduate Record Examination (GRE) general test scores. We also encourage applicants to come to the University to meet the coordinator of the program.

DEGREE REQUIREMENTS

As part of the interdisciplinary program, students will take courses outside of education in the Department of English; in addition it is recommended that they take one course from another University department. The program has two required courses, an 8-credit seminar on research in literacy instruction (EDUC 918), and a 4-credit seminar in reading (EDUC 914). With faculty assistance, students design a course of study that will ensure they gain expertise in reading and writing instruction, language and cognition, and processes of conducting research. Once they have completed nearly all of their coursework, students will take a qualifying examination. Passing this exam advances students to degree candidacy. They then meet with a committee to discuss the proposal for their dissertation. Once the dissertation is complete, they will then defend their work in an oral session. Students can complete the degree in three years, with two years of concentrated coursework and a third for their dissertation.

Administration and Supervision

Program information: Todd DeMitchell, Virginia Garland, Barbara Krysiak

The Department of Education, in general, and the program in administration and supervision, in particular, are responsible for

training educational leaders. Many research studies on effective schools have underscored the pivotal role that strong leadership plays in building and sustaining the health of a good school. The program in administration and supervision fulfills the important mission of training leaders for New Hampshire's as well as the nation's schools.

The Department of Education offers the degree of master of education and the certificate of advanced graduate study in educational administration and supervision.

MASTER OF EDUCATION

The program is designed for the experienced teacher who wishes to become qualified in the broad area of supervision and administration, grades K-12. Emphasis is on the elementary and secondary school principalship and instructional supervision. This program leads to certification in New Hampshire as a principal.

Core requirements (28 credits): 953, Seminar in Curriculum Study; 961, Public School Administration; 962, Educational Finance and Business Management; 965, Educational Supervision; 967, Legal Aspects of School Administration; 969, Practicum in Educational Administration; and 972, Educational Program Evaluation.

Electives (8 credits): Selected in consultation with the program adviser. EDUC 976, The Principalship, is strongly recommended as an elective.

Concluding experience: A degree candidate must successfully complete one of the following: a comprehensive oral examination based on a set of theses statements prepared by the candidate or a major research study related to school administration, curricula, or educational supervision.

CERTIFICATE OF ADVANCED GRADUATE STUDY

This program is designed for those who possess a master's degree in school administration or graduate study supplemented by work experience that is equivalent to that outlined in the University of New Hampshire's M.Ed. program in educational administration and supervision. This program offers advanced preparation for those educators who desire careers as school superintendents, assistant superintendents, business managers, state department of education personnel, vocational education coordinators, curriculum coordinators, or educational personnel in private organizations. This program leads to certification as a superintendent in New Hampshire. It is possible to also receive certification as a principal under special circumstances.

Core requirements (20 credits): C.A.G.S. students may select any five of the following six core courses: 964, Personnel and Communication in Educational Organizations; 968, Collective Bargaining in Public Education; 970, The Change Process in Education; 971, School Facilities Management; 973, Analysis of Educational Policy; and 977, Leadership: The District Level Administrator.

Electives (8 credits): Electives are selected in consultation with the program adviser. A student who does not hold a master's degree in administration may be required to take specific courses as electives.

Concluding experience (12 credits): A student must complete a significant field project and field internship in an appropriate administrative setting.

Adult and Occupational Education

Program information: David Howell

The Department of Education offers the master of adult and occupational education degree. Graduate students can select one of two areas of concentration: (1) vocational/technical education; or (2) adult education.

ADMISSION REQUIREMENTS

Applicants should consult with a faculty member before seeking admission, because an applicant's scholastic achievement, experience, references, and professional goals are all relevant in the admission process. Applicants must also submit scores achieved on either the Graduate Record Examination general test or the Miller Analogies Test, in addition to the materials required by the Graduate School.

DEGREE REQUIREMENTS

All students are required to take EDUC 981, Quantitative Inquiry: Methods and Techniques of Educational Research; EDUC 810G, Adult and Occupational Education Seminar (1-2 cr.); and AOE 810A, Concepts of Adult and Occupational Education. Students concentrating in the area of vocational/technical education must also complete EDUC 810B, Microcommunicators in Education. Students concentrating in adult education are required to take EDUC 989C, Programming in Adult Education. A graduate guidance committee consisting of a minimum of two faculty members from occupational education plus one other graduate faculty member is appointed for each student. Prior to the completion of 12 credit hours, the individual's graduate program is approved by the student's graduate committee. A minimum of 18 credit hours within the program is required. The committee, working with the candidate, makes every effort to provide a total program that reflects the goals of the individual.

Students must select a thesis or nonthesis option. Students completing a thesis are required to defend it orally. Students following the nonthesis option are required to complete written and oral examinations plus a professional paper or prepare a portfolio according to program guidelines.

Students may obtain initial certification in agriscience education and trade and industrial education through this program.

Counseling Program

Program information: J. Elizabeth Falvey, David Hebert, Dwight Webb

The graduate program in counseling prepares graduates to function as professional counselors in a variety of institutions and agencies dedicated to psychological and educational development. The program is designed to train counselors to integrate theory into practice, to work collaboratively in interdisciplinary and culturally diverse settings, and to provide professional leadership. Curricular experiences emphasize counselor self-awareness and client empowerment as they are influenced by the increasingly complex challenges of a pluralistic society. Two degrees are offered: the master of arts and the master of education.

MASTER OF ARTS (62 CREDIT HOURS)

The master of arts in counseling program has the following requirements:

Core requirements (52 credits): 920, Counseling Theory and Practice; 921, Psychology of Career and Personal Development; 922, Assessment in Counseling; 923, Group Counseling; 924, Psychological Disorders and Adaptation; 925, Counseling Practicum: Professional and Ethical Orientation; 926A, Internship I; 926B, Internship II; 927, Theories of Personality; 929, Advanced Internship; 930, Research in Counseling; 931, Clinical Diagnosis and Treatment Planning in Counseling; 932, Contemporary Issues in Counseling.

Electives (4 credits): Selected in consultation with the student's adviser. Electives may be chosen from graduate level courses on campus, or they may be completed through an approved independent study.

Concluding Experience (6 credits): Degree candidates must complete a research thesis or in inquiry project and presentation.

MASTER OF EDUCATION (48 CREDIT HOURS)

The master of education in counseling requires the following: Core requirements (44 credits): 920, Counseling Theory and Practice; 921, Psychology of Career and Personal Development; 922, Assessment in Counseling; 923, Group Counseling; 924, Psychological Disorders and Adaptation; 925, Counseling Practicum: Professional and Ethical Orientation; 926A, Internship I; 926B, Internship II; 932, Society and Culture: Contemporary Issues in Counseling; and 933, Psychosocial Development and Comprehensive Guidance in the Classroom; 851C, Teaching Exceptional Learners: Related Services.

Electives (4 credits): Selected in consultation with the student's adviser. Electives may be chosen from graduate level courses on campus, or may be completed through an approved independent study.

Concluding experience: Degree candidates must complete a comprehensive essay examination.

Early Childhood Education

Program information: John Hornstein

The Department of Education offers the master of education degree in early childhood education and an option in special needs. Certification as an early childhood teacher (K–3) is available.

This program is an advanced course of study designed for teachers, administrators, and other early childhood practitioners who wish to improve their professional competence and broaden their career opportunities. The program emphasizes the acquisition of knowledge and competencies in child development (birth through eight years), learning environments, developmentally appropriate curriculum, developmental and cultural diversity, and professional leadership. The coursework culminates in extensive field-based experience.

Admission requirements: All admitted students are expected to have had at least one course in child development at the upper-division level and at least 200 hours of supervised classroom experience with children from birth through eight years of age, or the equivalent.

Core requirements (30 credits): 941, Diversity and Child Development; 942, Sociocultural Perspectives on Teaching and Learning; 943, Changing Contexts in Early Education; 944, Inclusive Curriculum for Young Children; 948, Leadership and Advocacy in Early Childhood Education; one course selected from the special needs option courses offering (EDUC 860, 947, 951, 949); and two semesters (6 credits) of internship in EDUC 900B and 901B.

Electives (6 credits): Selected in consultation with the program adviser.

Concluding experience: A degree candidate must successfully complete one of the following: a comprehensive written and oral examination, or a research thesis.

SPECIAL NEEDS OPTION

In addition to the early childhood core requirements described above, students choosing this option will concentrate on young children who are at risk for, or have, developmental difficulties and special needs. Coursework emphasizes an understanding of the role of the family, community, and social policy in early development and intervention. The program is noncategorical in its approach to assessment and educational planning.

Core requirements (38 credits): Identical to core requirements of early childhood program with addition of 860, Introduction to Young Children with Special Needs; 947, Curriculum for Young Children with Special Needs: Evaluation and Program Design; and 949, Supporting Parents of Students with Special Needs.

Electives (4 credits): Selected in consultation with the program adviser.

Concluding experience: A degree candidate must successfully complete one of the following: a comprehensive written and oral examination or a research thesis.

The above program requirements are subject to modification in order to reflect changes in New Hampshire state certification requirements for general special education.

Reading

Program information: John Carney, Grant Cioffi, Paula Salvio, Ruth Wharton-McDonald

The graduate program in reading prepares reading specialists and teachers to provide instruction and leadership in literacy in a variety of educational contexts. The instructional sequence integrates theory, research, and instructional practice, and incorporates field-based and clinical components. Particular emphasis is placed on the interrelationship of reading and writing. Graduates of the program provide direct instruction in literacy and offer leadership in organizing, managing, and evaluating literacy programs.

Core requirements (24 credits): 907, Foundations of Literacy Instruction; 908-909, Clinical Diagnosis and Remediation of Reading Difficulties and Disabilities; 910, Reading and Writing Methods in the Middle/Secondary School; 913, Field Practicum; 914, Seminar in Reading Research.

Electives (12 credits): Selected in consultation with the program adviser. A student using the research thesis option as a concluding experience will use 8 credits for EDUC 899, Master's Thesis.

Concluding experience: A degree candidate will successfully complete either a written examination or a research thesis.

Special Education

Program information: John Hornstein, Georgia Kerns, Jan A. Nisbet, William Wansart

The special education program prepares highly qualified educators who possess the knowledge, dispositions, and skills necessary to take the lead in establishing effective teaching and learning environments for a diverse population of learners, who are capable of collaborating with classroom teachers as team leaders or consultants, and who utilize these skills within their school communities, and within the profession itself. The program meets current certification requirements in the State of New Hampshire.

Degree Requirements Prerequisites: All candidates are required to complete a course in mathematics teaching methods and a course in reading teaching methods. All candidates who have not already done so are required to complete an introductory course in exceptionality (e.g., 850, Introduction to Exceptionality) and an introductory course in special education methods (e.g., 851, Educating Exceptional Learners) with credits not to be counted toward the M.Ed. degree.

Core requirements (18–24 credits): 900C and 901C, Internship and Seminar/ Special Education; 939, Assessment of Children with Learning Difficulties; 940, Teaching Children with Learning Difficulties; and 949, Supporting Families of Individuals with Exceptionalities.

Specialized courses (8 credits): Selected in consultation with the program adviser from advanced courses in special education, or other related areas as appropriate. Advanced courses (8 credits): 938, Advanced Seminar in Special Education; 981, Quantitative Inquiry: Methods and Techniques of Educational Research.

Electives (4 credits): Selected in consultation with adviser. Students with no previous teaching certification may be asked to complete additional courses.

Concluding experience: All degree candidates must complete an action research project or a research thesis. The thesis typically involves an additional 6 to 10 credits.

The above program requirements are subject to modification in order to reflect changes in New Hampshire state certification requirements for general special education.

Teacher Education Program

Program information: Michael Andrew, Ruth Eurenius

The teacher education program prepares teachers who possess the knowledge, disposition, and skills necessary to take the lead in establishing effective teaching and learning environments within their own classrooms, their school communities, and within the profession itself.

The Department of Education offers the master of arts in teaching degree in elementary and secondary education and the master of education degree in elementary and secondary education for those seeking initial teacher licensing. The master of education degree in teacher leadership is available for experienced teachers.

Applicants to teacher education programs are evaluated on the following criteria: undergraduate academic record, Graduate Record Examination (GRE) general test scores, and letters of recommendation regarding academic ability, motivation, interpersonal skills, and potential for success as a teacher. Those seeking admission to programs leading to teacher licensing should also have a positive recommendation from EDUC 500, Exploring Teaching, or equivalent experience.

In our admissions 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 their students—each and every one; (3) an ability to interact positively with children and adults; (4) a 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 their environment, especially in the context of a classroom; (7) the ability to make reasonable judgments in a context of complex situations that change from moment to moment; (8) the capacity for clear thinking and an ability to translate their thoughts into simple and clear explanations; (9) superior academic skills, extensive knowledge of at least one major discipline, intellectual curiosity, the ability to be open to the unknown, and the willingness to tolerate uncertainty in the face of enormous pressure to deny it; (10) a disposition to take charge of their own learning, which includes the active pursuit of feedback and the willingness to take thoughtful risks.

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 better.

Master of Arts in Teaching and Master of Education Programs for Those Seeking Teacher Licensure

These programs are designed for two types of students: (1) those UNH undergraduates who anticipate completing the Five-Year Teacher Preparation Program at UNH and (2) those who completed an undergraduate degree either at UNH or elsewhere with little or no coursework in education. The programs lead to teaching licensure at the elementary and secondary levels. Admission to these programs is highly competitive.

Licensure requirements that must be met prior to or as part of the master's degree program include completion of 4 credits or an equivalent in each of the following: 500, Exploring Teaching; 800, Educational Structure and Change; 801, Human Development and Learning: Educational Psychology; 803, Alternative Teaching Models; 805, Alternative Perspectives on the Nature of Education; 851A or B, Educating Exceptional Learners; 900A, 901A, Internship and Seminar/Teaching (6 credits each).

Elementary teacher licensure requirements include two additional courses: 806, Introduction to Reading Instruction in the Elementary Schools, or 907, Foundations of Reading Instruction; and a mathematics course: MATH 701, Exploring Mathematics I, or MATH 702, Exploring Mathematics II (4 credits each), or the equivalent.

Students pursuing teacher licensure in art, biology, chemistry, earth sciences, general science, physics, or social studies must also complete EDUC 807, Teaching Reading through the Content Areas (2 credits).

Credits earned in the seven-week Live, Learn, and Teach summer program may be applied toward the master's degree. Live, Learn, and Teach satisfies the EDUC 500, Exploring Teaching requirement through 4 credits of EDUC 935, Seminar and Practicum in Teaching; 4 credits of 800A, Educational Structure and Change; and 4 credits of 803H, Experiential Curriculum.

Preparation for licensure in general special education is available to those who complete the M.A.T. or M.Ed. programs in either elementary or secondary education. This licensure allows recipients to serve as general special education teachers. In order to qualify for licensure in general special education, students must complete 22 credits (18 of which may be used toward the M.Ed. degree, or 6 toward the M.A.T. degree); a reading methods course; a mathematics methods course; 850, Introduction to Exceptionality; 851, Educating Exceptional Learners; 939–940, Assessment and Teaching of Children with Learning Difficulties; 900C, 901C, Internship and Seminar (3 credits each).

Dual licensure in early childhood education and elementary education is available to those who are enrolled in the M.Ed. in Elementary Education. This dual licensure allows recipients to serve as early childhood and/or elementary teachers. The early childhood/elementary education dual certification program option is intended for students who have majored in family studies with an option in child studies or young child/nursery-kindergarten, or the equivalent. Dual licensure requires three graduate courses in early childhood education to be selected in consultation with an adviser from the early childhood program. The three early childhood courses will count as a graduate concentration in the M.Ed. elementary program. Students will complete a full-year internship at the K-3 level under the auspices of the teacher education program.

Master of Arts in Teaching (Elementary and Secondary)

Twenty additional credits at the graduate level of which 12 must be in an area of subject matter concentration (not in Education) and eight can be either in Education or in another department.

A graduate student in this program is strongly encouraged to develop a subject area concentration consisting of at least 3 credits in consultation with his/her adviser.

Concluding experience: A degree candidate must successfully complete a teacher education program portfolio and colloquium in conjunction with the internship.

Master of Education (Elementary and Secondary)

Twenty additional credits at the graduate level of which 10 must be in Education and 10 can be either in Education or in another department.

A graduate student in this program is strongly encouraged to develop a concentration in consultation with his/her adviser consisting of at least three courses (minimum of 9–12 credits) using some or all of those 20 credits. Examples of possible concentrations include early childhood education, special education, English as a second language, literacy (elementary or secondary), instructional technology, counseling, environmental education, or learning environments.

Concluding experience: A degree candidate must successfully complete a teacher education program portfolio and colloquium in conjunction with the internship.

Master of Education in Teacher Leadership

This program is designed for experienced teachers who wish to remain in the classroom but expand their leadership role in improving schooling. Admitted students usually have three or more years of teaching experience. The program provides a context in which teachers can build upon their classroom experiences as teachers and learners; expand their understanding of the roles of teachers in schools; develop tools of inquiry that enable them to investigate questions about teaching, learning, and school reform; inspire others to work toward institutional change; and collaborate effectively with other teachers, administrators, and parents in ways that move the teaching profession forward. Students must complete a minimum of eight 4-credit courses, of which three are a required core. At least four courses must be taken in the Department of Education.

Core requirements: 958, Analysis of Teaching; 953, Seminar in Curriculum Study; either 904, Qualitative Inquire in Education, or 981, Quantitative Inquiry: Methods and Techniques of Educational Research.

Concentration: A set of courses (three or more) chosen by the student in consultation with his or her adviser, which reflect a personal interest, need, or goal. The concentration may be in or outside education. Potential areas of concentration include mentoring, curriculum, ESL, and increasing knowledge in subject matter fields.

Elective courses: Graduate level courses in or outside education may be taken in addition to the concentration.

Concluding experience: Inquiry project. The inquiry project may be theoretical or empirical in nature. Theoretical projects focus on a problem or issue of interest to the candidate and require synthesis of professional experience, coursework, and professional literature. Empirical projects involve the systematic collection, analysis, and reporting of data using appropriate methodologies. Students may choose to do a research thesis. Students choosing the research thesis must elect 4 credits of EDUC 899 as part of their concentration.

Courses

EDUC 800	Educational Structure and Change	2 or 4 cr.
EDUC 801	Human Development and Learning: Educational Psychology	2 or 4 cr.
EDUC 803	Alternative Teaching Models	2 or 4 cr.
EDUC 805	Alternative Teaching Perspectives on the Nature of Education	2 or 4 cr.
EDUC 806	Introduction to Reading in the Elementary School	4 cr.
EDUC 807	Teaching Reading through the Content Areas	2 cr.
EDUC 810A	Concepts of Adult and Occupational Education	4 cr.
EDUC 810B	Microcommunications	4 cr.
EDUC 810C	Youth Organizations	4 cr.
EDUC 810D	Planning for Teaching	4 cr.
EDUC 810E	Workshop in Adult and Occupational Education	1 to 4 cr.
EDUC 810F	Investigations	1 to 4 cr.
EDUC 810G	Seminar Adult & Occupational Education	1 to 2 cr.
EDUC 810H	Investigations	2 to 4 cr.
EDUC 811	Youth, Culture, and Society in Comparative Perspective	4 cr.
EDUC 817	Growing up Male in America	4 cr.
EDUC 820	Introduction to Computer Applications for Education	4 cr.
EDUC 821	Application of Multimedia Technology in Education	2 cr.
EDUC 833	Introduction to the Teaching of Writing	4 cr.
EDUC 834	Children's Literature	4 cr.
EDUC 835	Young Adult Literature	4 cr.
EDUC 841	Exploring Mathematics with Young Children	4 cr.
EDUC 850	Introduction to Exceptionality	4 cr.
EDUC 851A	Educating Exceptional Learners: Elementary	4 cr.
EDUC 851B	Educating Exceptional Learners: Secondary	4 cr.
EDUC 851C	Educating Exceptional Learners: Related Services	4 cr.
EDUC 852	Contemporary Issues in Learning Disabilities	4 cr.
EDUC 853	Contemporary Issues in Behavioral Disabilities	4 cr.
EDUC 854	Contemporary Issues of Developmental Disabilities	4 cr.
EDUC 855	Fostering Social Relationships for Students who Experience Significant Disabilities	1 cr.
EDUC 860	Introduction to Young Children with Special Needs	4 cr.
EDUC 867	Students, Teachers, and the Law	4 cr.
EDUC 876	Reading for Learners with Special Needs	4 cr.
EDUC 881	Introduction to Statistics: Inquiry, Analysis, and Decision Making	4 cr.
EDUC 885	Educational Assessment	4 cr.
EDUC 891	Methods of Teaching Secondary Science	4 cr.
EDUC 894	Proseminar in Teacher Leadership	2 cr.
EDUC 896	Summer Institute in Environmental Education	8 cr.
EDUC 897	Seminar in Contemporary Educational Problems	1 to 4 cr.
EDUC 899	Master's Thesis	6 to 10 cr.
EDUC 900A	Internship and Seminar in Teaching	3 or 6 cr.
EDUC 900B	Internship and Seminar in Early Childhood Education	3 cr.
EDUC 900C	Internship and Seminar in Special Education	3 or 6 cr.
EDUC 900D	Internship and Seminar/Adult and Occupational Education	3 to 6 cr.
EDUC 901A	Internship and Seminar in Teaching	3 or 6 cr.
EDUC 901B	Internship and Seminar in Early Childhood Education	3 cr.
EDUC 901C	Internship and Seminar in Special Education	3 or 6 cr.
EDUC 901D	Internship and Seminar/Adult and Occupational Education	3 to 6 cr.
EDUC 902	Doctoral Proseminar	4 cr.
EDUC 903	Normative Inquiry in Education	4 cr.
EDUC 904	Qualitative Inquiry in Education	4 cr.
EDUC 905	Critical Inquiry in Education	4 cr.
EDUC 907	Foundations of Literacy Instruction	4 cr.
EDUC 908	Clinical Diagnosis and Remediation of Reading Difficulties and Disabilities	4 cr.
EDUC 909	Clinical Diagnosis and Remediation of Reading Difficulties and Disabilities	4 cr.
EDUC 910	Reading and Writing Methods in the Middle/Secondary School	4 cr.
EDUC 913	Field Practicum in Reading	4 cr.
EDUC 914	Seminar in Reading Research	4 cr.
EDUC 918A	Seminar on Research in Literacy Instruction	2 cr.
EDUC 918B	Seminar on Research in Literacy Instruction	2 cr.
EDUC 918C	Seminar on Research in Literacy Instruction	2 cr.
EDUC 918D	Seminar on Research in Literacy Instruction	2 cr.
EDUC 920	Counseling Theory and Practice	4 cr.
EDUC 921	Psychology of Career and Personal Development	4 cr.
EDUC 922	Assessment in Counseling	4 cr.
EDUC 923	Group Counseling	4 cr.
EDUC 924	Psychological Disorders and Adaptation	4 cr.
EDUC 925	Counseling Practicum: Professional and Ethical Orientation	4 cr.
EDUC 926A	Counseling Internship I	4 cr.
EDUC 926B	Counseling Intership II	4 cr.

EDUC 927	Theories of Personality	4 cr.
EDUC 928	Family Counseling	4 cr.
EDUC 929	Advanced Counseling Internship	4 cr.
EDUC 930	Research in Counseling	4 cr.
EDUC 931	Clinical Diagnosis and Treatment Planning in Counseling	4 cr.
EDUC 932	Society and Culture: Contemporary Issues in Counseling	4 cr.
EDUC 933	Psychosocial Development and Comprehensive Guidance in Schools	4 cr.
EDUC 935A	Seminar and Practicum in Teaching	4 cr.
EDUC 935B	Seminar and Practicum in Teaching	4 cr.
EDUC 938	Advanced Seminar in Special Education	4 cr.
EDUC 939	Assessment and Teaching of Children with Learning Difficulties	4 cr.
EDUC 940	Assessment and Teaching of Children with Learning Difficulties	4 cr.
EDUC 941	Diversity and Child Development	4 cr.
EDUC 942	Sociocultural Perspectives on Teaching and Learning	4 cr.
EDUC 943	Changing Contexts in Early Education	4 cr.
EDUC 944	Inclusive Curriculum for Young Children	4 cr.
EDUC 947	Curriculum for Young Children with Special Needs: Evaluation and Program Design	4 cr.
EDUC 948	Leadership and Advocacy in Early Childhood Education	4 cr.
EDUC 949	Supporting Families of Individuals with Exceptionalities	4 cr.
EDUC 950	Research in Culture, Behavior, and Development	4 cr.
EDUC 951	Laws and Regulations Affecting the Education of Students with Disabilities	4 cr.
EDUC 952	Inclusive Assessment, Curriculum, Instruction, and Communication Supports	4 cr.
EDUC 953	Seminar in Curriculum Study	4 cr.
EDUC 954	Leadership and Systems Change in Inclusive Education	2 cr.
EDUC 956	Learning to Listen: Developing Positive Behavior Supports for Students with Challenging Behaviors	4 cr.
EDUC 957	Collaborative Models of Supervision for Cooperating Teachers	4 cr.
EDUC 958	Analysis of Teaching	4 cr.
EDUC 960	Mentoring New Teachers	2 cr.
EDUC 961	Public School Administration	4 cr.
EDUC 962	Educational Finance and Business Management	4 cr.
EDUC 964	Personnel and Communication in Educational Organizations	4 cr.
EDUC 965	Educational Supervision and Evaluation	4 cr.
EDUC 967	Legal Aspects of School Administration	4 cr.
EDUC 968	Collective Bargaining in Public Education	4 cr.
EDUC 969	Practicum in Educational Administration	4 cr.
EDUC 970	Change Process in Education	4 cr.
EDUC 971	School Facilities Management	4 cr.
EDUC 972	Educational Program Evaluation	4 cr.
EDUC 973	Analysis of Educational Policy	4 cr.
EDUC 974	Administrative Internship and Field Project	6 cr.
EDUC 975	Administrative Internship and Field Project	6 cr.
EDUC 976	Principalship	4 cr.
EDUC 977	Leadership: The District Level Administrator	4 cr.
EDUC 980	Research in the Teaching of Writing	4 cr.
EDUC 981	Quantitative Inquiry: Methods and Techniques of Educational Research	4 cr.
EDUC 982	Issues and Methods in Ethnographic Research in Education	4 cr.
EDUC 983	Advanced Psychology of Human Learning	4 cr.
EDUC 985	Contemporary Issues and Theories in Human Learning and Development	4 cr.
EDUC 986	Philosophy of Education	4 cr.
EDUC 988	Alternative Models of Teacher Development	4 cr.
EDUC 989A	College Teaching	2 cr.
EDUC 989B	Junior & Voc/Tech Colleges	4 cr.
EDUC 989C	Programming in Adult Education	4 cr.
EDUC 990	Developmental Perspectives on Adulthood	4 cr.
EDUC 991	Curriculum Theory I	4 cr.
EDUC 992	Curriculum Theory II	4 cr.
EDUC 993	Epistemology and Education	4 cr.
EDUC 995	Independent Study	1 to 4 cr.
EDUC 998	Special Topics	1 to 4 cr.
EDUC 999	Doctoral Research	

Electrical and Computer Engineering (ECE)

www.ece.unh.edu

Professors: Kent A. Chamberlin, Christian P. De Moustier, L. Gordon Kraft, John R. LaCourse, W. Thomas Miller III, Paul J. Nahin, Andrzej Rucinski, Kondagunta U. Sivaprasad

Affiliate Professor: Stuart M. Selikowitz

Associate Professors: Michael J. Carter, Allen D. Drake, Richard A. Messner

Research Associate Professors: David J. Forrest, William H. Lenharth

Affiliate Associate Professors: Charles H. Bianchi, Paul W. Latham II

Assistant Professors: Andrew L. Kun, Jianqiu Zhang

Research Assistant Professor: Brian P. Calder

Degrees Offered: M.S., Ph.D.

The Department of Electrical and Computer Engineering offers a program of study leading to the master of science degree with a major in electrical engineering. An option in electrical engineering is available within the engineering Ph.D. program.

Opportunities

Advanced degrees in electrical engineering open the door to a wider variety of job opportunities, particularly with regard to consulting, research and development, and positions in academia. Within the department, opportunities for formal study, research, and individual or team projects are available in the following areas: biomedical engineering; communication systems; digital signal processing; computer engineering, computer networks, digital systems, and logical synthesis; robotics and neural networks; image processing and pattern analysis; control systems; fiber optics; electromagnetics; space systems engineering; rapid prototyping technologies; VLSI circuits; reconfigurable, testable, and fault-tolerant computational structures; ocean engineering; and instrumentation.

Admission Requirements

An applicant should have completed a baccalaureate degree in electrical engineering or have comparable training, which included courses in mathematics and physical science, network theory, digital systems, fields and waves, electronics, electrical circuits, with appropriate laboratory experiences. Students with a baccalaureate degree from non-U.S. universities must take and submit general scores from the Graduate Record Examination.

M.S. Degree Requirements

Each student meets with a faculty adviser to set up a program of study. No specific course requirements are mandated. Normally, a minimum of 12 credits of 900-level courses is required, not including thesis. However, the student must consult their adviser before signing up for the courses.

The department considers the development of professional communication skills through technical presentations a basic component of a graduate education. Every master's student is required to participate in seminars or course lectures as needed to satisfy the technical presentation requirement.

In addition to taking advanced coursework, master's students must demonstrate their ability to do independent work and report their results by taking 6 credits of thesis (ECE 899).

Ph.D. Option Requirements

Following entrance into the doctoral program, a guidance committee is appointed for the student by the dean of the Graduate School upon recommendation of the graduate coordinator. This committee assists students in outlining their programs and may specify individual coursework requirements.

To qualify for the Ph.D. in engineering, the student must successfully pass two separate examinations. The first exam is called the preliminary exam and is normally taken

at end of the academic year unless it is petitioned by the student and approved by the graduate committee. This exam tests the student's general electrical engineering knowledge at the undergraduate level and based on performance, the student may be advised to take remedial courses or given a chance to retake the exam during the next semester or discontinued from the program. This decision will be made by the department. The comprehensive exam is normally given at the completion of all coursework and primarily involves the development and presentation of a research proposal to the guidance committee.

Typically, 24 credits of coursework beyond the M.S. are expected. A minimum cumulative grade-point average of 3.33 must be maintained. Upon the successful completion of all coursework and the comprehensive examination, the student is advanced to candidacy and, upon the recommendation of the graduate coordinator, a doctoral committee is appointed by the dean of the Graduate School. The doctoral committee conducts an annual review of the student's progress, supervises and approves the doctoral dissertation, and administers the final dissertation defense.

Courses

ECE	804	Electromagnetic Fields and Waves II	4 cr.
ECE	811	Digital Systems	4 cr.
ECE	814	Introduction to Digital Signal Processing	4 cr.
ECE	815	Introduction to VLSI	4 cr.
ECE	817	Introduction to Digital Image Processing	4 cr.
ECE	834	Network Data Communications	4 cr.
ECE	841	Nonlinear Systems Modeling	4 cr.
ECE	845	Fundamentals of Acoustics	4 cr.
ECE	857	Fundamentals of Communication Systems	4 cr.
ECE	858	Communication System Design	4 cr.
ECE	860	Introduction to Fiber Optics	4 cr.
ECE	861	Optical Engineering	4 cr.
ECE	872	Control Systems	4 cr.
ECE	874	Introduction to Neural Networks	4 cr.
ECE	875	Applications of Integrated Circuits	4 cr.
ECE	877	Collaborative Engineering I	4 cr.
ECE	878	Collaborative Engineering II	2 to 4 cr.
ECE	881	Physical Instrumentation	4 cr.
ECE	884	Biomedical Instrumentation	4 cr.
ECE	885	Underwater Acoustics	4 cr.
ECE	896	Special Topics in Electrical or Computer Engineering	1 to 4 cr.
ECE	899	Master's Thesis	6 cr.
ECE	901	Electromagnetic Wave Theory I	3 cr.
ECE	902	Electromagnetic Wave Theory II	3 cr.
ECE	915	Advanced Active Circuits	3 cr.
ECE	936	Biomedical Engineering	3 cr.
ECE	939	Statistical Theory of Communications	3 cr.
ECE	940	Information Theory	3 cr.
ECE	941	Digital Signal Processing	3 cr.
ECE	944	Nonlinear Control Systems	4 cr.
ECE	951	Advanced Control Systems I	3 cr.
ECE	952	Advanced Control Systems II	3 cr.
ECE	955	Estimation and Filtering	3 cr.
ECE	960	Computer Architecture	3 cr.
ECE	961	Test Engineering and Testable Design	3 cr.
ECE	962	Fault Tolerant Computers	3 cr.
ECE	965	Introduction to Pattern Recognition	3 cr.
ECE	970	Introduction to Optical Signal Processing	3 cr.
ECE	980	Opto-Electronics	3 cr.
ECE	992	Advanced Topics in Electrical Engineering	1 to 3 cr.
ECE	993	Advanced Topics in Computer Engineering	1 to 3 cr.
ECE	994	Advanced Topics in Systems Engineering	1 to 3 cr.
ECE	998	Independent Study	1 to 3 cr.
ECE	999	Doctoral Research	

Engineering Ph.D Program (ENGR)

Degree Offered: Ph.D.

The College of Engineering and Physical Sciences offers a program of study leading to the degree of doctor of philosophy in engineering. The program has seven options: chemical engineering, civil engineering, electrical engineering, materials science, mechanical engineering, ocean engineering, and systems design.

Option in Systems Design

Barry K. Fussell, area coordinator

The systems design option is an interdepartmental program that addresses contemporary engineering and scientific problems that can be solved only through the cooperation of a variety of disciplines. Students in systems design can elect either one of two professional directions. The first develops professionals with the technical expertise of a Ph.D. and with the ability to work with and direct groups of people working on large-scale technical projects. The second direction develops engineers with capabilities in the theory and analysis of large-scale complex systems. Concentration in an area of specific individual interest is combined with participation in a larger interdisciplinary project.

Admission Requirements

Qualified students with bachelor's or master's degrees in engineering, mathematics, or the physical sciences are eligible for admission to the program. To be admitted, students must present evidence that they have sufficient background in the area in which they propose to specialize. They must also find a CEPS faculty member to serve as their adviser.

Ph.D. Option Requirements

Following entrance into the program, a guidance committee is appointed for the student by the dean of the Graduate School upon recommendation of the student's area coordinator. This committee assists students in outlining their program and may specify individual coursework requirements in addition to those required by the area of specialization. The committee also conducts an annual in-depth review of each student's progress and, following substantial completion of a student's coursework, administers the qualifying examination. This committee is also responsible for administering the language examination and/or research-tool proficiency requirements. Coursework and language requirements should normally be completed by the end of the second year of full-time graduate study and must be completed before the student can be advanced to candidacy.

Upon the successful completion of the qualifying examination and other proficiency requirements, the student is advanced to candidacy and, upon the recommendation of the student's area coordinator, a doctoral committee is appointed by the dean of the Graduate School. The doctoral committee conducts an annual review of the student's progress, supervises and approves the doctoral dissertation, and administers the final dissertation defense.

To obtain a Ph.D. degree in engineering, a student must meet all of the general requirements as stated under academic regulations and degree requirements of the Graduate School. Students are normally expected to take coursework equivalent to two full-time academic years beyond the baccalaureate and to complete a dissertation on original research that will require at least one additional year of full-time study. A student should consult specific course offerings and descriptions of each department and should consult the area coordinator for additional information.

English (ENGL)

www.unh.edu/english/grad.html

Professors: Janet Aikins, Elizabeth Jane Bellamy, Thomas A. Carnicelli, Mary Morris Clark, Walter F. Eggers, Burt H. Feintuch, Michael K. Ferber, Lester A. Fisher, Elizabeth H. Hageman, Jane T. Harrigan, Rochelle Lieber, John S. Lofty, Lisa Watt MacFarlane, Mekeel McBride, Andrew H. Merton, Thomas R. Newkirk, Susan Schibanoff, Charles D. Simic, David H. Watters

Associate Professors: John M. Archer, Brigitte Gabcke Bailey, Margaret-Love G. Denman, John Richard Ernest, Diane P. Freedman, Susan Margaret Hertz, James Krasner, Douglas M. Lanier, Lisa C. Miller, Naomi G. Nagy, Petar Ramadanovic, Sarah Way Sherman, Sandhya Shetty, Rachel Trubowitz

Assistant Professors: Charlotte M. Bacon, Monica E. Chiu, Jessica Enoch, Robin Hackett, Delia Kouzett, Aya Matsuda, Paul Kei Matsuda, Martin McKinsey, Sean D. Moore, Alexander M. Parsons, Siobhan Senier

Degrees Offered: M.A., M.S.T., Ph.D.

The Department of English offers three advanced degrees: master of arts with options in literature, English language and linguistics, and writing; master of science for teachers; and doctor of philosophy.

Admission Requirements

All applicants must submit writing samples in accordance with guidelines available from the English department graduate office. All applicants (except those in M.S.T.) are also required to submit Graduate Record Examination scores for the general test. Applicants for the doctor of philosophy degree program in literature must also submit scores for the subject test of literature in English. A student admitted to the Ph.D. program must hold an M.A. degree or be in the final stage of completing requirements for the degree. Applicants for the degree of master of science for teachers should consult the general regulations of the Graduate School for special admission requirements. All applicants who wish to be considered for teaching assistantships or tuition scholarships must complete an application form, available from the English department graduate office.

M.A. Degree Requirements

LITERATURE OPTION

An M.A. candidate must complete 32 credit hours at the 800 or 900 level including two seminar courses and either a third seminar in literature or ENGL 998 (Master's Paper). At least five courses must be literature courses offered by the English department (as distinct from courses in critical theory, linguistics, writing, or teaching methods). If a student chooses the Master's Paper option, this requirement is reduced to four literature courses. Each M.A. candidate must also pass ENGL 925 (The Graduate Study of Literature) and one course in literary theory. The literary theory requirement would normally be met by successful completion of ENGL 813, 814, or 926. As a general rule, all courses counting toward the M.A. degree should be taken in the English department, and no more than two literature courses should be taken in a combined 700/800 (split) level course. In special circumstances, however, a student may be allowed to apply toward the degree up to two graduate courses offered by other departments.

M.A. candidates must pass a reading examination in a foreign language or demonstrate that they have passed a fourth-semester college-level language course with a grade of B or better. Students whose native language is not English may be exempt from this requirement.

WRITING OPTION

The master of arts in writing is designed for students who intend to become professional writers. Eight working writers supervise the program. Students must elect to specialize in fiction, nonfiction, or poetry. Each member of the writing faculty is accomplished in at least one of these fields.

The writers at UNH emphasize conference teaching. Each student meets frequently with writers specializing in the student's area of study. In addition, each student works closely with a writer-adviser throughout the program.

Workshop courses provide forums for prompt, detailed criticism of each student's writing by instructors and fellow students. Each student takes at least two workshops in his or her specialty and may elect to take an additional workshop in another area as well. Form-and-theory courses and literature courses complete the program. The program consists of 32 credit hours at the 800 or 900 level.

Upon completion of the required courses, the student submits a portfolio of writing to the staff. The portfolio might consist of short stories, a novel, nonfiction articles, a nonfiction book, or a collection of poetry. The degree is awarded upon approval of the portfolio by a committee of writers. There is no foreign language requirement.

ENGLISH LANGUAGE AND LINGUISTICS OPTION

Students who wish to specialize in any of the various areas of English language and linguistics may design an M.A. program to meet their interests. Specialties include applied linguistics and the teaching of English as a second language as well as the traditional subfields of linguistics. Psycholinguistics courses are offered through the psychology department.

To earn the M.A. degree, students must complete at least 32 credit hours at the 800 or 900 level, including one seminar course, and 4 credits of ENGL 998, in which they are to produce a substantial scholarly paper. Unless the student already has a strong background in linguistic theory, the program of study must include one course in phonetics and phonology (ENGL 893) and one in syntax and semantics (ENGL 894). Reading knowledge of one foreign language is required. This may be demonstrated by passing a departmental examination or by receiving a grade of B or better in a fourth-semester college-level language course. Students whose native language is not English may be exempt from this requirement. The student's course of study must be approved by the program adviser.

M.S.T. Degree Requirements

The master of science for teachers is designed for high school teachers. No foreign language is required. The student must complete 32 credit hours at the 800 or 900 level. At least 24 of these credits must be in the Department of English. Courses taken outside the department must be approved by the student's adviser.

The department also offers special summer programs which can be taken to fulfill some or all of the course requirements for the M.S.T. degree. The New Hampshire Literacy Institutes and the Summer Studies in Composition and Literature Program are summer institutes, which focus on the teaching of writing and reading in grades K-12. Summer Studies in Composition and Literature, a five week summer program, offers a selection of 4-credit courses in British and American literature, composition theory and research as well as writing workshops in fiction, nonfiction, and poetry.

Ph.D. Degree Requirements

The Ph.D. program combines the essential guidance and discipline of coursework with the equally essential freedom of independent study and research. To be admitted to the doctoral program a student must hold an M.A. degree. Students choose between two areas, literature and composition studies. Students choosing either area or program must demonstrate basic proficiency in two languages or advanced proficiency in one. Basic proficiency may be demonstrated by passing a departmental examination or by receiving a grade of B or better in a fourth-semester college-level language course. Advanced proficiency may be demonstrated by advanced coursework or by passing a rigorous departmental examination.

The doctoral program in literature is designed to train students to be teachers and scholars in the fields of literature and language. Students in this program will complete 11 graduate courses of which four must be seminars. The other courses must be at the 800 or 900 level and must include the Practicum in Teaching College Composition (ENGL 910), the Seminar in Literary Theory (ENGL 926), and the ungraded 2-credit course in Bibliography and Professional Practices (ENGL 924). Students must in addition pass a general examination in English and American literature, a more specialized qualifying examination, and the final oral defense of their dissertation.

The program in composition studies is designed to train experts in the teaching of composition who are also qualified to teach general courses in literature or linguistics. Students in composition studies will complete 10 graduate-level courses of which four must be seminars. The other courses must be at the 800 or 900 level and will include a Practicum in Teaching College Composition (ENGL 910) and Research Methods in Composition (ENGL 918). Students will take a combined general and qualifying examination that focuses both on the theory of composition and rhetoric, and on a secondary area of specialization. Their dissertation work will be on a topic in composition.

Ph.D. students normally hold assistantships and teach under supervision; such teaching is considered a vital part of the student's professional training.

Courses

ENGL	803	Advanced Nonfiction Writing	4 cr.
ENGL	804	Advanced Nonfiction Writing	4 cr.
ENGL	805	Advanced Poetry Workshop	4 cr.
ENGL	807	Form and Theory of Fiction	4 cr.
ENGL	808	Form and Theory of Nonfiction	4 cr.
ENGL	809	Form and Theory of Poetry	4 cr.
ENGL	810	Teaching Writing	2 to 6 cr.
ENGL	811	Editing	4 cr.
ENGL	813	Literary Theory	4 cr.
ENGL	814	Literary Theory	4 cr.
ENGL	815	Teaching English as a Second Language: Theory and Methods	4 cr.
ENGL	816	Curriculum, Materials and Assessment in English as a Second Language	4 cr.
ENGL	817	World Englishes	4 cr.
ENGL	819	Sociolinguistics Survey	4 cr.
ENGL	827	Issues in Second Language Writing	4 cr.
ENGL	832	Folklore and Folklife	4 cr.
ENGL	841	Literature of Early America	4 cr.
ENGL	842	American Literature, 1815-1865	4 cr.
ENGL	843	American Literature, 1865-1915	4 cr.
ENGL	844	American Literature, 1915-1945	4 cr.
ENGL	845	Contemporary American Literature	4 cr.
ENGL	847	Studies in American Poetry	4 cr.
ENGL	848	Studies in American Fiction	4 cr.
ENGL	849	Major American Authors	4 cr.
ENGL	850	Special Studies in American Literature	4 cr.
ENGL	851	Medieval Epic and Romance	4 cr.
ENGL	852	History of the English Language	4 cr.
ENGL	853	Old English	4 cr.
ENGL	854	Beowulf	4 cr.
ENGL	856	Chaucer	4 cr.
ENGL	858	Shakespeare	4 cr.
ENGL	859	Milton	4 cr.
ENGL	864	Prose and Poetry of the Elizabethans	4 cr.
ENGL	865	English Literature in the 17th Century	4 cr.
ENGL	867	Literature of the Restoration and Early 18th Century	4 cr.
ENGL	868	Literature Later 18th Century	4 cr.
ENGL	869	English Romantic Period	4 cr.
ENGL	870	English Romantic Period	4 cr.
ENGL	871	Victorian Prose and Poetry	4 cr.
ENGL	873	British Literature of the 20th Century	4 cr.
ENGL	874	British Literature of the 20th Century	4 cr.
ENGL	875	Irish Literature	4 cr.
ENGL	879	Linguistic Field Methods	4 cr.
ENGL	880	English Drama to 1640	4 cr.
ENGL	881	English Drama from 1660 to 1800	4 cr.
ENGL	882	Modern Drama	4 cr.
ENGL	883	English Novel of the 18th Century	4 cr.
ENGL	884	English Novel of the 19th Century	4 cr.
ENGL	886	20th-Century British Fiction	4 cr.
ENGL	890	Special Topics in Linguistics	4 cr.
ENGL	891	English Grammar	4 cr.
ENGL	892	Teaching Secondary School English	4 cr.
ENGL	893	Phonetics and Phonology	4 cr.
ENGL	894	Syntax and Semantic Theory	4 cr.
ENGL	897	Special Studies in Literature	2 to 6 cr.
ENGL	901	Advanced Writing of Fiction	4 cr.
ENGL	910	Practicum in Teaching College Composition	4 cr.
ENGL	911	Writing for Teachers	4 cr.
ENGL	913	Theory and Practice of Composition	4 cr.
ENGL	914	Special Topics in Composition and Rhetoric	2 to 6 cr.
ENGL	916	History of Composition	4 cr.
ENGL	919	Teaching the Writing Process	2 to 6 cr.
ENGL	920	Issues in Teaching English and the Language Arts	1 to 6 cr.
ENGL	921	Practicum in Teaching English and the Language Arts	2 to 6 cr.
ENGL	922	Advanced Topics in Literacy Instruction	1 to 6 cr.
ENGL	923	Advanced Essay Writing	4 cr.
ENGL	924	Bibliography and Methods	2 cr.
ENGL	925	Graduate Study of Literature	4 cr.
ENGL	926	Seminar: Literary Theory	4 cr.
ENGL	935	Seminar: Studies in American Literature	4 cr.
ENGL	936	Seminar: Literature of Early America	4 cr.
ENGL	937	Seminar: Studies in 19th-Century American Literature	4 cr.
ENGL	938	Seminar: Studies in 20th-Century American Literature	4 cr.
ENGL	953	Seminar: Studies in Old English	4 cr.
ENGL	958	Seminar: Studies in Shakespeare	4 cr.
ENGL	959	Seminar: Studies in Milton	4 cr.
ENGL	965	Seminar: Studies in Early 17th-Century Literature	4 cr.
ENGL	968	Seminar: Studies in 18th-Century Literature	4 cr.
ENGL	970	Seminar: Studies in the Romantic Period	4 cr.
ENGL	971	Seminar: Studies in the Victorian Period	4 cr.
ENGL	974	Seminar: Studies in 20th Century British Literature	4 cr.
ENGL	994	Practicum in Teaching English to Speakers of Other Languages	2 to 6 cr.
ENGL	995	Independent Study	1 to 8 cr.
ENGL	996	Reading and Research	2 to 8 cr.
ENGL	998	Master's Paper	4 cr.
ENGL	999	Doctoral Research	

Environmental Education (ENED)

www.unh.edu/education

Professors: Robert T. Eckert, Barrett N. Rock

Associate Professors: Eleanor D. Abrams, Mimi Larsen Becker, E. Scott Fletcher, Joseph J. Onosko

Research Associate Professor: David M. Burdick

Assistant Professor: Elizabeth A. Finkel

Degree Offered: M.A.

The program offers a master of arts degree with a major in environmental education. The master of arts in environmental education is an innovative and collaborative effort of the Department of Education and the Department of Natural Resources. The program is dedicated to preparing educators who can help students develop the interdisciplinary knowledge, skills of inquiry, and participatory dispositions that are necessary to address the important environmental questions confronting the world today. In preparing educators for these positions, and to enhance the abilities of professionals currently employed in the field, the M.A. program in environmental education has flexible requirements and gives students the opportunity to work closely with an adviser to create an individualized course of study that meets their interests, reflects their prior experiences, and focuses on their professional goals.

Admission Requirements

Applicants to the M.A. program in environmental education are required to possess a baccalaureate degree from an approved institution and to have successfully completed a minimum of five life science or physical science courses at the undergraduate or graduate level. Applicants are required to submit the following materials for consideration: official transcripts from all relevant educational institutions; an essay outlining relevant interests, prior experience, and educational goals; and three

letters of recommendation from individuals who possess detailed knowledge of the applicant's ability to engage in graduate study. Documentation of other experiences or abilities as an educator is also welcome. Admissions decisions are made on a rolling basis by the Executive Committee of the program. The Graduate Record Exam (GRE) is optional. Promising students who fail to meet one or more of the preceding criteria may be admitted provisionally, with a plan appropriate to their specific needs.

M.A. Degree Requirements

The M.A. program in environmental education helps prepare educators who are able to integrate and put into practice the three focus areas that constitute the program's academic core:

Curriculum and Pedagogy: an understanding of teaching as a critical, self-reflective, and inquiry-based activity, collaboratively undertaken in diverse communities.

Environmental Science: an understanding of the physical and biological processes and relationships that constitute ecosystems.

Human Patterns and Environmental Transformations: an understanding of the social (e.g., economic, political, institutional) and ethical dimensions of environmental policy.

The program requires 32 credits for graduation and is organized in three parts:

The Summer Institute (8 credits): Students enter the program by enrolling in an intensive Summer Institute that is coordinated and taught by an interdisciplinary team of UNH faculty. The curriculum involves a case study approach, integrating the three focus areas in an experiential setting. This experience gives students a foundation for creating a rigorous, coherent, and challenging program of study, which they begin (on a part- or full-time basis) during the following year.

Individualized Program of Study (20 credits): The three focus areas of the program provide the structure within which students pursue and integrate the courses that make up their individualized program of study. With the guidance of an adviser, students select a group of courses that balances depth and breadth. All individualized programs of study are approved by the program's executive committee.

Practicum (4 credits): The field-based Practicum is taken as the final course in the program. Students work in an internship site demonstrating their ability to put into practice a thoughtful and effective vision of environmental education. In the seminar that accompanies the internship, students create and present a portfolio that reflects what they have achieved in the program. Completion of the program portfolio marks the fulfillment of the requirements for the master's degree.

Family Studies (FS)

www.unh.edu/family-studies

Associate Professors: Kristine M. Baber, Elizabeth M. Dolan, Barbara R. Frankel, Larry J. Hansen, Michael F. Kalinowski, Kerry Kazura, Victor R. Messier, John W. Nimmo

Assistant Professors: Soyeon Park, Corinna Jenkins Tucker

Degree Offered: M.S.

The Department of Family Studies offers two programs of study leading to a master of science degree in family studies. The thesis program consists of four specializations: child advocacy; families at risk due to incarceration; adolescent development in context: families, schools, communities; and poverty and welfare policy. These specializations are designed to develop general competence in understanding and applying theory and research regarding child, adolescent, and family issues. Students selecting one of these specializations will be required to complete a thesis or a comprehensive written examination. The marriage and family therapy option is an accredited clinical program that prepares students to work with families in a clinical setting. The clinical program requires a minimum of two years of full-time study, including two summers. Alternative plans of study may be possible. The goal of both programs is to provide students with an understanding of theory and methods relevant to child and family studies and to prepare them to work with families in therapeutic, educational, and other community and corporate settings.

Admission Requirements

Students in good academic standing with undergraduate degrees in any related field are encouraged to apply. If a student's undergraduate program does not include an introductory statistics course or the equivalent, successful completion of such a course is required before beginning graduate work. Students seeking admission must submit recent scores from the Graduate Record Examination general test unless a waiver has been given by the Family Studies Graduate Committee. Additional admissions information and personal interviews are required of applicants for the marriage and family therapy option. Information should be obtained by contacting the department's graduate coordinator.

Specializations

Adolescent Development in the Context of Families, Schools, Communities: This specialization is designed to develop general competence in understanding and applying theory and research regarding adolescents within the context of their families and communities. Students are expected to participate in a research project involving adolescents and their families and to complete a practicum in a program serving adolescents.

Child Advocacy: This specialization is designed to develop general competence in understanding theory and research regarding child and family issues with a focus on child advocacy. Students are expected to work with selected agencies as child advocacy interns, develop expertise on at least one advocacy issue, and conduct research on an advocacy related topic.

Poverty and Welfare Policy: This specialization is designed to develop general competence in understanding and applying theory and research regarding family issues related to poverty status and changes in welfare policy, particularly those of New Hampshire. Students are expected to participate in the Rural Family Well-Being Study. This is a longitudinal investigation focusing on limited resource families living in two different rural areas of the state. The purpose of the study is to gain an understanding of the issues and concerns facing rural families in the context of welfare reform, and in the context of their specific communities.

Families at Risk Due to Incarceration: This specialization is designed to develop general competence in understanding and applying theory and research regarding child and family issues with a focus on families at risk. Students are expected to participate in the Family Connection Project. This project is a comprehensive intervention program to support families with incarcerated members, and an extensive evaluation and research study examining the effects of incarceration on family members. Students will gain knowledge in the field through the integration of theory, research, clinical and educational services, and public policy considerations.

Marriage and Family Therapy Option

The M.F.T. option is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (AAMFT) and meets the academic requirements for clinical membership in the American Association for Marriage and Family Therapy. This option specifically prepares students to work in mental health, family service, medical and human service settings. The emphasis is on structural, strategic, and systemic approaches to marriage and family therapy. Clinical training is provided under the direction of an approved supervisor of the American Association for Marriage and Family Therapy in the department's Marriage and Family Therapy Clinic. The clinical training emphasizes treating the individual, couple, and family in relationship to the larger systems that influence them. Supervised practica continue throughout the program. AAMFT standards require 500 hours of clinical practice during the program. Additional hours of clinical practice under supervision will be required to meet AAMFT standards for clinical membership after graduation.

M.S. Degree Requirements

SPECIALIZATIONS

Requirements include (1) completion of the 12-credit core curriculum that includes 991, Professional Issues for Family Specialists; 993, Theoretical Approaches to Family Studies; 994, Research Seminar; (2) 22 additional semester hours of coursework including 4 semester hours of Practicum (807) and an advanced statistics course; and (3) successful completion of a research thesis (6–10 credits in 899) or a comprehensive written examination.

M.F.T. OPTION

Program requirements include (1) the 12-credit core curriculum (described above); (2) 32 additional semester hours of coursework including 841, Marital and Family Therapy; 846, Human Sexuality; 897, Special Problems (1 credit each in: sexual problems, gender, larger systems, and children in marriage and family therapy); 942, Advanced Systems of Marital and Family Therapy; 945, Family Therapy Practice I; 946, Critical Problems in Family Life; 947, Family Therapy Practice II; and (3) successful completion of at least 20 credits of 898 (500 clinical hours of clinical practice) and an integrative paper and presentation.

Courses

FS	807	Practicum	1 to 6 cr.
FS	808	Child and Family Center Internship	1 to 6 cr.
FS	809	Child Study and Development Center Internship	1 to 6 cr.
FS	810	Community Internship	1 to 6 cr.
FS	833	Supervising Programs for Young Children	4 cr.
FS	834	Curriculum for Young Children	4 cr.
FS	841	Marital and Family Therapy	4 cr.
FS	843	Families, Schools, and Community	4 cr.
FS	846	Human Sexuality	4 cr.
FS	850	Contemporary Issues in Adolescent Development	4 cr.
FS	857	Race, Class, Gender, and Families	4 cr.
FS	860	Family Programs and Policies	4 cr.
FS	871	Observation and Assessment of Young Children	4 cr.
FS	872	International Approaches to Child Advocacy	4 cr.
FS	873	International Perspectives on Children and Families	4 cr.
FS	888	Student Teaching Young Children	8 cr.
FS	894	Families and the Law	4 cr.
FS	897	Special Topics	1 to 4 cr.
FS	898	Marriage and Family Therapy Practicum	1 to 8 cr.
FS	899	Master's Thesis	6 cr.
FS	942	Advanced Systems of Marital and Family Therapy	4 cr.
FS	945	Family Therapy Practice I	4 cr.
FS	946	Critical Problems in Family Life	4 cr.
FS	947	Family Therapy Practice II	4 cr.
FS	991	Professional Issues for Family Specialists	4 cr.
FS	993	Theoretical Approaches to Family Studies	4 cr.
FS	994	Research Seminar	4 cr.
FS	995	Seminar and Special Problems	2 to 4 cr.
FS	997	Advanced Research Seminar	4 cr.

Genetics (GEN)

genetics.unh.edu

Professors: Ann C. Bucklin, Thomas M. Davis, Clyde L. Denis, Thomas P. Fairchild, Thomas D. Kocher, J. Brent Loy, Subhash C. Minocha, Robert L. Taylor, Jr., Robert M. Zsigray

Associate Professors: John J. Collins, Estelle M. Hrabak, Anita S. Klein, G. Eric Schaller, W. Kelley Thomas, Louis S. Tisa

Assistant Professor: Charles E. Warren

Degrees Offered: M.S., Ph.D.

The interdepartmental genetics program offers graduate work leading to the degrees of master of science and doctor of philosophy. The program is conducted by faculty members from animal sciences, biochemistry and molecular biology, microbiology, plant biology, and zoology.

Admission Requirements

Qualified applicants are admitted with the approval of the genetics faculty. Undergraduate preparation should include mathematics through calculus, chemistry through organic, physics, animal or plant biology courses and laboratories, genetics laboratory experience, and preparation in statistics and computer science are desirable. The general and subject (biology or biochemistry, cell, and molecular biology) tests of the Graduate Record Examination are required.

M.S. Degree Requirements

The program for the master of science degree is formulated by the student with the approval of the guidance committee. Master's students are required to take a minimum of 30 credits, including a core of at least three genetics courses, for a minimum of 10 credits (seminars and thesis excluded). Candidates for the degree will be required to complete a thesis and pass an oral examination covering graduate courses and thesis.

Ph.D. Degree Requirements

The chairperson of the genetics program, with the concurrence of the chairperson of the department of major interest, nominates the student's guidance and doctoral committees, which administer the qualifying and final examinations. Specific course requirements are developed by the student and the guidance committee. Doctoral students are expected to have a broad exposure to genetics courses, exceeding that required of master's students. Students must complete a dissertation on original research in genetics. The guidance committee for each graduate student determines whether a foreign language will be required.

Teaching Experience

All students are required to participate in a one-year directed teaching experience and are required to attend genetics seminars.

Courses

GEN	804	Genetics of Prokaryotic Microbes	4 cr.
GEN	805	Population Genetics	4 cr.
GEN	806	Human Genetics	3 cr.
GEN	811	Genomics and Bioinformatics	4 cr.
GEN	815	Molecular Evolution	4 cr.
GEN	823	Quantitative Genetics	4 cr.
GEN	853	Cytogenetics	4 cr.
GEN	854	Laboratory in Biochemistry and Molecular Biology of Nucleic Acids	5 cr.
GEN	866	Environmental Genomics	4 cr.
GEN	871	Molecular Genetics	4 cr.
GEN	872	Evolutionary Genetics of Plants	4 cr.
GEN	874	Plant Biotechnology and Genetic Engineering	3 cr.
GEN	875	Plant Biotechnology and Genetic Engineering Lab	2 cr.
GEN	882	Developmental Genetics	3 cr.
GEN	899	Master's Thesis	6 to 10 cr.
GEN	942	Biochemical Regulatory Mechanisms	3 cr.
GEN	991	Advanced Topics in Molecular Genetics	3 cr.
GEN	992	Advanced Topics in Molecular Biology	3 cr.

GEN	995	Special Topics	2 to 4 cr.
GEN	996	Special Topics	2 to 4 cr.
GEN	998	Genetics Seminar	1 cr.
GEN	999	Doctoral Research	

Health Administration (HMP)

www.unh.edu/hmp

Degree Offered: M.B.A. Health Management Option

The Department of Health Management and Policy offers courses in the health management option of the part-time M.B.A. degree program. These courses are designed to enable students to improve their effectiveness and performance in the management of health care organizations, services, programs, and policies. For more information, see business administration.

Courses

HMP	900	Health Care in the United States	3 cr.
HMP	901	Health Economics	3 cr.
HMP	903	Health Care Planning	3 cr.
HMP	907	Managed Health Care	3 cr.
HMP	910	Epidemiology	3 cr.
HMP	920	Organization Theory in Health Care	3 cr.
HMP	921	Managing Health Services	3 cr.
HMP	924	Human Resources Management in Health Care	3 cr.
HMP	932	Health Care Reimbursement	3 cr.
HMP	940	Health Law and Ethics	3 cr.
HMP	960	Advanced Topics	1 to 3 cr.
HMP	975	Praxis	1 to 3 cr.
HMP	995	Independent Study	1 to 3 cr.

History (HIST)

www.unh.edu/history

Professors: Jeffry M. Diefendorf, 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 F. Gullace, Yan Lu, Gregory McMahon, Lucy E. Salyer, Marc L. Schwarz, Ethel Sara Wolper

Assistant Professors: David Bachrach, Julia E. Rodriguez, Jennifer D. Selwyn, Cynthia J. Van Zandt, Amanda Wunder

Degrees Offered: M.A., Ph.D.

The Department of History offers the master of arts and doctor of philosophy degrees. The master of arts is offered in many fields. A formal option in museum studies is available. Doctoral dissertations may be written on the history of the United States or on topics comparing the United States with other societies or areas.

Admission Requirements

The department usually requires evidence of substantial preparation in history at the undergraduate level, together with some preparation in other areas of humanities and social sciences.

Applicants for admission to any graduate program in history should have a minimum of a B average in history, allied humanities, and social sciences. In addition, applicants must submit general test scores from the Graduate Record Examination. The department assesses the student's entire application, including letters of recommendation, in making its decision on admission. Deficiencies in an undergraduate program may be rectified by coursework as a special student, but such coursework cannot be used to satisfy requirements for an advanced degree. The department also recommends that a beginning graduate student have some training in a foreign language. Students in seminar or reading courses in other than American history may be required to have a reading knowledge of at least one foreign language appropriate to the particular course. Applicants should include with their applications a personal statement indicating their reason for undertaking graduate study at the University of New Hampshire. Normally an entering student intending to be a candidate for the doctorate will complete an M.A. program as a prerequisite. However, students with the M.A. from another institution, or with exceptionally strong preparation at the undergraduate level, can begin the doctoral program immediately. In addition, a student in residence can, with the consent of the department, omit the M.A. and proceed directly toward the Ph.D.

M.A. Degree Requirements

A master's student designs a specific program to meet one of three plans. Plan A allows substantial training and research in a single subfield of history but within a foundation of broader coursework. Plan B allows substantial breadth over at least two subfields. The subfields in history include the following: the ancient world, medieval Europe, early modern Europe, modern Europe, European intellectual history, medieval England, early modern England, modern England, early modern France, modern France, early modern Germany, modern Germany, Iberia, Russia, early U.S., modern U.S., colonial Latin America, modern Latin America, the Far East, the Near East, sub-Saharan Africa, and the history of science. Plan C allows students who enter the doctoral program without an M.A. to pursue the M.A. and Ph.D. degrees simultaneously.

Plan A: At least eight courses in history numbered 800 or above, including at least one research seminar; a thesis in a single subfield (equivalent to two courses).

Plan B: At least 10 courses in history numbered 800 or above, including at least one research seminar; oral examination demonstrating competence in two subfields of history.

Plan C: At least 30 credits of coursework during preparation for the Ph.D. qualifying examinations, as described below; submission of a seminar or other research paper as a demonstration of competence in basic research techniques; passing Ph.D. qualifying examinations.

MUSEUM STUDIES OPTION

Students who are seeking or considering careers in the museum world, rather than in teaching and/or research, may pursue the option in museum studies. Students basically follow Plan B. Of the 10 required courses, students must take History 871, Museum Studies; History 872, Studies in Regional Material Culture; one research seminar; and two internships taken for credit in nearby museums or other historical institutions. The final requirement is either a one-hour oral exam or the completion of a major project related to the student's work in museum studies.

Ph.D. Degree Requirements

A doctoral student's program, which must be approved by the graduate committee of the department, shall include each of the following requirements:

1. two research seminars; one in early U.S. history and one in modern U.S. history;
2. two reading seminars, one in early U.S. history and one in modern U.S. history;
3. a course in historical methods;
4. correction of any deficiencies in the student's previous program;
5. proficiency in one foreign language;

6. all doctoral candidates awarded teaching assistantships must take History 970, Graduate Seminar in Teaching History;
7. preparation through reading and coursework in the entirety of U.S. history, with accent upon either early or modern U.S.;
8. preparation through reading and coursework of two subfields outside of U.S. history, one of which may be a cognate field outside of history entirely;
9. qualifying exams;
10. dissertation and successful defense.

Note: In the definition of fields above, United States and U.S. are understood to mean the United States and its colonial antecedents.

Apprenticeship

The department considers that graduate work in history, and particularly doctoral work, is professional training. The department recognizes the dual concerns of the historian's life teaching and research; when feasible, therefore, all doctoral students are expected to undertake teaching in the department during a part of their residence. Participation in proseminar and in teaching constitutes an apprenticeship in conjunction with formal study. Doctoral students may choose to pursue the Cognate in College Teaching offered through the Graduate School. All graduate students are reviewed annually by the faculty of the department. A student accumulating two course failures is automatically barred from continuing in any degree program in history, but the department reserves the right to exclude others whose overall performance does not give reasonable assurance of a successful program completion. Students are allowed no more than three attempts to meet any language requirement.

Courses

HIST 800 Advanced Explorations 1 to 4 cr.
HIST 801 Seminar in Religious Texts 4 cr.
HIST 803 European Conquest of North America 4 cr.
HIST 805 Revolutionary America, 1750-1788 4 cr.
HIST 806 History of the Early Republic 4 cr.
HIST 809 United States Legal History Special Topics 4 cr.
HIST 811 Civil War Era 4 cr.
HIST 812 Emergence of Industrial America 4 cr.
HIST 815 20th Century United States 4 cr.
HIST 816 20th-Century United States 4 cr.
HIST 817 Vietnam War 4 cr.
HIST 818 American Environmental History 4 cr.
HIST 819 Foreign Relations of the United States 4 cr.
HIST 820 Foreign Relations of the United States 4 cr.
HIST 821 History of American Thought 4 cr.
HIST 822 History of American Thought 4 cr.
HIST 824 Topics in Modern United States Social History 4 cr.
HIST 825 Southern History and Literature since the Civil War 4 cr.
HIST 831 History of Brazil 4 cr.
HIST 832 Topics in Latin American History 4 cr.
HIST 839 Christian Monasticism in the Medieval West 4 cr.
HIST 840 Holy War in the Holy Land: The Medieval Crusades 4 cr.
HIST 841 Europe After the Black Death 4 cr.
HIST 842 Religious Conflict in Early Modern Europe 4 cr.
HIST 843 British Empire 4 cr.
HIST 844 Victorian Britain 4 cr.
HIST 847 Early Modern France 4 cr.
HIST 848 Modern France 4 cr.
HIST 849 Comparative Topics in the History of Early Modern Europe 4 cr.
HIST 851 Topics in European Intellectual History 4 cr.
HIST 852 Topics in European Intellectual History 4 cr.
HIST 854 Topics in History of Science 4 cr.
HIST 856 20th Century Europe 4 cr.
HIST 859 History of Spain and Portugal 4 cr.
HIST 861 England in the Tudor and Stuart Periods 4 cr.
HIST 862 England in the Tudor and Stuart Periods 4 cr.
HIST 864 Russia: Modernization through Soviet Empire 4 cr.
HIST 865 Themes in Women's History 4 cr.
HIST 866 Environmental History of Northwest Atlantic Commercial Fisheries 4 cr.
HIST 869 Germany from 1918 to Present 4 cr.
HIST 870 Historical Thinking for Teachers 4 cr.
HIST 871 Museum Studies 4 cr.
HIST 872 Studies in Regional Material Culture 4 cr.
HIST 874 Historiography 4 cr.
HIST 875 Historical Methods 4 cr.
HIST 876 Classical and Hellenistic Greek Worlds 4 cr.
HIST 877 Roman Republic 4 cr.
HIST 878 Roman Empire 4 cr.
HIST 880 Special Topics in Museum Studies/ Material Culture 3 cr.
HIST 881 Topics History of Modern China 4 cr.
HIST 884 History of Southern Africa since 1652 4 cr.
HIST 887 Quantitative Methods and Computers for Historians 4 cr.
HIST 888 African Religions 4 cr.
HIST 898 Internship in Museum Studies 4 cr.
HIST 899 Master's Thesis 6 cr.
HIST 939 Readings in Early American History 3 cr.
HIST 940 Readings in Modern American History 3 cr.
HIST 949 Colloquium in United States History 3 cr.
HIST 952 Colloquium in Comparative History 3 cr.
HIST 970 Graduate Seminar in Teaching History 2 cr.
HIST 989 Research Seminar in American History 3 cr.
HIST 990 Research Seminar in American History 3 cr.
HIST 995 Tutorial Reading and Research 1 to 6 cr.
HIST 997 Directed Readings in Early American History 1 to 6 cr.
HIST 998 Directed Readings in Modern United States History 1 to 6 cr.
HIST 999 Doctoral Research

Kinesiology (KIN)

www.unh.edu/ur-kin.html

Professors: Ronald V. Croce, Michael A. Gass, Stephen H. Hardy

Associate Professors: Heather Barber, Robert W. Kenefick, John P. Miller, Timothy J. Quinn, Neil B. Vroman, Steven C. Wright

Assistant Professors: Karen E. Collins, David G. Edwards, Keith Russell, Deborah A. Sugerman, Erik E. Swartz

Degree Offered: M.S.

The Department of Kinesiology offers a master of science degree with the following areas of concentration: exercise science, outdoor education, and sport studies.

Admission Requirements

Admission is based on undergraduate preparation, academic record, Graduate Record Examination general test scores, and letters of recommendation. Applicants must be above-average students and show adequate preparation in the basic support courses of the selected concentration area. Applicants who have not met specific course prerequisites should expect to take additional undergraduate work without receiving graduate credit.

M.S. Degree Requirements

Students may follow either the thesis or the nonthesis plan. All degree candidates will be required to take KIN 900, Applied Statistics; KIN 901, Analysis of Professional Literature; the designated concentration core; and electives as required.

Exercise science core: 804, Clinical Stress Testing and Electrocardiography; 805, Topics in Applied Physiology; two semesters of 902, Colloquium.

Sport studies core: 880, Psychological Factors in Sport; one adviser-approved KIN elective at the 800 or 900 level; one of either KIN 840, Athletic Administration; or KIN 843, Sport Marketing.

Outdoor education core: 884, Programs in Adventure Education; 885, Foundations of Adventure Education; 886, Management of Outdoor Education Programs; 986, Outdoor Education Seminar.

Any remaining coursework in the concentrations should be taken within the Department of Kinesiology; however, approval may be granted to take relevant courses outside the department.

Thesis plan: A minimum of 30 approved graduate credits including a thesis (24 graduate course credits plus 6 thesis credits) is required in the thesis plan plus an oral defense of the thesis.

Nonthesis plan: A minimum of eight approved graduate courses (with a minimum of 30 credits) is required in the nonthesis plan. Four credits of 895, Advanced Studies, are required. A student may take 895 only after completing at least three approved graduate courses including 901. Exercise science students who elect this plan must take 6 credits of 896, Advanced Research in Exercise Science. In addition, the exercise science student must orally defend his or her research.

Courses

KIN	804	Electrocardiography	4 cr.
KIN	805	Topics in Applied Physiology	4 cr.
KIN	806	Neurology	4 cr.
KIN	807	Neurology Lab	1 cr.
KIN	824	Metabolic Adaptations to Exercise	4 cr.
KIN	836	Fitness and Graded Exercise Testing and Prescription	4 cr.
KIN	840	Athletic Administration	4 cr.
KIN	841	Social Issues in Contemporary Sports	4 cr.
KIN	843	Sport Marketing	4 cr.
KIN	847	Sport Broadcasting	4 cr.
KIN	850	Theories of Motivation in Sport and Exercise	4 cr.
KIN	870	Psychological Skills in Performance	4 cr.
KIN	875	Sports Writing	4 cr.
KIN	880	Psychological Factors in Sport	4 cr.
KIN	881	Inclusion in Physical Education	4 cr.
KIN	884	Programs in Outdoor Education	4 cr.
KIN	885	Foundations of Adventure Education	4 cr.
KIN	886	Organization and Administration of Outdoor Education	4 cr.
KIN	895	Advanced Studies	2 to 4 cr.
KIN	896	Advanced Research in Exercise Science	3 or 6 cr.
KIN	898	Special Topics	1 to 4 cr.
KIN	899	Master's Thesis	6 cr.
KIN	900	Applied Statistics	4 cr.
KIN	901	Analysis of Professional Literature	4 cr.
KIN	902	Colloquium	2 cr.
KIN	931	Advanced Exercise Science Laboratory Procedures	3 cr.
KIN	950	Internship	2 to 4 cr.
KIN	985	Change Processes in Adventure Programming	4 cr.
KIN	986	Outdoor Education Seminar	4 cr.

Liberal Studies (LS)

www.unh.edu/mals

Professors: David S. Andrew, Barbara T. Cooper, Michael K. Ferber, Barbara E. Houston, Mara R. Witzling

Degree Offered: M.A.L.S.

The program offers a master of arts in liberal studies (M.A.L.S.) degree. The master of arts in liberal studies is an innovative, interdisciplinary graduate program. Housed within the College of Liberal Arts but drawing its courses and instructors from across the University, the program makes available a diverse spectrum of offerings and a wealth of faculty expertise and resources.

The liberal studies curriculum is intended to promote broad intellectual comprehension and enrichment rather than vocational or professional training within a single field or discipline. Designed to address the particular interests of students who seek to deepen their knowledge, the program offers a challenging but flexible program of cross-disciplinary learning.

Admission Requirements

Admission to the master of arts in liberal studies is selective. A bachelor's degree is required for admission. Students will be asked to provide relevant transcripts of their educational experience, a résumé, and letters of recommendation. They will also be asked to submit a brief essay describing why they are particularly interested in this program and indicating (tentatively) the sort of interdisciplinary focus or area of learning in which they might like to concentrate their study. The Graduate Record Exam (GRE) is not required but is helpful.

M.A.L.S. Degree Requirements

The program consists of seven courses (30 credits) divided into three parts: (1) a core seminar specifically designed for and required of every student, to be taken within one year of entrance to the program; (2) a concentration made up of five elective courses chosen from various disciplines across the liberal arts that centers on an interdisciplinary theme or topic; and (3) a master's thesis or project, which is intended to act as an integrating capstone experience for liberal studies students.

1. Core seminars 800 (4 credits): Each liberal studies student is required to take one core seminar as an introduction to the program as a whole. The seminar must be taken within the first year of a student's matriculation in the program, preferably in the first semester. Although all the core seminars focus on interdisciplinary issues and themes, each is meant to introduce students not only to different topics but also divergent disciplines from across the liberal arts such as literature, the arts, philosophy, history, women's studies, political science, sociology, and the like.

2. Concentration (20 credits): In conjunction with the director of the program and a concentration and thesis adviser, students develop a proposed, interdisciplinary concentration program of study made up of five, graduate-level elective courses offered in various departments throughout the college and University. The concentration is an interdisciplinary study which focuses on a significant topic, issue, perspective, or cultural development. A concentration may be selected from a menu of suggested concentrations or may be self-designed and tailor-made for each student with the help of his or her advisor. The five courses, which constitute the concentration, are to be selected from 700-900-level courses regularly offered within departments and colleges across the University, including up to three independent study courses carried out as a tutorial with particular faculty members (with permission).

This cluster of five concentration courses, then, is designed to fit the particular interests and experience of each liberal studies student and should, in combination, constitute a sustained thematic exploration. It is expected that a student's concentration will culminate in a concluding final project or thesis.

The following are typical examples of cross-disciplinary concentration programs of study: American studies, the humanities, ecology and values, justice studies, labor studies, religious studies, urban studies, women's studies.

3. LS 898 Project or LS 899 Thesis (6 credits): This is meant to be a capstone experience in which, with the support of their concentration and thesis adviser, students work out a final project consistent with their concentration and interests. The project can be a scholarly thesis or equivalent creative endeavor, which integrates the student's learning in a particular concentration. The director of the program will meet periodically with those students enrolled for thesis credit in order to provide a forum for discussing their research and writing.

Courses

LS	800	Core Seminar	4 cr.
LS	845	Special Topics	2 to 4 cr.
LS	846	Special Topics	2 to 4 cr.

LS	895	Independent Study	1 to 6 cr.
LS	896	Independent Study	1 to 6 cr.
LS	898	Master's Project	6 cr.
LS	899	Master's Thesis	6 cr.

Management of Technology (MOT)

www.unh.edu/wsbe/grad

Professors: John Freear, Michael J. Merenda, Evangelos O. Simos, Jeffrey E. Sohl, A. R. Venkatachalam

Affiliate Professor: Frederick G. Crane

Associate Professors: Carole K. Barnett, Ross J. Gittell, R. Daniel Reid, Christine M. Shea, Rita Weathersby, Craig H. Wood

Assistant Professors: John R. Becker Blease, Anthony T. Pescosolido, Eleanne M. Solorzano

Degree Offered: M.S./M.O.T.

The Whittemore School of Business and Economics offers a master of science degree in the management of technology (M.S./M.O.T.). The ability of businesses to develop and utilize technologies effectively, to achieve a sustainable competitive advantage will be critical to their success in the 21st century. To meet this challenge, businesses require individuals who are not only grounded in science and engineering but who also possess the knowledge and skills to manage emerging technologies.

The M.S./M.O.T. is the ideal program for technology entrepreneurs and those seeking leadership positions in technology-intensive organizations. The program has been designed to give recent graduates in the sciences and engineering the knowledge and skills to prepare them for technology-track management positions. The program provides a solid base of business fundamentals and focuses on the development and commercialization of emerging technologies and managing technological change. Graduates of the program will find themselves on the fast track for leadership positions in areas such as research and development, design and product engineering, product and process development, project management, manufacturing management, software development and systems design and integration. The program is also excellent preparation for those seeking to start or be associated with a technology based start-up company.

Admissions Requirements

The Whittemore School welcomes applicants who have an above average academic record, a personal history of achievement, and the desire and initiative to achieve leadership positions in technology intensive organizations. Applicants must have a B.S. degree in engineering, computer science, the physical or life sciences, mathematics, or other appropriate technology background. Applicants are admitted to the program based on an evaluation of various factors including their undergraduate records, GMAT test scores, references, and a completed application.

M.S. Degree Requirements

Students entering in each September class will progress through the full-time 19-month program as a cohort, completing the program in March of the following academic year. The curriculum emphasizes team projects and joint problem solving. Small class size and close student/faculty interaction contributes to the quality of the program. Business and industry sponsored projects, corporate site visits, and the participation of executives from industry in classroom lectures, workshops, and seminars all contribute to ensuring the program's relevance to the world at large.

The fixed curriculum of 57 credits includes six business foundation courses and fourteen M.O.T. courses scheduled over five 10-week terms and two four-week residency periods, which take place in September of each academic year. The first year's residency period is an intensive introduction to UNH, the Whittemore School and the M.S./M.O.T. program and provides an opportunity to develop a team culture with fellow classmates. The Integrated Business Seminar, taken during the first residency period, introduces the student to graduate business education and includes business case methodology and analysis, business communications, team dynamics, and team development.

An industry field project with a member company of the Whittemore School's Corporate Roundtable is required as a capstone experience for each student in the M.S./M.O.T. program. The field project must meet the needs of the Corporate Roundtable member's organization and be of sufficient scope to provide the student the opportunity to demonstrate a mastery of the competencies acquired in the program. The project, which may be carried out individually or by a small team, will be under the direction of a faculty adviser. Submission of a "professionally prepared" written report and/or oral presentation will be required.

Courses

MOT	898	Topics in Emerging Technologies	3 cr.
MOT	931	Accounting and Finance for Technical Managers	2 cr.
MOT	932	Marketing Fundamentals	2 cr.
MOT	933	Information Systems Management	2 cr.
MOT	934	Management of Technology	3 cr.
MOT	935	Operations and Quantitative Decision Making	3 cr.
MOT	936	Leadership, Management and Team Skills Development	3 cr.
MOT	937	Market Research for Emerging Technologies	3 cr.
MOT	938	Organizational Change and Transformation	3 cr.
MOT	939	Management of Enterprise Systems	3 cr.
MOT	941	Product Development and Commercialization	3 cr.
MOT	942	Project Management	3 cr.
MOT	943	Financial Planning for Technology Managers	3 cr.
MOT	944	Manufacturing Technologies	3 cr.
MOT	945	Supply Chain Management	3 cr.
MOT	946	Strategic Management of Technology	3 cr.
MOT	947	Intellectual Property, Ethics and Public Policy Issues	3 cr.
MOT	993	Integrated Field Project	3 cr.

Materials Science (MS)

www.unh.edu/materials-science

Professors: Olof E. Echt, Todd S. Gross, James M.E. Harper, Thomas M. Laue

Associate Professors: Carmela C. Amato-wierda, James E. Krzanowski, Glen P. Miller, Donald C. Sundberg, Igor I. Tsukrov

Research Associate Professors: Jerome P. Claverie, Yvon G. Durant

Assistant Professor: Karsten Pohl

Degrees Offered: M.S., Ph.D.

The materials science program offers a master of science in materials science and a materials science option for the Ph.D. in engineering. The program offers research opportunities over a broad range of areas including synthesis, deposition, and characterization of thin films, self-organizing nanostructures, scanning probe microscopy, chemical vapor deposition, polymer synthesis and processing, molecular interaction science, micromechanics, molecular beam mass spectrometry, fullerene characterization, morphology and synthesis of polymer nanoparticles.

Admission Requirements

A minimum G.P.A. of 3.0 is required but

undergraduate students with exceptional experience or other mitigating factors will be considered. The Graduate Record Examination is recommended but not required for admission into the program. Since materials science is an interdisciplinary field, students from mechanical engineering, chemical engineering, electrical engineering, chemistry, mathematics, physics and other engineering and science related disciplines are considered. A suitable undergraduate program should ideally contain: multivariable calculus and differential equations, two semesters of university (calculus-based) physics, one semester of thermodynamics or physical chemistry, one semester of computer programming, one semester each of fluid mechanics and heat transfer or two semesters of solid mechanics, and one semester of materials science. Faculty are available to evaluate each student's undergraduate curriculum to identify any areas that need more depth or any areas that may satisfy one of the focus areas in our program. A series of appropriate courses will be required for those students with deficiencies in their undergraduate program. Students will be considered for admission into the Ph.D. program after they have completed an M.S. degree or 24 credits of graduate courses in materials science with at least 6 credits at the 900 level.

M.S. Degree Requirements

A student will meet the Graduate School's requirements for the master's degree (30 credits). There is a thesis option and a project option. In both options, the student is required to take MS 860, Thermodynamics and Kinetics of Materials; MS 961, Thermodynamics and Kinetics of Materials II; one course each satisfying the areas of synthesis and processing, characterization, and structure-property relationships, and take two semesters of MS 900, Materials Science Seminar. For the thesis option, the student will take one additional course (24 course credits) and 6 credits of MS 899, Master's Thesis. For the project option, the student will take two additional courses (27 course credits) and 3 credits of MS 898, Master's Project. All students are expected to take at least 6 course credits at the 900 level.

Ph.D. Option Requirements

Students must complete 39 postbaccalaureate course credits. The student is expected to take MS 860, Thermodynamics and Kinetics of Materials I; MS 961, Thermodynamics and Kinetics of Materials II; one course each satisfying the areas of synthesis and processing, characterization, and structure-property relationships, and two semesters of MS 900, Materials Science Seminar. In addition, the student must take five additional courses with at least 12 total credits at the 900 level (including those courses taken at the master's level).

The student will be advanced to candidacy after he/she has completed an M.S. degree or 24 credits of graduate courses with at least 6 credits at the 900 level and the qualifying examination. The qualifying exam shall consist of two parts. The student must present a written proposal adhering to NSF guidelines, followed by an oral defense of that proposal. In addition, the student must submit a substantive review paper and an oral presentation on that paper. A materials science program faculty committee will determine the subject of the paper. A substantive record of publication in conjunction with an oral presentation at a conference may substitute for the review paper. A materials science program faculty committee will decide whether the previous publication record is substantive. The committee will evaluate the paper, the proposal, and the two oral presentations to determine whether the student is suitably prepared for graduate research at the Ph.D. level. The proposal and paper for the qualifying exam should normally be completed within six months of completing 24 credits of coursework.

Upon the successful completion of the qualifying examination, the student is advanced to candidacy and, upon the recommendation of the graduate coordinator, a doctoral committee is appointed by the dean of the Graduate School. The doctoral committee conducts an annual review of the student's progress, supervises and approves the doctoral dissertation, and administers the final dissertation defense.

Courses

MS 830	Mechanical Behavior Materials	4 cr.
MS 831	Fracture and Fatigue Engineering Materials	4 cr.
MS 844	Corrosion	4 cr.
MS 860	Thermodynamics and Kinetics of Materials I	4 cr.
MS 861	Diffraction and Imaging Methods in Materials Science	4 cr.
MS 862	Electronic Properties of Materials	3 cr.
MS 863	Thin Film Science and Technology	4 cr.
MS 895	Special Topics	2 to 4 cr.
MS 898	Master's Project	3 to 4 cr.
MS 899	Master's Thesis	6 cr.
MS 900	Seminar	1 cr.
MS 961	Thermodynamics and Kinetics of Materials II	4 cr.
MS 965	Advanced Surface and Thin Film Characterization	4 cr.
MS 995	Graduate Special Topics	2 to 4 cr.
MS 999	Doctoral Research	

Mathematics and Statistics (MATH)

www.math.unh.edu

Professors: Albert B. Bennett, Jr., Marie A. Gaudard, 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

Associate Professors: Kelly J. Black, David V. Feldman, William E. Geeslin, Edward K. Hinson, Berrien Moore III

Assistant Professors: Maria Basterra, Mitrajit Dutta, Sonia Hristovich, Linyuan Li, Yeping Li, Dmitri A. Nikshych

Degrees Offered: M.S., M.S.T., Ph.D.

The Department of Mathematics and Statistics offers programs leading to a master of science for teachers (M.S.T.) in mathematics, master of science (M.S.) in mathematics, an M.S. in mathematics with an option in applied mathematics, M.S. in mathematics with an option in statistics, a doctor of philosophy (Ph.D.) in mathematics, and a doctor of philosophy (Ph.D.) in mathematics education.

In general, the master's degree programs offer the student a high level of preparation for professional employment as well as appropriate preparation for programs leading to the Ph.D. degree. The Ph.D. programs prepare the student primarily for a career in university teaching and research.

The graduate programs have limited enrollment, allowing students to work closely with faculty members in their areas of expertise. Research within the department is currently being conducted in many areas of the mathematical sciences, including operator theory, Hilbert spaces, complex analysis, ring theory, commutative algebra, combinatories, algebraic topology, numerical analysis, nonlinear dynamics and chaos, applied mathematics, industrial statistics, environmental statistics, spatial statistics, calculus learning, K-12 mathematics education reform, and mathematics education.

Admission Requirements

Applicants for the M.S. and Ph.D. degrees must have completed significant undergraduate coursework in mathematics, preferably in algebra, analysis, and topology. Applicants for the M.S. with applied mathematics option must have completed significant coursework in analysis or applied analysis. Applicants for the M.S. with statistics option will typically have an

undergraduate degree in the mathematical, physical, biological, or social sciences or in engineering; must have completed mathematical coursework at least through multivariate calculus; and must have knowledge of basic statistics and basic linear algebra at the undergraduate level. Applicants for the degree of master of science for teachers must have completed education courses sufficient for certification, or have three years teaching experience, or currently hold a full-time teaching position.

M.S. Degree Requirements

Each of the three sets of master's program requirements given below is self-contained. Sample program schedules, tailored to various backgrounds, can be obtained from the department's graduate program coordinator.

M.S. in Mathematics:

This program requires 10 semester courses approved by the department and chosen from courses in the 801–888 and 931–998, with at least six of the courses in the 931–998 group. A comprehensive master's examination is intended to allow the student maximum latitude in pursuing his or her mathematical interests.

APPLIED MATHEMATICS OPTION

This program requires 30 credit hours, consisting of the courses MATH 931–932, two topics in applied mathematics courses (MATH 967/977), 6 credits of Master's Thesis (MATH 899), and four elective courses. The elective courses need not be in mathematics, but must be at the 800 level or higher, and at least one must be a technical course in statistics or some other department. The broad elective flexibility allows the student's application interests to have a substantial role in the content of the program. The student's full program plan must be proposed in writing to the applied mathematics faculty and approved prior to the student's second semester of study. The program includes a thesis, which must constitute original research in applied mathematics, conducted under the supervision of a faculty adviser. There is no comprehensive examination in this option.

STATISTICS OPTION

This program requires 10 semester courses approved by the department, which includes completion of a project (MATH 898) consisting of a substantial application of statistical methodology to a real problem. Most of the courses will normally be taken from the department's statistics courses in the range MATH 837–979 and must include all of MATH 839, 840, 855, and 856, unless some of these or equivalent courses were taken prior to enrollment in the program. At most, three of the required 10 courses may also be taken from the department's approved nonstatistics courses (in the range MATH 837–979) and/or approved courses offered in other departments. MATH 898, the Master's Project, is conducted under the supervision of a faculty adviser and concluded with a written report and a public oral presentation. MATH 898 may be taken for 3–6 credits, depending on the level of substantial research and methodological development required for project completion; the appropriate number of credits is determined by the statistics faculty. A master's committee of at least two statistics faculty members oversees the student's progress and determines credit for the project. There is no comprehensive in this option.

M.S.T. Degree Requirements

The program requires 10 semester courses approved by the department. These will normally be taken from the courses numbered MATH 901–929 and will usually include the seven courses MATH 903–908 and MATH 925. A concluding experience consisting of a mathematics portfolio and a comprehensive problem set is required. The courses in this program are offered primarily during summer sessions.

Ph.D. Requirements

In each Ph.D. program, requirements 1–3 must be completed for advancement to candidacy. Students in the Ph.D. program in mathematics who intend to write a dissertation in statistics must satisfy the alternate basic requirements 1–2, which replace basic requirements 1–2; all other Ph.D. students must satisfy requirements 1–2. The additional requirements 3–5 differ slightly for the mathematics and mathematics education Ph.D. programs; these are indicated below.

Basic degree requirements for the Ph.D. program:

1. all of the courses MATH 951, 952, 953, 954, and 955;
2. passing written comprehensive examinations in algebra, analysis, topology, and an advanced elective subject (algebraic topology, functional analysis, advanced algebra, advanced complex analysis, applied mathematics, mathematics education, statistics, etc.).

Alternate basic degree requirements for mathematics Ph.D. students:

1. all of the courses MATH 839, 840, 855, 856, 951, 953, and 954;
2. passing written comprehensive examinations in statistical theory, statistical methods, analysis, and either applied mathematics or functional analysis.

Additional degree requirements for the Ph.D. in mathematics:

3. advanced coursework in a major field (that of the student's intended dissertation work) and a minor field (usually within mathematics, but possibly in another area of the mathematical sciences) followed by qualifying examinations in each;
4. experience in teaching equivalent to at least half-time for one year;
5. a dissertation that includes original results in mathematics.

Additional degree requirements for the Ph.D. in mathematics education:

3. advanced coursework in the major field (mathematics education), including MATH 958, 968A, and 968B, and in a minor field (usually a related one, such as educational psychology or research methodology; but possibly in mathematics) followed by qualifying examinations in each;
4. experience in teaching equivalent to at least half-time for one year; and
5. a dissertation that includes original results in mathematics education.

Courses

Courses numbered MATH 903–929 may be applied to the degree of master of science for teachers in mathematics and to no other degree in mathematics.

Courses MATH 931–958 are introductory courses for the M.S. degree in mathematics and the Ph.D. degrees in mathematics and mathematics education.

Courses numbered MATH 961–979 are more specialized topics courses offered periodically in response to faculty and student interests. Their content may vary from year to year. With the permission of the instructor these courses may be taken more than once.

A majority of the courses required for the M.S. degree in mathematics with option in statistics are now offered in synchronous mode (live) over the Internet.

MATH	835	Statistical Methods for Researchers	3 cr.
MATH	837	Statistical Methods For Quality Improvement	3 cr.
MATH	839	Regression Analysis	3 cr.
MATH	840	Design of Experiments I	3 cr.
MATH	841	Biostatistical Methods	3 cr.
MATH	842	Multivariate Statistics and Modern Regression Methods	3 cr.
MATH	844	Design of Experiments II	3 cr.
MATH	845	Foundations of Applied Mathematics	3 cr.
MATH	846	Foundations of Applied Mathematics	3 cr.
MATH	847	Introduction to Nonlinear Dynamics and Chaos	3 cr.
MATH	853	Introduction to Numerical Methods	3 cr.
MATH	854	Introduction to Scientific Computing	3 cr.
MATH	855	Probability and Stochastic Processes	3 cr.
MATH	856	Principles of Statistical Inference	3 cr.
MATH	861	Abstract Algebra	3 cr.
MATH	862	Linear Algebra	3 cr.
MATH	864	Advanced Algebra	3 cr.
MATH	867	One-Dimensional Real Analysis	3 cr.
MATH	876	Logic	3 cr.
MATH	884	Topology	3 cr.
MATH	888	Complex Analysis	3 cr.
MATH	896	Topics	3 cr.
MATH	898	Master's Project	3 to 6 cr.
MATH	899	Master's Thesis	1 to 6 cr.
MATH	903	Higher Algebra for Teachers	3 cr.
MATH	904	Higher Algebra for Teachers	3 cr.
MATH	905	Higher Geometry for Teachers	3 cr.
MATH	906	Higher Geometry for Teachers	3 cr.
MATH	907	Higher Analysis for Teachers	3 cr.
MATH	908	Higher Analysis for Teachers	3 cr.
MATH	909	Probability and Statistics for Teachers	3 cr.
MATH	910	Mathematics Education	1 to 4 cr.
MATH	917	Mathematical Proof and Problem Solving	3 cr.
MATH	925	Problem Solving Seminar	3 cr.
MATH	928	Selected Topics in Mathematics for Teachers	1 to 3 cr.
MATH	929	Directed Reading	3 cr.
MATH	931	Mathematical Physics	3 cr.
MATH	932	Mathematical Physics	3 cr.
MATH	951	Algebra I	3 cr.
MATH	952	Algebra II	3 cr.
MATH	953	Analysis I	3 cr.
MATH	954	Analysis II	3 cr.
MATH	955	Topology I	3 cr.
MATH	956	Topology II	3 cr.
MATH	958	Foundations of Math Education	3 cr.
MATH	961	Topics in Algebra I	3 cr.
MATH	963	Functional Analysis	3 cr.
MATH	964	Topics in Analysis I	3 cr.
MATH	967	Topics in Applied Mathematics I	3 cr.
MATH	968	Topics in Mathematics Education I	3 cr.
MATH	969	Topics in Probability and Statistics I	3 cr.
MATH	973	Topics in Operator Theory	3 cr.
MATH	977	Topics in Applied Mathematics II	3 cr.
MATH	978	Topics in Mathematics Education II	3 cr.
MATH	979	Research Topics in Statistics	3 cr.
MATH	998	Reading Courses	1 to 6 cr.
MATH	999	Doctoral Research	

Mechanical Engineering (ME)

www.unh.edu/mechanical-engineering

Professors: Kenneth C. Baldwin, Barbaros Celikkol, Barry K. Fussell, Todd S. Gross, Robert Jerard, M. Robinson Swift, David W. Watt

Associate Professors: James E. Krzanowski, John Philip McHugh, Igor I. Tsukrov

Assistant Professors: Gregory P. Chini, Brad Lee Kinsey, May-Win L. Thein

Research Assistant Professor: David W. Fredriksson

Degrees Offered: M.S., Ph.D.

The Department of Mechanical Engineering offers a degree program at both the master's and doctoral levels. The department offers studies leading to specialization in the following areas: fluid mechanics, thermal science, solid mechanics, material science, controls, system modeling, dynamics, and design. The department offers the Ph.D. degree in four distinct subdisciplines: fluid and thermal science, material science, mechanics, and systems modeling.

Admission Requirements

A bachelor of science degree in mechanical engineering is normally required for admission to the graduate program in mechanical engineering. However, students from other disciplines may also be admitted to the program. For information on admissions requirements for students without a B.S. degree in mechanical engineering, please contact the department graduate coordinator, or visit the department's Web site at www.unh.edu/mechanical-engineering.

All applicants are required to submit scores from the general test of the Graduate Record Examination.

M.S. Degree Requirements

A candidate for the degree of master of science shall satisfy the requirements of either a thesis plan or a project plan. The thesis plan requires 24 semester hours of coursework in addition to eight semester hours of ME 899, Master's Thesis; the project plan requires 28 semester hours of coursework in addition to four semester hours of ME 992, Master's Project. Individuals who can demonstrate accomplishments from professional engineering experience comparable to that expected from a master's project may petition the department to substitute an additional 900-level course for the project requirement.

Two 900-level courses of at least 3 credits each must be earned in addition to ME 992, Master's Project; ME 899, Master's Thesis; or the 900-level course substituted for the master's project course. No more than two graduate courses taken prior to admission to the Graduate School may be applied to the master's degree. An oral examination covering the candidate's graduate work will be given for both the thesis and project plans.

Ph.D. Option Requirements

Following admission into the program, a guidance committee is appointed for the student by the dean of the Graduate School upon recommendation of the graduate coordinator. This committee assists in outlining the student's course of study and may specify individual coursework requirements.

A student entering with a B.S. degree must successfully complete at least 12, 3- or 4-credit courses with three at 900 level. Students entering with a M.S. degree in engineering are required to take a minimum of five, 3- or 4-credit courses with three at 900 level, although the committee may determine that additional coursework is necessary. The guidance committee also administers the qualifying examinations. The qualifiers consist of two-part examination: written and oral. Upon successful completion of required coursework, the qualifiers and a dissertation proposal, the student may advance to candidacy. A doctoral committee may be appointed once candidacy has been attained. The committee shall have at least five members.

Each Ph.D. candidate must conduct research of sufficient originality and significance to warrant the awarding of the Ph.D. degree. The final examination (oral defense) is the defense of the student's dissertation. This will be scheduled in accordance with the Graduate School rules. The candidate will be informed, in writing, by the dissertation chair of the results of the defense.

Courses

ME	801	Macroscopic Thermodynamics	4 cr.
ME	807	Analytical Fluid Dynamics	4 cr.
ME	808	Gas Dynamics	4 cr.
ME	809	Computational Fluid Dynamics	3 cr.
ME	812	Waves in Fluids	3 cr.
ME	823	Advanced Dynamics	4 cr.
ME	824	Vibrations Theory and Applications	4 cr.
ME	827	Advanced Mechanics of Solids	4 cr.
ME	835	Mechanics of Composite Materials	4 cr.
ME	841	Nonlinear Systems Modeling	4 cr.
ME	843	Satellite Systems, Dynamics, and Control	3 cr.
ME	857	Coastal Engineering and Processes	3 cr.
ME	870	Design with Microprocessors	4 cr.

ME 872	Control Systems	4 cr.
ME 873	Electromechanical Analysis and Design	4 cr.
ME 883	Geometric Modeling	4 cr.
ME 885	Solid Mechanics in Manufacturing	4 cr.
ME 886	Introduction to Finite Element Analysis	4 cr.
ME 895	Special Topics	2 to 4 cr.
ME 899	Master's Thesis	8 cr.
ME 904	Radiation Heat Transfer	4 cr.
ME 906	Convection Heat Transfer	4 cr.
ME 909	Viscous Flow	3 cr.
ME 910	Turbulence	3 cr.
ME 911	Theory of Hydrodynamic Stability	3 cr.
ME 924	Vibrations of Continuous Media	4 cr.
ME 935	Micromechanics of Composite and Porous Materials	4 cr.
ME 944	Nonlinear Control Systems	4 cr.
ME 951	Advanced Control Systems I	3 cr.
ME 952	Advanced Control Systems II	3 cr.
ME 955	Estimation and Filtering	3 cr.
ME 986	Advanced Finite Element Analysis	4 cr.
ME 992	Master's Project	4 cr.
ME 995	Graduate Special Topics	2 to 4 cr.
ME 999	Doctoral Research	

Microbiology (MICR)

microbiology.unh.edu

Professors: Richard P. Blakemore, Aaron B. Margolin, Thomas G. Pistole, Frank G. Rodgers, Robert M. Zsigray

Associate Professor: Louis S. Tisa

Assistant Professor: Elise R. Sullivan

Degrees Offered: M.S., Ph.D.

The Department of Microbiology offers the master of science and the doctor of philosophy degrees. Research opportunities are available in a broad range of areas, including plant-microbe interactions, nitrogen fixation, signal transduction, microbial development, Yersinia genetics, microbial immunity, molecular mechanisms of pathogenesis, environmental and molecular virology, microbial growth and regulation, marine microbial ecology, physiology and biochemistry, biotechnology, and bioremediation.

Admission Requirements

Applicants are expected to have had adequate preparation in the biological and physical sciences. This typically includes general and organic chemistry, physics, one semester of calculus, a year of general biology, a semester or more of biochemistry, and general microbiology. Formal courses in quantitative analysis and statistics are recommended. Applicants with deficiencies in these background courses who are admitted to the program may be required to complete appropriate coursework without graduate credit. Submission of Graduate Record Examination scores on the general test is required. Each applicant to the graduate program must be sponsored by a faculty member in the department. The sponsor's decision is usually based on the Statement of Interest section of the Application to Graduate School form. Persons planning to apply to the program should contact the graduate program coordinator in microbiology to obtain information on the department.

M.S. Degree Requirements

Students admitted to the M.S. program are required to conduct an independent research project in conjunction with a faculty adviser and must submit a thesis based on this research to a graduate committee, which determines its acceptability. Specific coursework is determined in conjunction with the graduate committee. A minimum of 30 credits, including these credits, is required. The faculty expect that the student submits at least one manuscript for publication to a peer-reviewed journal.

Ph.D. Degree Requirements

Students with appropriate academic training at the baccalaureate or master's level may be considered for admission to the doctoral program. Persons enrolled in the doctoral program are required (1) to develop and execute an independent research project in conjunction with a faculty adviser; (2) to pass a qualifying examination administered by the graduate committee; (3) to complete one semester of teaching; and (4) to complete and defend successfully a dissertation based on this research.

The department's acceptance of the dissertation is contingent on (1) evidence that at least two manuscripts based on the thesis research have been submitted to a peer-reviewed journal appropriate to the topic, and (2) its approval by the doctoral committee.

All graduates are expected to enroll in MICR 997, Microbiology Seminar, each semester.

Courses

MICR 802	Infectious Disease and Health	5 cr.
MICR 804	Genetics Prokaryotic Microbes	4 cr.
MICR 805	Immunology	5 cr.
MICR 806	Virology	3 cr.
MICR 807	Marine Microbiology	5 cr.
MICR 808	Virology Lab	2 cr.
MICR 810	Electron Microscopy and Microbial Cytology	5 cr.
MICR 811	Genomics and Bioinformatics	4 cr.
MICR 813	Microbes and the Environment	5 cr.
MICR 814	Public Health and Waterborne Diseases	4 cr.
MICR 817	Microbial Physiology	5 cr.
MICR 818	Ethics and Issues in Microbiology	3 cr.
MICR 851	Cell Culture	5 cr.
MICR 866	Plant-Microbe Interactions	3 cr.
MICR 893	Advanced Problems and Techniques in Microbial Cytology	1 to 4 cr.
MICR 895	Special Topics	1 to 4 cr.
MICR 899	Master's Thesis	6 to 10 cr.
MICR 905	Current Topics	1 cr.
MICR 906	Hot Topics	1 cr.
MICR 907	Instrumentation	1 cr.
MICR 909	Advanced Virology	4 cr.
MICR 997	Seminar	1 cr.
MICR 999	Doctoral Research	

Music (MUSI)

www.unh.edu/music

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

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

Assistant Professors: Andrew A. Boysen, Jenni Carbaugh Cook, Lori E. Dobbins, William G. Kempster

Degree Offered: M.A.

The Department of Music offers programs leading to the degree of master of arts with options in music history and in music education. The program is flexible, allowing the student to emphasize any of a variety of areas, and is built around a core curriculum stressing a broad knowledge of music. Graduates have established successful careers in performance, conducting, public school teaching, college teaching, and research. The program also serves as excellent preparation of doctoral study.

Admission Requirements

For the music history option a bachelor's degree in music, or its equivalent, from an accredited institution is required for admission; for the option in music education the requirement is a bachelor's degree in music education. A theory placement examination is required for all applicants. Students will not be allowed to enroll in MUSI 994, a required course, until this examination is passed to the satisfaction of the department. For the music history option, a reading knowledge of both German and French is strongly recommended before entering the program. The department will administer a German reading examination. On recommendation of the graduate adviser, this requirement may be waived for students who do not plan to study in musicology beyond the M.A. degree. Applicants planning to enter the music history option

should contact the graduate coordinator to submit a sample of their work. Applicants for the music education option must arrange for an interview with the appropriate faculty member.

M.A. Degree Requirements

HISTORY OPTION

This option offers the opportunity for in-depth study of music history and literature. The option has also proven valuable to students who wish to augment undergraduate degrees in performance and/or music education with more intensive studies in music theory, composition, music literature, instrumental and vocal performance, historical performance practices, and conducting. Required courses are MUSI 955, 956, 957, 958, 991, and 994. A written essay of substantive nature on a topic of the candidate's special interest is also required.

MUSIC EDUCATION OPTION

The goal of the option in music education is to develop a broad knowledge at the graduate level in the fields of music education, performance, history, and theory. Required courses are MUSI 955, 994, and two courses selected from MUSI 803–805, 807, 809, 811, 813, 815, 956, 957, and 958. Also required are MUED 996 and either MUED 983 or 984. In this option each candidate will also complete an independent project (MUED 995) of a substantive nature in an area of the candidate's special interest as approved by the adviser. For both options courses at the 800 and 900 levels in music, or at the 700, 800, and 900 levels in other departments, may be elected, with the approval of the student's adviser, to augment the required courses for a minimum total of 30 credits. For completion of the program in both options a comprehensive oral examination is required.

Courses

MUSI 803	Music of the Renaissance	3 cr.
MUSI 805	Music of the Baroque	3 cr.
MUSI 807	Music of the Classical Period	3 cr.
MUSI 809	Music of the Romantic Period	3 cr.
MUSI 811	Music of the 20th and 21st Centuries	3 cr.
MUSI 813	Art Song	3 cr.
MUSI 815	Survey of Opera	3 cr.
MUSI 831	Advanced Instrumental Conducting	2 cr.
MUSI 832	Advanced Choral Conducting	2 cr.
MUSI 836	Graduate Early Wind Instruments	1 to 4 cr.
MUSI 841	Graduate Piano	1 to 4 cr.
MUSI 842	Graduate Harpsichord	1 to 4 cr.
MUSI 843	Graduate Organ	1 to 4 cr.
MUSI 845	Graduate Voice	1 to 4 cr.
MUSI 846	Graduate Violin	1 to 4 cr.
MUSI 847	Graduate Viola	1 to 4 cr.
MUSI 848	Graduate Cello	1 to 4 cr.
MUSI 849	Graduate Bass	1 to 4 cr.
MUSI 850	Graduate Classical Guitar	1 to 4 cr.
MUSI 851	Graduate Flute	1 to 4 cr.
MUSI 852	Graduate Clarinet	1 to 4 cr.
MUSI 853	Graduate Saxophone	1 to 4 cr.
MUSI 854	Graduate Oboe	1 to 4 cr.
MUSI 855	Graduate Bassoon	1 to 4 cr.
MUSI 856	Graduate French Horn	1 to 4 cr.
MUSI 857	Graduate Trumpet	1 to 4 cr.
MUSI 858	Graduate Trombone	1 to 4 cr.
MUSI 859	Graduate Euphonium	1 to 4 cr.
MUSI 860	Graduate Tuba	1 to 4 cr.
MUSI 861	Graduate Percussion	1 to 4 cr.
MUSI 862	Graduate Keyboards	1 to 4 cr.
MUSI 863	Graduate Jazz Guitar	1 to 4 cr.
MUSI 864	Graduate Drum Set	1 to 4 cr.
MUSI 871	Counterpoint	3 cr.
MUSI 875	Composition	3 cr.
MUSI 876	Composition	3 cr.
MUSI 877	Advanced Composition	3 cr.
MUSI 879	Orchestration	3 cr.
MUSI 881	Analysis: Form and Structure	3 cr.
MUSI 882	Analysis: Form and Structure	3 cr.
MUSI 885	Electronic Sound Synthesis	4 cr.
MUSI 895	Special Studies	1 to 4 cr.
MUSI 955	Introduction to Bibliography	3 cr.
MUSI 956	Readings in Music History: Antiquity to 1600	3 cr.
MUSI 957	Readings in Music History: 1600 to 1820	3 cr.
MUSI 958	Readings in Music History: 1820 to the Present	3 cr.
MUSI 991	Research Seminar	1 to 4 cr.
MUSI 994	Theory Seminar	3 cr.
MUSI 995	Independent Study in the History and Theory of Music	1 to 4 cr.
MUED 841	Techniques and Methods in Choral Music	2 cr.
MUED 843	Materials and Methods in Piano Music	2 cr.
MUED 845	Techniques and Methods in String Instruments	2 cr.
MUED 846	Techniques and Methods in String Instruments	2 cr.
MUED 847	Techniques and Methods in Woodwind Instruments	3 cr.
MUED 849	Techniques and Methods in Brass Instruments	2 cr.
MUED 851	Techniques and Methods in Percussion Instruments	2 cr.
MUED 855	Vocal Pedagogy	2 cr.
MUED 863	Jazz Music Methods	2 cr.
MUED 865	Instrumental Music Methods	2 cr.
MUED 871	Marching Band Methods	2 cr.
MUED 890	Teaching Elementary School Music	3 cr.
MUED 891	Teaching Secondary School Music	3 cr.
MUED 895	Special Studies	1 to 4 cr.
MUED 983	Instrumental Literature and Its Performance	3 cr.
MUED 995	Special Projects	1 to 4 cr.
MUED 996	Foundations and Perspectives of Music Education	4 cr.

Natural Resources (NR)

www.unh.edu/natural-resources

Professors: John D. Aber, John E. Carroll, Russell G. Congalton, Robert T. Eckert, Theodore E. Howard, John A. Litvaitis, William W. Mautz, William H. McDowell, Peter J. Pekins, Barrett N. Rock, Andrew A. Rosenberg

Research Professors: Changsheng Li, Frederick T. Short

Affiliate Professors: William B. Bowden, Christopher Eagar, C. Anthony Federer, Peter W. Garrett, Jeffrey H. Gove, James W. Hornbeck, William B. Leak, Lawrence Safford, Paul Edwin Sendak, Tim D. Smith

Associate Professors: Kimberly J. Babbitt, Mimi Larsen Becker, Mark J. Ducey, Paul C. Johnson, Thomas D. Lee, Jonathan R. Pennock, Richard R. Weyrick

Research Associate Professors: David M. Burdick, Stephen H. Jones

Affiliate Associate Professors: Linda S. Heath, David Y. Hollinger, Rakesh Minocha, Lawrence J. Prelli

Assistant Professors: Carl H. Bolster, Serita D. Frey, George C. Hurtt

Research Assistant Professors: Jacqueline Ann Aitkenhead-Peterson, Andrew B. Cooper, Mary E. Martin

Affiliate Assistant Professors: Jill L. Bubier, Richard Hallett, Marie-Louise Smith

Degrees Offered: M.S. , Ph.D.

The Department of Natural Resources offers a master of science in natural resources along with options in five areas.

General master of science degree in natural resources: This program is designed for students whose work crosses disciplinary boundaries within the natural resources and thus does not easily fit within one of the existing options. Students can later choose to specify one of the five options if their research interests change or if they become specific to one individual area.

Forestry: forest resource economics and management, biometrics, genetics, forest ecosystem dynamics, remote sensing, and geographic information systems.

Environmental conservation: natural resource policy, conservation biology, sustainability, ecological ethics and values, international environmental affairs, and geospatial technologies.

Soil science: soil chemistry, soil classification and genesis, forest soils, and soil microbiology.

Water resources: wetlands, land-water interactions, groundwater chemistry, and biogeochemistry.

Wildlife: habitat evaluation and management, wildlife energetics, and population dynamics.

Admission Requirements

Applicants are expected to have completed either an undergraduate degree in the field in which they plan to specialize or show adequate preparation in the basic support courses of the field. Students with good undergraduate records who lack a background in a particular field may be admitted to a program, provided they are prepared to correct the deficiencies. All entering students must have taken at least one statistics course or do so at the graduate level. The Graduate Record Examination general test is required.

Students entering the forestry option may elect to develop concentrations within any of the above-listed areas. Applicants are expected to have backgrounds in forestry or related biological sciences. Entering students in soil science and water resources are required to have adequate preparation in chemistry and mathematics as well as biological or earth sciences. Students interested in wildlife are expected to have adequate preparation in biological sciences, chemistry, and mathematics. Students interested in environmental conservation should have a background appropriate for their area of interest. Since environmental conservation covers such a broad area, applicants are always reviewed carefully on an individual basis.

M.S. Degree Requirements

An M.S. degree is conferred upon successful completion of the following:

1. a program amounting to not less than 30 credits, including the following course requirements or equivalents: NR 993, Seminar; NR 903, Approach to Research, a quantitative methods course; NR 996, Natural Resource Education;

2. NR 998, Directed Research, or NR 899, Thesis and a formal presentation of the thesis or directed research results.

Cooperative Doctoral Program

The Department of Natural Resources participates in the Natural Resources and Earth System Science Ph.D. Program (NRESS), an interdepartmental degree offered at UNH.

Courses

NR 800	Critical Analysis of Water Resources Literature	2 cr.
NR 801	Ecological Values and Ethics	4 cr.
NR 802	Workshops	1 to 4 cr.
NR 803	Watershed Water Quality Management	4 cr.
NR 804	Soil Genesis and Classification	4 cr.
NR 805	Forest Soils	4 cr.
NR 806	Soil Ecology	4 cr.
NR 809	Fire Ecology Seminar	2 or 3 cr.
NR 810	Endangered Species Seminar	2 cr.
NR 811	Wetland Resource Management	4 cr.
NR 812	Sampling Techniques	2 to 4 cr.
NR 813	Quantitative Ecology	4 cr.
NR 814	Ecosystems of Puerto Rico	1 cr.
NR 815	Theoretical Ecology	4 cr.
NR 816	Wetland Delineation	4 cr.
NR 818	Law of Natural Resources and Environment	3 cr.
NR 819	Wetlands Mitigation and Restoration	3 cr.
NR 820	International Environmental Politics and Policies for the 21st Century	4 cr.
NR 821	Ecology of Polluted Waters	4 cr.
NR 822	Advanced Silviculture	3 cr.
NR 823	Field Wetland Ecology	3 cr.
NR 824	Resolving Environmental Conflicts	3 cr.
NR 830	Terrestrial Ecosystems	3 cr.
NR 832	Chemistry of Soils	4 cr.
NR 834	Forest Protection Seminar	3 cr.
NR 837	Wildlife Population Dynamics	4 cr.
NR 838	Wildlife Policy and Management	4 cr.
NR 839	Methods in Wildlife Demography and Conservation Biology	3 cr.
NR 845	Forest Management	4 cr.
NR 850	Applied American Environmental Philosophy	4 cr.
NR 853	Decision Sciences in Natural Resources Management	4 cr.
NR 854	Wood Products Manufacture and Marketing	4 cr.
NR 855	Regional Silviculture and Forest Management	2 cr.
NR 857	Photo Interpretation and Photogrammetry	4 cr.
NR 859	Digital Image Processing for Natural Resources	4 cr.
NR 860	Geographic Information Systems in Natural Resources	4 cr.
NR 864	Vegetation Sampling and Analysis	4 cr.
NR 865	Community Ecology	4 cr.
NR 872	Wildlife Energetics	2 cr.
NR 884	Sustainable Living	3 cr.
NR 885	Systems Thinking for Sustainable Living	3 cr.
NR 896	Summer Institute in Environmental Education	8 cr.
NR 897	Special Topics	1 to 4 cr.
NR 899	Master's Thesis	6 to 10 cr.
NR 902	Ecological Ethics and Values	4 cr.
NR 903	Approach to Research	3 cr.
NR 905	Contaminant Fate and Transport in the Subsurface	4 cr.
NR 910	Forest Stand Dynamics	4 cr.
NR 918	Advanced Forest Biology	3 cr.
NR 930	Modeling of Forest Ecosystems	3 cr.
NR 947	Current Issues in Ecosystem Ecology	1 to 4 cr.
NR 993	Natural and Environmental Resources Seminar	1 cr.
NR 995	Investigations	1 to 4 cr.
NR 996	Natural Resource Education	1 cr.
NR 997	Special Topics	1 to 4 cr.
NR 998	Directed Research	4 cr.

Natural Resources and Earth Systems Science Ph.D. Program

www.nressphd.sr.unh.edu

Professors: John D. Aber, Francis S. Birch, Wallace A. Bothner, John E. Carroll, Russell G. Congalton, Garrett E. Crow, S. Lawrence Dingman, Robert T. Eckert, Richard W. England, John M. Halstead, Lawrence C. Hamilton, Theodore E. Howard, Bruce E. Lindsay, John A. Litvaitis, Theodore C. Loder III, William W. Mautz, Larry A. Mayer, William H. McDowell, Dennis Meadows, Peter J. Pekins, Barrett N. Rock, Andrew A. Rosenberg, Samuel C. Smith, Stacia A. Sower, Karen L. Von Damm

Research Professors: Janet W. Campbell, Patrick M. Crill, Changsheng Li, Dork L. Sahagian, Frederick T. Short, Robert W. Talbot, Charles J. Vorosmarty

Associate Professors: Eleanor D. Abrams, Kimberly J. Babbitt, Mimi Larsen Becker, Michael J. Carter, Drew Christie, J. Matthew Davis, Kurk Dorsey, Mark J. Ducey, Paul C. Johnson, Barry D. Keim, Jo Laird, Thomas D. Lee, Berrien Moore III, Douglas E. Morris, Robert A. Robertson, Timm A. Triplett, Richard R. Weyrick

Research Associate Professors: David M. Burdick, Jack E. Dibb, Stephen E. Frolking, Michael L. Prentice, Cameron P. Wake, Larry G. Ward

Affiliate Associate Professors: David Y. Hollinger, Rakesh Minocha

Assistant Professors: Carl H. Bolster, Julia G. Bryce, William C. Clyde, Serita D. Frey, Kelly L. Giraud, Robert J. Griffin, George C. Hurtt, Joseph M. Licciardi, James M. Pringle

Research Assistant Professors: Bobby H. Braswell, Andrew B. Cooper, Erik A. Hobbie, Mary E. Martin, Scott V. Ollinger, Barkley C. Sive

Affiliate Assistant Professors: Richard Hallett, Marie-Louise Smith

Degree Offered: Ph.D.

The graduate program in natural resources and earth systems science is an interdepartmental program offering only the Ph.D. degree for interdisciplinary work in areas related to the understanding and management of the environment in the broadest

context. Areas of study include but are not limited to ecosystem science, biogeochemical cycling, geochemical systems, atmospheric science, geologic science, hydrology, oceanography, social science, ethical and policy issues, and multidisciplinary natural resources management.

FOUR DEGREES ARE OFFERED UNDER THE NRESS PROGRAM:

Ph.D. in natural resources and environmental studies

Ph.D. in earth and environmental science

Ph.D. in earth and environmental science: geology option

Ph.D. in earth and environmental science: oceanography option.

Students within the program will choose the degree that best suits their area of study. Formal requirements for all degrees are identical.

Admissions Requirements

Applicants to the NRESS Program come from a wide range of undergraduate majors. Individuals are judged as to the quality of their work and its relevance to the particular area of study they propose to pursue. Students are expected to have completed a master's degree before entering the program, although this is not a requirement. Many students will first complete a master's degree in either the earth sciences or natural resources department then continue on in the NRESS Program. All applicants must identify an adviser before being admitted, and this adviser must agree to take on the new student. Certain applicants may be admitted with deficiencies identified by their adviser and/or by the executive committee. These deficiencies normally must be corrected in the first year of the program.

Ph.D. Degree Requirements

The requirements of the doctoral program are flexible to accommodate the diverse interests and needs of students. Students, however, must meet the following requirements.

COMMITTEES AND COURSEWORK

1. The Ph.D. guidance and dissertation committees must consist of at least five members, must be interdisciplinary, and the committee chair must be a member of the NRESS faculty. Committee members must be from more than one department, and students are encouraged to include at least one off-campus member. Off-campus committee members must be approved by the student's adviser, the Executive Committee, and the Graduate School dean. Students should select their guidance committee in a timely manner, within one year of matriculation for full-time students and two years for part-time students.

2. Students entering the program without a master's degree are expected to complete a minimum of 36 credit hours. There is not a specific credit requirement for students who have completed a M.S. or M.A. degree in a related field. Final credit requirements are determined by the guidance committee and may include additional coursework necessary to enhance the student's selected field of study and/or correct any deficiencies in the student's previous program. Students may apply a maximum of 12 credits of independent study and/or seminar courses to their total course requirement.

3. All students in the program will take courses in three core areas: natural sciences, ethics/policy/law, and seminar. Any course used to satisfy the natural sciences and ethics core areas must be a classroom course of at least 3 credits. The seminar course must be interactive and must be at least 1 credit. Independent study courses may not be used to satisfy core requirements. Students must complete a Coursework Approval Form, which summarizes all courses to be taken, and obtain signatures from their adviser, committee, and the NRESS program chair.

4. Language proficiency may be required at the discretion of the student's adviser/committee. If required, a student would need to show proficiency in one foreign language or one computer language.

EXAMINATIONS

Each student is required to pass three examinations, each of which has both a written and oral component. Additional preliminary examinations may be administered before the three required exams as the committee deems necessary. Performance on such an exam would determine areas where the student may need additional coursework or could result in the student's removal from the program.

1. Comprehensive exam. The student must prepare an extensive written answer to one question from each committee member that covers the concepts and factual material deemed essential for the student's program. Three weeks are allowed for completion of the exam, after which the student gives an oral presentation to the committee. This exam is taken within three years of initiation of graduate study in the program. The committee may require a student to repeat part or all of the comprehensive exam if the student's performance is deemed unsatisfactory.

2. Proposal exam. The student must present to the committee a written proposal on the dissertation research topic. Once written, the student will complete a public oral presentation of the proposed research followed by an oral examination by the committee.

3. Final exam. The student must complete a written Ph.D. dissertation prior to the final exam. Once written, the student is required to complete an oral defense of the dissertation, which will include both a public presentation and oral examination by the committee.

A student may be required to take additional courses following either the comprehensive or proposal exam, or may be removed from the program following failure of any of the required exams. Students are advanced to candidacy after successfully completing the comprehensive exam, proposal exam, and all coursework required by the guidance committee as summarized on the Coursework Approval Form.

Courses

NRES	995	Independent Study	1 to 4 cr.
NRES	999	Doctoral Research	

Nursing (NURS)

www.unh.edu/nursing

Professor: Judith A. Sullivan

Associate Professors: Susan J. Fetzer, Gene E. Harkless, Liza Little, Dorothy D. Rentschler, Raelene Shippee-Rice, Carol L. Williams-Barnard

Assistant Professors: Katherine S. Collopy, Pamela P. DiNapoli, Janice B. Foust

Degree Offered: M.S.

The Department of Nursing offers the master of science degree in nursing. Three clinical practice tracks are currently offered. These include adult nurse practitioner/clinical nurse specialist, family nurse practitioner, and clinical nursing leadership (CNL). Within the CNL track, students can complete a program of study in nursing education, community health nursing, gerontology, acute care, adolescent care,

and other clinical areas including advanced leadership and management. All tracks prepare nurses for evidence-based practice through critical inquiry using a variety of instructional modalities.

Admission Requirements

Registered nurses (RNs) who hold a baccalaureate degree in either nursing or another field are considered for admission. Applicants are required to have a good academic record and completion of coursework in statistics and research. RNs whose baccalaureate degree is in a discipline other than nursing are considered. The program of study is individualized based on evaluation of competency statements and résumé submitted with the application form. RNs without a B.S.N. should contact the Graduate Nursing Office for a copy of the competency statement form.

M.S. Degree Requirements

The program for the master of science degree includes a total of 42 credit hours for the adult nurse practitioner/clinical nurse specialist, 45 credit hours for the family nurse practitioner specialty, and a minimum of 30 credit hours for the clinical nursing leadership track. All tracks are designed to be completed in 3–4 semesters of full-time study. Individual plans of study are available for those wishing to pursue part-time study. The program of study is designed as follows:

All master's degree students complete the following 9 credits of core courses: 900, The Discipline of Nursing; 901, Nursing and Change in Health Services; 905, Research in Nursing. Specialty courses for their chosen track of study are as follows:

Specialty courses (15-27 credits): Courses required for each area of specialization include for adult nurse practitioner/clinical nurse specialist: 907, Pharmacology; 908, Clinical Application of Human Physiology; 909, Health and Illness Appraisal; 935, Primary Care of the Adult; 936, Practicum in Primary Care of Adults (168 clinical hours); 941, Population-Focused Practicum (112 clinical hours); 945, Clinical Decision Making in Health Care; 946, Practicum in Adult Health Care (336 clinical hours). For family nurse practitioner: 907, Pharmacology; 908, Clinical Application of Human Physiology; 909, Health and Illness Appraisal; 935, Primary Care of the Adult; 936, Practicum in Primary Care of Adults (168 clinical hours); 937, Primary Care of Children; 938, Practicum in Primary Care of Children (112 clinical hours); 939, Seminar and Practicum in Primary Care of Families (336 clinical hours). One elective must be a family cognate course. For clinical nursing leadership track: 945, Clinical Decision Making in Health Care; 950, Reading and Research in Advanced Nursing; 955, Practicum in Advanced Nursing Practice (112 clinical hours), support courses (6 credits).

MASTER'S THESIS (6 CREDITS) OR MASTER'S RESEARCH PROJECT (3 CREDITS)

A student may elect either a thesis or nonthesis option. A formal presentation of the completed project or thesis is required. Clinical nursing leadership students complete a rigorous investigation and outcomes-focused analysis of a clinical question in either a project or thesis format.

Research and Scholarly Activities

The graduate faculty of the University's nursing program believe learning is a creative process wherein students are active participants in their education, growth, and development as advanced practice nurses. Faculty members are facilitators and mentors to students within a supportive scholarly environment. Students are prepared to be skilled, knowledgeable, and reflective leaders in health care who practice as nurse practitioners, clinical nurse specialists, or clinical nursing leaders.

The generation, dissemination, and application of evidence-based nursing knowledge and practice is a central mission for the nursing department. Health care of vulnerable populations is the research focus among the faculty. Faculty engage in scholarly inquiry across diverse topics such as care-giving, violence identification and prevention, clinical decision-making, adolescent pregnancy, elder care giving, and cultural diversity. Faculty publications, research, public policy initiatives, and other consultative/professional activities can be viewed at the department's Web site at www.unh.edu/nursing.

Courses

NURS 810	Families in Health and Illness	3 cr.
NURS 894	Special Topics	1 to 4 cr.
NURS 898	Master's Research Project	3 cr.
NURS 899	Master's Thesis	6 cr.
NURS 900	Discipline of Nursing	3 cr.
NURS 901	Nursing and Change in Health Services	3 cr.
NURS 905	Research	3 cr.
NURS 907	Pharmacology	3 cr.
NURS 908	Clinical Application of Human Physiology	3 cr.
NURS 909	Health and Illness Appraisal	3 cr.
NURS 920	Administrative Theories in Nursing	3 cr.
NURS 935	Primary Care of the Adult	3 cr.
NURS 936	Practicum in the Primary Care of Adults	3 cr.
NURS 937	Primary Care of Children	3 cr.
NURS 938	Practicum in the Primary Care of Children	3 cr.
NURS 939	Seminar and Practicum in the Primary Care of Families	6 cr.
NURS 941	Population Focused Practicum	3 cr.
NURS 945	Clinical Decision Making in Health Care	3 cr.
NURS 946	Practicum in Adult Health Care	6 cr.
NURS 950	Reading and Research in Advanced Nursing	2 to 8 cr.
NURS 955	Practicum in Advanced Nursing Practice	3 to 6 cr.
NURS 996	Independent Study	1 to 3 cr.

Occupational Therapy (OT)

www.unh.edu/ur-ot.html

Professor: Elizabeth L. Crepeau

Associate Professors: Lou Ann Griswold, Shelley E. Mulligan, Alice C. Seidel, Barbara Sussenberger, Judith D. Ward

Assistant Professor: Barbara Prudhomme White

Degree Offered: M.S.

The Department of Occupational Therapy offers the master of science degree in occupational therapy. There are two master's degree tracks, a Professional Master's Track and a Post-Professional Master's Track. The Professional Master's Degree Track prepares students to enter the profession. The Post-Professional Master's Degree Track advances the knowledge and skills for certified occupational therapists, who already hold an entry-level degree in occupational therapy.

Admission Requirements

PROFESSIONAL MASTER'S DEGREE TRACK

The Professional Master's Degree Track prepares students for entry-level occupational therapy practice. Students gain the knowledge and skills to work with people of all ages to enable their participation within their natural environments and daily life activities, including education, work, self-care, home management, and leisure.

The entry-level Professional Master's Track 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 telephone 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 an occupational therapist, registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

Applicants need a minimum overall grade point of 3.0 and a minimum 3.0 G.P.A. in the following prerequisite courses: human anatomy and physiology (two semesters with labs), neurology, abnormal psychology, human development, and statistics.

Additionally, applicants need to have completed a minimum of 40 hours of volunteer hours or work experience in health and human service settings.

Three letters of reference must accompany the application. Two of these must address the applicant's educational abilities/performance. One letter must address the applicant's interpersonal/communications skills as observed in a volunteer or paid employment setting.

ADVANCED-STANDING PROFESSIONAL MASTER'S DEGREE STUDENTS

Students who have completed a baccalaureate degree in occupational therapy at UNH as part of a combined B.S./M.S. program will take the first year of the two-year professional master's program as part of their senior year B.S. degree requirements. These students will be identified as advanced-standing students in the professional master's program and will need to complete four additional semesters of coursework, which includes fieldwork, to meet the M.S. degree requirements. Students in the combined B.S./M.S. program must apply for admission to the Graduate School to enter into the professional master's degree 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 in the master's degree program.

POST-PROFESSIONAL MASTER'S DEGREE TRACK

The master of science degree in occupational therapy requires the completion of 37 graduate-level credits. Students complete five core courses: OT 901, 902, 903, 904, and 898 (18 credits), three courses (12 credits) in a concentration area that reflects the student's professional goals, and a thesis or graduate project (6 credits). Students must earn a minimum of B– in all courses.

Professional M.S. Degree Track

The Professional Master's Degree Track requires the completion of 64 graduate-level credits, which includes 19 credits of fieldwork. The program consists of two years (six semesters) of professional courses, including summer courses between the two academic years. Required courses include: OT 841, OT 842, OT 851, OT 852, OT 861, OT 871, OT 883, OT 885, 892, OT 865, OT 875, OT 894, and OT 896.

Students must earn a minimum of B- in all required courses and receive a passing criterion score on the American Occupational Therapy Association Fieldwork Evaluation for the Occupational Therapist. Specific requirements are delineated in the OT Department Policy and Procedure Manual that is distributed to all new students. Curriculum review and revision is undertaken annually. The Department of Occupational Therapy works closely with students during academic advising sessions and throughout the academic year. Students are also expected to take an active role in verifying expectations and should check with their departmental advisers each September for updated policies and requirements.

Fieldwork experiences are scheduled in centers that are approved by the department. Students are responsible for transportation to off-campus fieldwork sites and other community learning experiences and must purchase personal liability insurance for coverage for the practical components of the curriculum. Students are responsible for meeting the health clearances established by their fieldwork sites. Proof of immunizations such as poliomyelitis, rubella, and hepatitis B may also be required. For level II fieldwork, health insurance and a physical examination, including a tuberculin test, are required. After completing both level II fieldwork requirements, graduates will be eligible to sit for the certification examination as described above.

Curriculum design: Classes will be scheduled during weekdays throughout the day and early evening. Many courses require experiential learning activities, which students need to work into their weekly schedules.

Post-Professional M.S. Degree Track

The master of science degree in occupational therapy requires the completion of 36 graduate-level credits. Students complete five core courses (18 credits), three courses (12 credits) in a concentration area that reflects the student's professional goals, and a thesis or graduate project (6 credits). Students must earn a minimum of B– in all courses.

Curriculum design: Courses meet all day Saturday at the University of New Hampshire's Durham campus. A 4-credit course meets for one full day, four times during a semester.

Students may complete the degree in three years by taking one course each fall and spring semester and one course during the summer term. Students complete 12–16 credits in each of the first two years and 8 credits the third year.

Courses

OT	822	Assistive Technology	4 cr.
OT	824	Assistive Technology and Physical Disabilities	4 cr.
OT	826	Assistive Technology and Sensory, Communicative, and Cognitive Disabilities	4 cr.
OT	841	Human Occupation I	4 cr.
OT	842	Human Occupation II	4 cr.
OT	851	Mind Body Systems/Neurologically-based Function and Dysfunction	4 cr.
OT	852	Human Movement in Occupation	4 cr.
OT	861	Occupational Therapy: Professional Roles and Principles of Practice	3 cr.
OT	862	Occupational Therapy Evaluation and Intervention I	4 cr.
OT	863	Occupational Therapy and Intervention II	4 cr.
OT	865	Occupational Therapy and Intervention III	3 cr.
OT	871	Occupation-Based Program Development in Community Settings I	4 cr.
OT	872	Occupation Based Program Development in Community Settings II	4 cr.
OT	875	Systems in Occupational Therapy Practice	3 cr.
OT	883	Introduction to Research	3 cr.
OT	885	Engagement in Research	3 cr.
OT	892	Level I Fieldwork	1 cr.
OT	893	Special Topics	2 to 4 cr.
OT	894	Level II Fieldwork I	9 cr.
OT	895	Readings and Research in Occupational Therapy	1 to 6 cr.
OT	896	Level II Fieldwork II	9 cr.
OT	897	Graduate Project	4 cr.
OT	898	Capstone	2 cr.
OT	899	Master's Thesis	1 to 6 cr.
OT	901	Theoretical Practice of Occupational Therapy	4 cr.
OT	902	Advanced Statistics for Health Care Research	4 cr.
OT	903	Research Methods for Occupational Therapists	4 cr.
OT	904	Health Care Trends and Occupational Therapy	4 cr.

Ocean Engineering (OE)

marine.unh.edu

Professors: Kenneth C. Baldwin, Jean Benoit, Barbaros Celikkol, Pedro A. de Alba, Christian P. De Moustier,

David L. Gress, Nancy E. Kinner, Larry A. Mayer, Kondagunta U. Sivaprasad, M. Robinson Swift, Colin Ware

Research Professor: Lloyd Huff

Affiliate Professors: Capt. Andrew Armstrong, Jim Gardner, Dave Wells

Associate Professors: Thomas P. Ballestero, Allen D. Drake

Research Associate Professor: Lee Alexander

Research Assistant Professors: Brian P. Calder, David W. Fredriksson

Degrees Offered: M.S., Ph.D.

Ocean Engineering offers programs leading to the master of science and an option in the doctor of philosophy degree program in engineering. Programs in OE are by definition interdisciplinary and require the students to interact with the ocean science community as well as the traditional engineering disciplines. Students are exposed to the broad-based issues of working engineering problems in the ocean environment, as well as discipline specifics. In these programs they will be trained to develop responsible solutions to problems that will lead to sustainable activity and life in the ocean.

A master of science in ocean engineering option in ocean mapping is also available. There is a more structured path through this program, which incorporates all aspects of hydrography as required by the International Hydrographic Organization (IHO) and is approved by the IHO. Focus is on the engineering aspects of hydrography. The general purpose of these programs is to prepare engineering students for professional careers in ocean-related fields.

Admission Requirements

Applicants should have completed a baccalaureate degree in either chemical, civil, electrical, or mechanical engineering or have an equivalent background.

M.S. Degree Requirements

Each student is required to take an oceanography course: ESCI 852, Chemical Oceanography, or ESCI 858, Introductory Physical Oceanography, or ESCI 859, Geological Oceanography, or ZOOL 850, Biological Oceanography, and OE 990, 991, Ocean Engineering Seminar I, II. In addition, each student must select three of the following core courses: OE 871 Geodesy and Positioning for Ocean Mapping; OE 810, Ocean Measurements Laboratory; OE 854, Ocean Waves and Tides; and OE 885, Underwater Acoustics. Students are also required to take a minimum of 12 credits of additional coursework and complete a master's thesis for 6 credits.

OCEAN MAPPING OPTION

This option is offered in conjunction with the Joint Hydrographic Center/Center for Coastal and Ocean Mapping. Each student is required to take these core courses: ESCI 858, Physical Oceanography; OE 990, 991, Ocean Engineering Seminar I and II; OE 810, Ocean Measurements Lab; OE 885, Underwater Acoustics; OE/ESCI 870, Introduction to Ocean Mapping; OE/ESCI 871, Geodesy and Positioning for Ocean Mapping; and OE/ESCI 972, Hydrographic Field Course. In addition, each student must select at least six additional credits from these electives: OE 854, Ocean Waves and Tides; ESCI 859, Geological Oceanography; OE 954, Ocean Waves and Tides II; ESCI 907, Geostatistics; OE/ESCI 973, Seafloor Characterization; OE/CS 867, Special Topic (Interactive Data Visualization); EOS 824, Introduction to Ocean Remote Sensing; NR 857, Photo Interpretation and Photogrammetry; NR 860, Geographic Information Systems in Natural Resources; OE 995, Graduate Special Topics; OE 998, Independent Study. Students are also required to complete a master's thesis for 6 credits. Other related courses may be taken with approval.

Ph.D. Option

Students admitted to this Ph.D. option come from traditional engineering degree programs, physics, mathematics, computer science, and in some cases marine science programs. Those entering the Ph.D. option with a B.S. degree from an engineering program should be prepared to enter the Ph.D. option directly. Those coming from a B.S. in physics, mathematics, or computer science will have their transcripts more carefully reviewed on an individual basis, as additional courses may be required.

A student in the ocean engineering option in the Engineering Ph.D. program will be expected to take a minimum of 12 courses (exclusive of dissertation research) beyond those required for a B.S. degree.

Required Courses

One course in oceanography or ocean science: ESCI/ZOOL 850, Biological Oceanography; ESCI 852, Chemical Oceanography; ESCI 858, Introductory Physical Oceanography; or ESCI 859, Geological Oceanography.

Three core courses in ocean engineering: OE 810, Ocean Measurements Lab; OE 844, Corrosion; OE 854, Ocean Waves and Tides; OE 856, Principles of Naval Architecture and Model Testing; OE 857, Coastal Engineering and Processes; OE 885, Underwater Acoustics; OE 873, Seafloor Characterization; OE 870, Introduction to Ocean Mapping; OE 871, Geodesy and Positioning for Ocean Mapping; OE 872, Hydrographic Field Course.

Two courses in advanced OE topics (two at 900 level): OE 937, Advanced Hydrodynamics; OE 954, Ocean Waves and Tides II; OE 956, Dynamics of Moored Systems; ESCI 959, Data Analysis Methods in Ocean and Earth Sciences.

Two courses (one at the 800 level; one at the 900 level): MATH 845, MATH 846, Foundations of Applied Mathematics; MATH 853, Introduction to Numberical Methods; MATH 854, Introduction to Scientific Computing; MATH 856, Principles of Statistical Inference; MATH 888, Complex Analysis; MATH 931, MATH 932, Mathematical Physics; ME 881, Mathematical Methods in Engineering Science I; ME 982, Mathematical Methods in Engineering Science II; ME 876, Introduction to Finite Element Analysis; ME 986 Advanced Finite Element Analysis.

Four electives (two at 800 level; two at 900 level): CS 867, Interactive Data Visualization; ME 807, Analytical Fluid Dynamics; ME 809, Computational Fluid Dynamics; ME 886, Introduction to Finite Element Analysis; ME 909, Viscous Flow; ME 910, Turbulent Flow Analysis; ME 911, Theory of Hydrodynamic Stability; ME 827, Advanced Mechanics of Solids; ME 824, Introduction to Vibration; ME 823, Advanced Dynamics; ME 922, Continuum Mechanics; ME 924, Elasticity; ME 926, Plasticity; CIE 861, Foundation Engineering; CIE 862, Introduction to Geotechnical Earthquake Engineering; CIE 863, Geological Engineering; CIE 883, Matrix Structural Analysis and Modeling; CIE 942, River Mechanics; CIE 961, In situ Geotechnical Testing; ESCI 907, Geostatistics; ESCI 958, Dynamical Oceanography; ECE 814, Introduction to Digital Signal Processing; ECE 817, Introduction to Digital Image Processing; ECE 845, Acoustics; ECE 857, Fundamentals of Communication; ECE 860, Introduction to Fiber Optics; ECE 939, Statistical Communication Theory; ECE 940, Information Theory; ECE 941, Digital Signal Processing; ECE 955, Estimation and Filtering; ECE 965, Introduction to Pattern Recognition; ECE 970, Introduction to Optical Signal Processing.

The general progress of a student through this option is expected to follow the time frame listed:

Year 1: Coursework, qualifier at the end of the year;
Year 2: More coursework, thesis proposal presentation at the end of the year;
Year 3: Research;
Year 4: Research/thesis defense;
Year 5: Research/thesis defense.

The course selection and sequencing will be established in consultation with the student's guidance committee. There will be a qualifying examination on the student's specific area of interest after the first year, but no later than the end of the second year. The goal of this exam is to test the breadth of a student's knowledge in topic areas essential to ocean engineering and the student's area of interest. For each student there will be a list of must know topics; i.e., physical oceanography, underwater acoustics, fluid dynamics, mathematics. A formal Ph.D. proposal will then be written and presented in a seminar, which constitutes an oral exam. After successful completion, the student will be advanced to candidacy and work on the dissertation. The dissertation will be defended in a public forum when completed.

Courses

OE 810	Ocean Measurements Laboratory	4 cr.
OE 844	Corrosion	4 cr.
OE 854	Ocean Waves and Tides	4 cr.
OE 856	Principles of Naval Architecture and Model Testing	4 cr.
OE 857	Coastal Engineering and Processes	3 cr.
OE 867	Interactive Data Visualization	3 cr.
OE 870	Introduction to Ocean Mapping	4 cr.
OE 871	Geodesy and Positioning for Ocean Mapping	3 cr.
OE 881	Physical Instrumentation	4 cr.
OE 885	Underwater Acoustics	4 cr.
OE 895	Special Topics	2 to 4 cr.
OE 899	Master's Thesis	6 cr.
OE 954	Ocean Waves and Tides II	4 cr.
OE 956	Dynamics of Moored Systems	4 cr.
OE 972	Hydrographic Field Course	4 cr.
OE 973	Seafloor Characterization	3 cr.
OE 990	Ocean Seminars I	1 cr.
OE 991	Ocean Seminars II	1 cr.
OE 995	Graduate Special Topics	2 to 4 cr.
OE 998	Independent Study	1 to 4 cr.
OE 999	Doctoral Research	

Painting (ARTS)

www.arts.unh.edu

Professors: David S. Andrew, Grant Drumheller, Scott Schnepf, David R. Smith, Mara R. Witzling

Associate Professors: Patricia A. Emison, Eleanor M. Hight, Craig A. Hood, Jennifer K. Moses, Langdon C. Quin

Assistant Professors: Benjamin S. Cariens, Brian W.K. Chu

Degree Offered: M.F.A.

The Department of Art and Art History offers a program of courses leading to a master of fine arts degree in painting.

Admission Requirements

A bachelor of fine arts degree in painting or the equivalent in undergraduate coursework (minimally this would mean 60 credit hours in studio art and 16 credit hours in art history) is required for admission to this program. Additionally, a minimum undergraduate G.P.A. of 2.6 is required. Prospective students must submit 20 slides of recent work to be reviewed by the graduate faculty of the Department of Art and Art History.

M.F.A. Degree Requirements

Each student in the master of fine arts degree in painting program shall complete 60 credit hours of work. Twenty-eight credits of work will be in the area of concentration (painting) leading toward a thesis exhibition. Sixteen credits will be graduate-level drawing. Eight credits will be in graduate-level art history and the final 8 credits will be in art electives to be chosen from drawing, printmaking, and painting and/or art history. Along with the thesis exhibition, degree candidates will be required to submit a short written statement focusing on aesthetic, technical, and historical issues related to his or her own work.

Courses

ARTS 832	Advanced Drawing	4 cr.
ARTS 846	Advanced Painting	4 cr.
ARTS 884	Dutch Genre Painting	4 cr.
ARTS 886	European Colonialism and Visual Culture	4 cr.
ARTS 895	Methods of Art History	4 cr.
ARTS 897	Seminar in Art History	4 cr.
ARTS 932	Graduate Drawing	6 cr.
ARTS 996	Independent Study in the Visual Arts	1 to 6 cr.
ARTS 997	Graduate Painting Thesis	10 cr.
ARTS 998	Graduate PaintingSeminar	6 cr.

Physics (PHYS)

www.physics.unh.edu

Professors: L. Christian Balling, Amitava Bhattacharjee, John R. Calarco, Edward L. Chupp, John F. Dawson, Olof E. Echt, James M.E. Harper, Jochen Heisenberg, F. William Hersman, Joseph Hollweg, Richard L. Kaufmann, Martin A. Lee, Eberhard Möbius, James M. Ryan, Harvey K. Shepard, Roy B. Torbert, John J. Wright

Research Professors: Terry Forbes, Philip A. Isenberg, R. Bruce McKibben, Charles W. Smith III

Associate Professors: James Connell, Lynn M. Kistler, Dawn C. Meredith, Joachim Raeder

Research Associate Professors: Charles J. Farrugia, David J. Forrest, Antoinette B. Galvin, Vania K. Jordanova, Clifford Lopate, Mark L. McConnell, Jack M. Quinn

Assistant Professors: Silas Robert Beane III, N. Per Berglund, Maurik Holtrop, Karsten Pohl

Research Assistant Professors: Yuri E. Litvinenko, Bernard J. Vasquez

Degrees Offered: M.S., Ph.D.

The Department of Physics offers the degrees of master of science and the doctor of philosophy. Areas of specialization are space physics and astrophysics, experimental nuclear physics, biomedical imaging, theoretical nuclear and high energy physics, experimental physics of solids and nano-materials.

Admission Requirements

Applicants to the master of science and doctor of philosophy programs are expected to have a bachelor's degree in science, with at least 24 credits in physics and closely allied fields.

M.S. Degree Requirements

The courses required for the master of science in physics include PHYS 805, 931, 939, 941, and 943. Students in the M.S. program are not required to take the Ph.D. qualifying examination. Students may select one of the following plans:

(1) complete 30 semester hours of courses chosen in consultation with the graduate adviser; (2) complete 24 semester hours of courses chosen in consultation with the graduate adviser, complete a thesis representing the equivalent of 6 semester hours' work, and pass an oral examination on the thesis.

Ph.D. Degree Requirements

The courses required for a doctor of philosophy degree in physics are (1) PHYS 805, 931-932, 935, 939, 941–942, 943–944, either 940, 953 or 955; and (2) any addi-

tional four courses at the 900 level, excluding 979, 989, and 999. With appropriate additional work, a student may petition to receive credit for one of the following courses: PHYS 810, 812, 818, 820, 851, and courses from other departments.

For students doing Ph.D. research in astrophysics or space physics, one of the four elective courses must be PHYS 951; 952 is also highly recommended. These students must also take either 810 or 812 and three semesters of EOS 901 seminar.

Admission to candidacy for the degree is based primarily on demonstrated ability in formal coursework; experience in teaching, equivalent to at least half time for one year; and passing a written qualifying examination. This examination is normally taken during the second year and must be passed by the middle of the third year. Upon completion of a dissertation, doctoral candidates will take an oral examination based on the area of their research.

Interdisciplinary Research

The department encourages research in areas related to physics or applied physics. Should students desire to do research in a field related to physics, special provisions may be made. A cooperative program with the Department of Electrical and Computer Engineering is available to master's students in physics. Physics students specializing in space science may complete M.S. or Ph.D. theses under the guidance of professors or research professors in the Institute for the Study of Earth, Oceans, and Space (EOS). (See the listing for EOS in this catalog.) Contact the department chairperson or graduate adviser for details.

Courses

PHYS 805	Experimental Physics	4 cr.
PHYS 810	Introduction to Astrophysics	4 cr.
PHYS 811	Topics in Modern Physics	1 to 4 cr.
PHYS 812	Physics of the Ionosphere	4 cr.
PHYS 818	Introduction to Solid-State Physics	4 cr.
PHYS 820	Nuclear Physics	4 cr.
PHYS 854	Introduction to Scientific Computing	3 cr.
PHYS 895	Independent Study	1 to 8 cr.
PHYS 899	Master's Thesis	6 cr.
PHYS 901	Physics Teaching Seminar	1 cr.
PHYS 902	Issues in Teaching and Learning Physics	1 to 3 cr.
PHYS 931	Mathematical Physics	3 cr.
PHYS 932	Mathematical Physics	3 cr.
PHYS 935	Statistical Physics	3 cr.
PHYS 939	Theoretical Mechanics I	3 cr.
PHYS 940	Theoretical Mechanics II	3 cr.
PHYS 941	Electromagnetic Theory	3 cr.
PHYS 942	Electromagnetic Theory	3 cr.
PHYS 943	Quantum Mechanics	3 cr.
PHYS 944	Quantum Mechanics	3 cr.
PHYS 951	Plasma Physics I	3 cr.
PHYS 952	Plasma Physics II	3 cr.
PHYS 955	Geophysical and Astrophysical Fluid Dynamics	3 cr.
PHYS 961	Advanced Quantum Mechanics	3 cr.
PHYS 962	Advanced Quantum Mechanics	3 cr.
PHYS 965	Advanced Solid-State Physics	3 cr.
PHYS 987	Magnetospheres	3 cr.
PHYS 988	High Energy Astrophysics	3 cr.
PHYS 995	Special Topics	1 to 3 cr.
PHYS 999	Doctoral Research	

Plant Biology (PBIO)

www.pbio.unh.edu

Professors: Robert O. Blanchard, Garrett E. Crow, Thomas M. Davis, Curtis V. Givan, J. Brent Loy, Arthur C. Mathieson, Subhash C. Minocha, Barrett N. Rock

Extension Professors: Alan T. Eaton, William G. Lord, Catherine A. Neal, Cheryl A. Smith, Stanley R. Swier

Affiliate Professor: Walter C. Shortle

Associate Professors: Alan L. Baker, Wayne R. Fagerberg, Paul R. Fisher, Estelle M. Hrabak, Leland S. Jahnke, Anita S. Klein, Christopher D. Neefus, James E. Pollard, John M. Roberts

Affiliate Associate Professors: Rakesh Minocha, Kevin T. Smith, Janet R. Sullivan

Assistant Professors: Dean A. Kopsell, Stefan Seiter

Research Assistant Professor: Rosanna Freyre

Degrees Offered: M.S., Ph.D.

The Department of Plant Biology offers the master of science and doctor of philosophy degrees. Research opportunities are available in basic and applied areas of plant biology, including breeding and genetics, cell biology, cell and tissue culture, ecology, molecular biology, genetic engineering, marine and freshwater biology, morphology and anatomy, pathology, psychology, physiology, systematic botany, crop production, and environmental horticulture.

Admission Requirements

Applicants are expected to have adequate preparation in plant biology and in the physical sciences; they must also submit general scores from the Graduate Record Examination.

M.S. Degree Requirements

Students will meet the Graduate School's requirements for the degree (minimum of 30 credits). Students will be required to write and defend a thesis (6-10 credits) based on field or laboratory research.

Ph.D. Degree Requirements

Students will complete a program of study as determined by their guidance committee. Students will be advanced to candidacy after successfully completing comprehensive written and oral qualifying examinations. Candidates must successfully defend a dissertation based on original research in plant biology. For some program areas, a foreign language may be required at the discretion of the student's guidance committee.

Teaching Requirements

Teaching experience is required of all M.S. and Ph.D. degree students. The requirement may be fulfilled by enrolling in a supervised teaching course, by serving as a teaching assistant, or by having previous professional teaching experience.

Courses

PBIO 801	Plant Physiology	3 cr.
PBIO 802	Plant Physiology Laboratory	2 cr.
PBIO 809	Plant Stress Physiology	3 cr.
PBIO 813	Biochemistry of Photosynthesis	4 cr.
PBIO 814	Electron Microscopy	2 cr.
PBIO 815	Electron Microscopy Lab	3 cr.
PBIO 817	General Limnology	4 cr.
PBIO 819	Field Limnology	4 cr.
PBIO 820	Plant Nutrition	4 cr.
PBIO 821	Microscopic Algae	4 cr.
PBIO 822	Marine Phycology	4 cr.
PBIO 824	Freshwater Algal Ecology	4 cr.
PBIO 825	Marine Ecology	4 cr.
PBIO 826	Integrated Pest Management	4 cr.
PBIO 827	Algal Physiology	3 cr.
PBIO 829	Algal Physiology Laboratory	2 cr.
PBIO 832	Lake Management: A Multidisciplinary Approach	4 cr.
PBIO 840	Ecological Agriculture	4 cr.
PBIO 847	Aquatic Higher Plants	4 cr.
PBIO 851	Cell Culture	5 cr.
PBIO 852	Mycology	4 cr.
PBIO 853	Cytogenetics	4 cr.
PBIO 854	Laboratory in Biochemistry and Molecular Biology of Nucleic Acids	5 cr.
PBIO 858	Plant Anatomy	5 cr.
PBIO 861	Biodiversity: Phytogeographic Perspective	4 cr.
PBIO 866	Plant-Microbe Interactions	3 cr.
PBIO 872	Evolutionary Genetics of Plants	4 cr.
PBIO 874	Plant Biotechnology and Genetic Engineering	3 cr.
PBIO 875	Plant Biotechnology and Genetic Engineering Lab	2 cr.
PBIO 899	Master's Thesis	6 to 10 cr.
PBIO 985	Advanced Topics	1 to 6 cr.
PBIO 995	Investigations	1 to 6 cr.
PBIO 997	Graduate Seminar	1 cr.
PBIO 999	Doctoral Research	

Political Science/Public Administration (POLT)

www.unh.edu/political-science

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, Clifford J. Wirth

Assistant Professors: Daniel R. Krislov, Alynna J. Lyon, Bernard T. Schuman, Stacy D. VanDeveer, J. Mark Wrighton

Degrees Offered: M.A., M.P.A.

The Department of Political Science offers the master of arts in political science and the master of public administration degrees. Areas of specialization for the master of arts are political thought, American politics, comparative politics, and international politics. The M.P.A. program is offered in Durham and Manchester.

Admission Requirements

Applicants are expected to have majored in political science, a related field, or have worked in government or the nonprofit sector. Where undergraduate preparation has been insufficient, applicants may be admitted provided that they follow a program of study approved by the chairperson. The Graduate Record Examination general test is required for the M.A. and for M.P.A. students requesting consideration for graduate assistant or tuition assistance awards.

M.A. Degree Requirements

The M.A. in political science is available to full- and part-time students. The program has three goals: to assure familiarity with the breadth of the discipline; to provide training in research techniques; and to allow each candidate an opportunity to develop special familiarity with a particular field. Accordingly, the M.A. program includes a master's thesis and the following course-related requirements: one advanced course or seminar in each of the four fields offered by the department; two additional advanced courses or seminars offered by the department or in a related discipline; one advanced course in research techniques and methods (POLT 905 or equivalent); and the master's thesis in the selected field of concentration. Each candidate must complete seven courses or seminars (26–28 credits) and the thesis (8 credits) for a total of 34–36 credits.

M.P.A. Degree Requirements

The master of public administration is an interdisciplinary degree designed principally for individuals intending to pursue careers in local, state, or national government service in the U.S. or other countries. Students will be required to complete eight full courses (30-32 credits) and a 4-credit internship program (POLT 970, Administrative Internship) for a total of 34-36 credits. A comprehensive examination is required.

Of the eight courses, three are required core courses (POLT 905, 906, 907), two are elective courses in public administration and political science, and three may be selected from other departments in related fields, including administration, health management and policy, political science or resource economics, community development, and others. Students who have had appropriate responsibility in public administration may be exempted from the internship upon petition for such exemption. Such students will be required to undertake independent research on an approved topic related to public administration (POLT 995 or 996, 4 credits).

The program is offered for full- and part-time students. The full-time program can be completed during one academic year. The part-time program, designed for working professionals, can be completed during late afternoon or evenings over two and one-half years.

Courses

POLT 801	Courts and Public Policy	4 cr.
POLT 802	Public Planning and Budgeting	4 cr.
POLT 803	Urban and Metropolitan Politics	4 cr.
POLT 804	Policy and Program Evaluation	4 cr.
POLT 805	American Public Policy	4 cr.
POLT 807	Criminal Justice Administration	4 cr.
POLT 808	Administrative Law	4 cr.
POLT 810	Public Human Resource Management	4 cr.
POLT 843	Comparative Political Economy	4 cr.
POLT 860	Theories of International Relations	4 cr.
POLT 862	International Political Economy	4 cr.
POLT 878	International Organization	4 cr.
POLT 880	International Environmental Politics, Policy, and Law	4 cr.
POLT 897B	Seminar in American Politics	4 cr.
POLT 897C	Seminar in Comparative Politics	4 cr.
POLT 897E	Seminar in International Politics	4 cr.
POLT 897F	Seminar in Public Administration	4 cr.
POLT 897I	Seminar in Political Thought	4 cr.
POLT 898B	Seminar in American Politics	4 cr.
POLT 898C	Seminar in Comparative Politics	4 cr.
POLT 898E	Seminar in International Politics	4 cr.
POLT 898F	Seminar in Public Administration	4 cr.
POLT 898I	Seminar in Political Thought	4 cr.
POLT 899	Master's Thesis	8 cr.
POLT 905	Methods of Policy Analysis	4 cr.
POLT 906	Theories and Processes of Public Administration	4 cr.
POLT 907	Cases in Public Management	4 cr.
POLT 970	Administrative Internship	4 cr.
POLT 995	Reading and Research	1 to 4 cr.
POLT 996	Reading and Research	1 to 4 cr.

Psychology (PSYC)

www.unh.edu/psychology

Professors: Victor A. Benassi, Ellen S. Cohn, Peter S. Fernald, Kenneth Fuld, Benjamin Harris, Robert G. Mair, John D. Mayer, Edward J. O'Brien, David B. Pillemer, Rebecca M. Warner, William R. Woodward

Associate Professors: Victoria L. Banyard, Robert C. Drugan, John E. Limber, Carolyn J. Mebert, William Wren Stine, Daniel C. Williams

Assistant Professors: J. Pablo Chavajay, Brett M. Gibson, Michelle D. Leichtman

Degree Offered: Ph.D.

The Department of Psychology offers a four-year program of study leading to the doctor of philosophy degree. The basic goal of the program is the development of behavioral scientists who have a broad knowledge of psychology, who can teach and communicate effectively, and who can carry out sound research in an area of specialization. Although some students seek employment outside academia, the program is oriented toward developing the skills required by the research psychologist who intends to become a college or university teacher.

Areas in which the student may specialize are cognition and psycholinguistics, developmental psychology, the history and theory of psychology, learning, physiological psychology, sensation and perception, and social/personality psychology. The department does not offer training in clinical or counseling psychology.

Distinctive Features of the Program

All psychology graduate students in the Ph.D. program receive a stipend and a full tuition waiver for at least four years. A low graduate student/faculty ratio provides opportunities to work closely with one or more faculty mentors. Graduates acquire tenure-track academic, or postdoctoral positions at colleges and universities across the U.S.

The Department of Psychology is a national model for preparing future faculty. All graduate students teach Introduction to Psychology autonomously, as well as one or

two undergraduate survey courses in statistics and/or in the student's area of specialization. In addition, through a partnership with the University's Preparing Future Faculty program, students may simultaneously earn a Master of Science for Teachers or a Cognate in College Teaching.

The UNH Department of Psychology is the only program in the U.S. that offers a Ph.D. in the History of Psychology. In addition, there are active research laboratories in all areas represented in the graduate program. The department has strong partnerships with such nationally recognized programs as UNH's Child Study and Development Center and the Family Research Laboratory. UNH also has a Teaching Excellence Program to help graduate students and faculty improve the quality of their teaching.

Admission Requirements

In addition to meeting the requirements for admission to the Graduate School, applicants must intend to be full-time students working toward the doctoral degree (not just the master's degree), and they must submit Graduate Record Examination general test scores and the score on the subject test in psychology along with other standard application forms, which may be obtained from the department. Before beginning graduate work, the applicant must have completed a minimum of 15 undergraduate credits in psychology, including courses in elementary statistics and experimental psychology.

Ph.D. Degree Requirements

Required courses include two semesters of the graduate proseminar (PSYC 901–902), three semesters of research methodology and statistics (PSYC 905–906; 907 or 908), eight graduate seminars, and two semesters of the practicum and seminar in the teaching of psychology (PSYC 991–992). Work outside the department is also included in each student's program. Depth in a particular area is obtained through participation in advanced seminars and by independent reading and research conducted under the supervision of a faculty member. Because topics generally differ each time an advanced seminar is offered, advanced seminars may be repeated for credit.

Prior to the doctoral dissertation, the student carries out original research that culminates in either a master's thesis or a paper of publishable quality. A master's degree is awarded upon the successful completion of a program approved by the department and dean of the Graduate School. This typically takes place by the end of the second year.

The third year of the program is dedicated to the practicum and seminar on the teaching of psychology in conjunction with the teaching of introductory psychology.

Advancement to candidacy for the Ph.D. degree depends on receiving the master's degree, passing a specialist examination in one of the department's areas of specialization, and identifying a topic for doctoral research. Advancement to candidacy is usually accomplished by the end of a student's fourth year in the program. During the fourth year, students typically begin dissertation research and teach an introductory course in their specialty area. Most students complete the Ph.D. degree in the fifth year. For more details about the graduate program, for application forms, and for a schedule of course offerings, contact the department and/or visit: www.unh.edu/psychology/. Approval of the instructor is required before registering for any graduate course.

Courses

PSYC 894	Advanced Research	4 or 8 cr.
PSYC 899	Master's Thesis	8 cr.
PSYC 901	Graduate Proseminar	cr.
PSYC 902	Graduate Proseminar	cr.
PSYC 905	Research Methodology and Statistics I	4 cr.
PSYC 906	Research Methodology and Statistics II	4 cr.
PSYC 907	Research Methods and Statistics III	4 cr.
PSYC 909	Advanced Seminar in Quantitative and Analytic Methods	4 cr.
PSYC 914	Advanced Seminar in Cognition	4 cr.
PSYC 917	Advanced Seminar in Sensory and Perceptual Processes	4 cr.
PSYC 933	Advanced Seminar in Physiological Psychology	4 cr.
PSYC 945	Advanced Seminar in Behavioral Analysis	4 cr.
PSYC 954	Advanced Seminar in Social Psychology	4 cr.
PSYC 974	Advanced Seminar in the History and Theory of Psychology	4 cr.
PSYC 982	Advanced Seminar in Developmental Psychology	4 cr.
PSYC 991	Practicum and Seminar in the Teaching of Psychology	6 cr.
PSYC 992	Practicum and Seminar in the Teaching of Psychology	6 cr.
PSYC 995	Reading and Research	1 to 4 cr.
PSYC 998	Problems and Issues	4 cr.
PSYC 999	Doctoral Research	

Public Health (PHP)

www.unh.edu/hmp

Professors: James F. McCarthy, Jeffrey Colman Salloway, John W. Seavey, Lee F. Seidel, Robert S. Woodward

Associate Professors: Marc D. Hiller, James B. Lewis

Research Associate Professor: Michele R. Solloway

Degree Offered: M.P.H.

The School of Health and Human Services offers an interdisciplinary curriculum leading to the master of public health (M.P.H.). The program is designed to provide students with an M.P.H. degree with options available in three areas of study: public health policy and management; public health nursing; and public health ecology. The program will seek accreditation from the Council on Education for Public Health after two graduating classes, the standard for accrediting new programs.

The program is only offered at the University of New Hampshire Manchester through the Center for Graduate and Professional Studies. Classes are offered in the evenings. Working professionals can complete the program on a part-time basis over two years or it can be completed over a longer period of time.

Admission Requirements

Admissions is done through the UNH Graduate School for both fall and spring semesters. Students are expected to have experience in public health. The Admission Committee uses previous academic records, current experience, and recommendations as indicators of success. While we do not require GRE scores, we do encourage those who have taken the GRE to submit their scores. Interviews with the program director are encouraged. An application must include:

1. UNH Graduate School Application Form;
2. Letter of intent explaining your reasons for applying to the M.P.H. Program and the option for which you are applying;
3. Office transcripts from previous undergraduate and graduate education;
4. Current résumé; and
5. Three letters of recommendation.

M.P.H. Degree Requirements

The M.P.H. program is a 48-credit curriculum. In addition to the five core courses found in every public health program (public health systems, epidemiology, environmental health, biostatistics, and social and behavioral health), the program requires four additional courses for all students (administration, finance and

budgeting, policy, and ethics). The curriculum requires students to select one of the following options: public health policy and management; public health ecology; or public health nursing. Within each option there are required courses and electives. The option includes a field experience in which the student is expected to apply theory and practice of public health to a particular area of student interest. The final course in the curriculum is an integrating seminar in which the students from the three options are brought together to work on a particular public health problem.

Courses

PHP 900	Public Health Care Systems	3 cr.
PHP 901	Epidemiology	3 cr.
PHP 902	Environmental Health	3 cr.
PHP 903	Biostatistics	3 cr.
PHP 904	Social and Behavioral Health	3 cr.
PHP 905	Public Health Administration	3 cr.
PHP 906	Public Health Finance and Budgeting	3 cr.
PHP 907	Public Health Policy	3 cr.
PHP 908	Public Health Ethics	3 cr.
PHP 912	Public Health Law	3 cr.
PHP 914	Public Health Policy Analysis	3 cr.
PHP 920	Social Marketing	3 cr.
PHP 922	Public Health Economics	3 cr.
PHP 924	Policy and Practice of Community Health Assessment	3 cr.
PHP 930	Climate Change and Health	3 cr.
PHP 932	Disease Ecology	3 cr.
PHP 934	Work, Environmental Policy, and the Health of Workers	3 cr.
PHP 940	Public Health Nursing I	3 cr.
PHP 942	Public Health Nursing II	3 cr.
PHP 985A	Special Topics in Policy and Management	1 to 3 cr.
PHP 985B	Special Topics in Public Health Ecology	1 to 3 cr.
PHP 985C	Special Topics in Public Health Nursing	1 to 3 cr.
PHP 990	Field Study	3 cr.
PHP 995	Independent Study	1 to 3 cr.
PHP 998	Integrating Seminar	3 cr.

Recreation Management and Policy (RMP)

www.unh.edu/rmp

Professors: Lou G. Powell, Janet R. Sable

Associate Professor: Ann L. Morgan

Assistant Professors: Robert J. Barcelona, Jason N. Bocarro

Degree Offered: M.S.

The Department of Recreation Management and Policy offers the master of science degree in recreation administration or therapeutic recreation administration. The Department of Recreation Management and Policy is accredited by the American Alliance of Leisure and Recreation/National Recreation and Park Association (AALR/NRPA) Council on Accreditation. An atmosphere of collegiality and collaboration fosters interactions between faculty and students. Faculty and students are actively engaged in applied research.

Admission Requirements

Applications will be reviewed all year as they are completed, but students who wish to be considered for financial support should apply before March 15 for the following fall semester. Admission is based on a personal history that demonstrates academic achievement and/or exemplary work experience, as well as the applicant's ability to articulate in the personal statement his or her potential and desire for graduate study in recreation administration or therapeutic recreation administration. Generally, students must have earned a minimum grade-point average of 3.00 to be considered for admission. Applicants are required to submit copies of prior academic records, current GRE scores, three references, and a complete Graduate School application. A baccalaureate degree must be conferred prior to beginning the program. Interviews are encouraged but not required for all applicants. Admission to the program is selective and limited, so it is in the applicant's best interest to apply early.

M.S. Degree Requirements

RECREATION ADMINISTRATION OPTION

The recreation administration option prepares professionals with advanced knowledge and skills to plan and administer recreation services. Positions in the field of recreation administration are diverse and numerous. Examples of postgraduate opportunities include: directors of town and municipal recreation departments, YMCAs, resort programs, camps, campus/intramural sports, fitness centers, youth services agencies, and sports and recreation facilities as well as outdoor recreation planners for the U.S. Forest Service, National Park Service, and state park systems.

THERAPEUTIC RECREATION ADMINISTRATION OPTION

The therapeutic recreation administration option prepares advanced personnel for administrative responsibilities in clinical-based practice and administrative leadership in community-based recreation services that meet the needs of individuals with disabilities. Graduate education serves therapeutic recreation specialists who wish to move into administrative positions such as recreation therapy supervisor/manager/director, senior therapist, treatment coordinator, assisted-living manager, and senior center supervisor.

Students without an academic or clinical background in therapeutic recreation may use the M.S. program to satisfy the academic requirements for the national credentialing examination used by the National Council on Therapeutic Recreation Certification (NCTRC). While the graduate program does not require prerequisite courses to qualify for admission, the credentialing examination does require coursework outside the M.S. curriculum requirements and the department may require leveling coursework upon acceptance to the M.S. program.

In both options students are required to complete 30 credits detailed in the following program outline. Individuals seeking a career change to recreation or therapeutic recreation administration with an undergraduate degree in a related field may be admitted to the Graduate School as a provisional student, with the expectation that they complete any required prerequisites prior to, or concurrent with, graduate courses. A specially designed curriculum is available to provisionally admitted students.

Required Core Competencies (12 credits):

RMP 800 Concepts of Recreation and Leisure
RMP 805 Management and Policy in Therapeutic Recreation
or
RMP 806 Recreation Administration and Organizational Behavior
Graduate level statistics course
Graduate level research methods course

Four or five approved electives, at least one from the following (12-15 credits):

RMP 811 Recreation Resource Management
RMP 830 Camp Administration and Leadership
RMP 860 Community Sport Organizations: Administration and Development
RMP 870 Management and Design of Recreation and Park Facilities
RMP 872 Law and Public Policy in Recreation Services
RMP 910 Conceptual Issues and Trends in Therapeutic Recreation
RMP 912 Nonprofit Administration and Leadership
RMP 924 Grant Writing and Fund Development

Remaining electives are selected from the graduate offerings at UNH that support the student's option.

Capstone course:

RMP 899	Master's Thesis	6 cr.
or		
RMP 995	Colloquium Seminar	3 cr.

Courses

RMP 800	Concepts of Recreation and Leisure	3 cr.
RMP 805	Management and Policy in Therapeutic Recreation	3 cr.
RMP 806	Recreation Administration and Organizational Behavior	3 cr.
RMP 811	Recreation Resource Management	3 cr.
RMP 830	Camp Administration and Leadership	3 cr.
RMP 860	Community Sport Organizations: Administration and Development	3 cr.
RMP 870	Management and Design of Recreation and Park Facilities	3 cr.
RMP 872	Law and Public Policy in Leisure Services	3 cr.
RMP 897	Master's Project	3 cr.
RMP 899	Master's Thesis	6 cr.
RMP 910	Conceptual Issues and Trends in Therapeutic Recreation	3 cr.
RMP 912	Non-Profit Administration and Leadership	3 cr.
RMP 924	Grantwriting and Fund Development	3 cr.
RMP 964	Graduate Internship	3 cr.
RMP 970	Teaching Practicum	3 cr.
RMP 980	Indpendent Study	3 cr.
RMP 995	Colloquium Seminar	3 cr.

Resource Administration and Management (RAM)

www.dred.unh.edu

Professors: John E. Carroll, Russell G. Congalton, Robert T. Eckert, Richard W. England, John M. Halstead, Lawrence C. Hamilton, Theodore E. Howard, Bruce E. Lindsay

Associate Professors: Mimi Larsen Becker, Ju-Chin Huang, Sally W. Jacoby, Alberto B. Manalo, Douglas E. Morris, Robert A. Robertson

Assistant Professor: Kelly L. Giraud

Degree Offered: M.S.

The Department of Resource Economics and Development coordinates the interdisciplinary master of science degree program in resource administration and management. Students may specialize in management of publicly and privately owned natural resources or in administration of natural resource laws and policies.

Admission Requirements

Applicants are expected to have completed either an undergraduate degree in the field in which they plan to specialize or show adequate preparation in the basic support courses of the field. A minimum of one course in each of the areas of ecology or natural resources, intermediate microeconomics, and introductory statistics is required. Persons having professional experience in resource administration, management, or related areas receive priority for admittance to the program. An applicant is required to submit an essay of up to 2,000 words describing his or her background and goals.

Applicants with good undergraduate records who lack a background in a particular field may be admitted to a program, provided they are prepared to correct the deficiencies. The Graduate Record Examination general test is required of all applicants.

M.S. Degree Requirements

The master of science degree in resource administration and management is conferred upon successful completion of the following:

1. a program amounting to not less than 34 credits including the following course requirements or equivalent: RAM 903, Approach to Research, 2 cr.; quantitative methods or analytical techniques, 3–4 cr.; RAM 911, Natural and Environmental Resource Management, 4 cr.; advanced course in environmental policy, 3–4 cr.; and RAM 898, Directed Research, 4–6 cr., or RAM 899, Thesis, 6–10 cr.;

2. a final oral and/or written examination.

Courses

RAM 841	Critical Issues in Solid Waste Management	2 cr.
RAM 867	Social Impact Assessment	4 cr.
RAM 877	Fundamentals and Practice of Community Planning	4 cr.
RAM 896	Investigations	2 to 4 cr.
RAM 898	Directed Research	4 to 6 cr.
RAM 899	Master's Thesis	6 to 10 cr.
RAM 900	Resource Administration an Management Internship	4 cr.
RAM 903	Approach to Research	2 cr.
RAM 911	Natural and Environmental Resource Management	4 cr.
RAM 993	Natural and Environmental Resources Seminar	1 cr.

Resource Economics (RECO)

www.dred.unh.edu

Professors: Lyndon E. Goodridge, John M. Halstead, Bruce E. Lindsay

Associate Professors: Alberto B. Manalo, Douglas E. Morris

Assistant Professor: Kelly L. Giraud

Degree Offered: M.S.

The Department of Resource Economics and Development offers the master of science degree in resource economics with specializations in agricultural economics; community and regional economics; land economics; water economics; and environmental economics.

Admission Requirements

Applicants are expected to have completed either an undergraduate degree in the field in which they plan to specialize or show adequate preparation in the basic support courses of the field. Four or more undergraduate courses in economics or resource economics, including intermediate microeconomics and intermediate macroeconomics, are required, as well as calculus and statistics. Applicants with good undergraduate records who lack background in a particular field may be admitted to a program, provided they are prepared to correct the deficiencies. The Graduate Record Examination general test is required of all applicants.

M.S. Degree Requirements

The master of science degree in resource economics is conferred on successful completion of the following:

1. a program amounting to not less than 30 credits including the following course requirements or equivalent: RECO 993, Seminar, 1 cr.; RECO 903, Approach to Research; ECON 926, Econometrics I, or ECON 927, Econometrics II; RECO 808, Environmental Economics, or RECO 856, Rural and Regional Economic Development; RECO 815, Linear Programming and Quantitative Models; ECON 976, Microeconomics I, or equivalent; and RECO 898, Directed Research, 2-4 cr., or RECO 899, Thesis, 6-10 cr.;

2. a final oral and/or written examination.

Courses

RECO 800	Marketing Places	4 cr.
RECO 808	Environmental Economics	4 cr.
RECO 815	Linear Programming and Quantitative Models	4 cr.
RECO 856	Rural and Regional Economic Development	4 cr.
RECO 895	Investigations	2 to 4 cr.
RECO 898	Directed Research	4 to 6 cr.
RECO 899	Master's Thesis	6 to 10 cr.
RECO 903	Approach to Research	2 cr.
RECO 911	Natural and Environmental Resource Management	4 cr.
RECO 993	Natural and Environmental Resources Seminar	1 cr.

Social Work (SW)

www.unh.edu/social-work

Associate Professors: Mary Banach, Linda Rene Bergeron, Cynthia Anne Broussard, Robert E. Jolley, Jerry D. Marx, Sharyn J. Zunz

Assistant Professors: Vernon Brooks Carter, Barry N. Feldman, Patrick Shannon

Degree Offered: M.S.W.

The Department of Social Work offers a master of social work (M.S.W.) degree. This program develops advanced professional knowledge and skill for persons interested in pursuing careers in the field of social work. The M.S.W. program is accredited by the Council on Social Work Education (CSWE). It requires two years of full-time study or three to four years of part-time study. The full-time program is available in Durham only but the part-time program can be taken in Durham or in Manchester. (The Manchester part-time program is delivered in a week-end model.) All students complete a foundation-year course of study, then elect a second-year concentration either in direct/clinical practice or community/administrative practice. Both concentrations require classroom work and two year-long field internships.

The M.S.W. program concentrates on strengths and empowerment models that encourage individuals and families to realize their full potential. The department supplies the students with a social and community systems context and promotes practice skills that are responsive to diversity issues. The program is housed in the newly renovated Pettee Hall with access to interview observation rooms and state-of-the-art classrooms and computer labs.

Financial aid opportunities in the department include grants for students interested in the child welfare field or in work with disabled children and their families. The department also offers graduate research assistantships to a few second year students. Graduates of the program are employed in a wide variety of social and human service agencies as direct practitioners and in managerial roles.

Admission Requirements

The department encourages applications from persons who (1) hold a baccalaureate degree from an accredited college or university; (2) have attained an overall grade-point average of "B" or better in undergraduate coursework; (3) have completed courses in a broad range of liberal arts and science disciplines; (4) have acceptable recommendations from three individuals, one of whom must be a member of an academic faculty; and (5) have completed satisfactorily a personal statement of interest in pursuing graduate education in the field. Though not required, significant volunteer and/or work experience in the field is strongly recommended. Students who do not meet the liberal arts and science expectations may be asked to complete additional coursework prior to or during the first year of their enrollment in the program. Standardized graduate examinations are not required, but results of such tests may be submitted to supplement other admission materials.

Students applying for advanced standing must hold a degree from an accredited B.A. in S.W./B.S.W. program with a minimum grade-point average of 3.2 (4.0 point scale) in social work major requirements. This coursework must have been completed within five years of the date of M.S.W. matriculation. Advanced-standing applicants must also submit a reference from a B.S.W. faculty member and the undergraduate field supervisor or field coordinator.

M.S.W. Degree Requirements

An M.S.W. candidate must complete 62 credit hours of 800- or 900-level courses including two, two-semester field internships, comprising a total of 1,100 hours in the field. Although a significant portion of the curriculum is required, students will be able to complete three elective courses. At least one of these must be taken from among Department of Social Work course offerings. Students select a second-year concentration in direct/clinical practice or community/administrative practice. Each concentration requires that three courses and the second-year field internship be completed in the student's area of concentration.

Advance standing students complete a minimum of 35 credits for graduation. This includes a 10-week summer practicum and seminar, which students must take prior to their advanced practice and field placement. Additional information may be obtained by contacting the coordinator of graduate admissions in the department office.

Courses

SW	801	Women and Aging	3 cr.
SW	805	Child Welfare: Policies, Programs, and Practice	3 cr.
SW	810	Computer Utilization in Social Work	3 cr.
SW	811	Social Work and Mental Illness	3 cr.
SW	812	Social Work and Developmental Disabilities	3 cr.
SW	814	Introduction to Addiction: Assessment and Intervention	3 cr.
SW	815	Practice with Gay, Lesbian, and Bisexual Clients	3 cr.
SW	820	Social Welfare Policy I	3 cr.
SW	830	Social Work Practice I	3 cr.
SW	831	Social Work Practice II: Practice in Small Groups and Community Organizations	3 cr.
SW	840	Implications of Race, Culture, and Oppression for Social Work Practice	3 cr.
SW	850	Human Behavior and the Social Environment I	3 cr.
SW	851	Human Behavior and the Social Environment II	3 cr.
SW	860	Research Methods in Social Work	3 cr.
SW	873	Intervention with Groups	3 cr.
SW	880	Field Internship I	3 cr.
SW	881	Field Internship II	3 cr.
SW	897	Special Topics in Social Work and Social Welfare	3 cr.
SW	900	Advanced Standing Practice and Field Seminar	3 cr.
SW	926	Social Welfare Policy II	3 cr.
SW	932	Direct Practice III: Clinical Assessment and Intervention	3 cr.
SW	933	Direct Practice IV: Advanced Clinical Assessment and Intervention	3 cr.
SW	936	Community and Administrative Practice III: Community Organization and Political Strategies	3 cr.
SW	937	Community and Administrative Practice IV: Management of Human Service Organizations	3 cr.
SW	952	HB/SE III: Adaptive and Maladaptive Functioning	3 cr.
SW	957	Program and Resource Development in the Social Service Arena	3 cr.
SW	962	Research II Statistics	3 cr.
SW	965	Research III: Program and Practice Evaluation	3 cr.
SW	974	Social Work Supervision	3 cr.
SW	975	Theory and Practice of Family Therapy	3 cr.
SW	979	Social Work and the Law	3 cr.
SW	982	Field Internship III	4 cr.
SW	983	Field Internship IV	4 cr.
SW	992	Special Projects and Independent Study	1 to 3 cr.

Sociology (SOC)

www.unh.edu/sociology

Professors: Melvin T. Bobick, David Finkelhor, Lawrence C. Hamilton, Murray A. Straus, Sally Ward

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

Assistant Professors: Sharyn J. Potter, Cesar Rebellon, John B. Strait, Karen VanGundy

Degrees Offered: M.S., Ph.D.

The Department of Sociology offers M.A. and Ph.D. degrees in sociology. The master's degree program emphasizes theory and methodology. Students in the doctoral program are expected to select one major area and one minor area for intensive study and examination from the areas of departmental specialization. There are five major substantive areas for possible specialization: crime and conflict; family; social stratification; and medical sociology. Students may pursue specialties within or across the major areas of specialization or propose to the Graduate Committee other major areas of specialization that fall within the faculty's competence.

Admission Requirements

Applicants must present, in addition to meeting the general Graduate School requirements, Graduate Record Examination scores on the general test (verbal, analytical, and quantitative reasoning sections).

Undergraduate majors in other fields may be admitted. However, if the student's undergraduate work has not included an introductory course in sociological theory, research methods and statistics, these courses must be taken, or equivalent knowledge demonstrated, in addition to the requirements outlined above.

All students entering the program must complete the M.A. before admission to the Ph.D. program. The department welcomes both applicants who plan to continue for the Ph.D. as well as students planning for the M.A. only.

M.A. Degree Requirements

Students must fulfill the following requirements:

1. Complete satisfactorily at least 26 credit hours (seven courses) of graduate-level coursework in sociology including the Proseminar in Sociology (900, 2 cr.); Sociological Methods I (901); either SOC 902, 903, or 904; Sociological Theory I (911); and three elective graduate seminars.

2. Register for 1 credit of thesis work during the second semester of residence and submit a draft of a proposal to the thesis committee by the end of the semester.

3. Submit for approval a report of a research endeavor to the thesis committee.

4. Register for a total of 6–10 thesis credits.

Ph.D. Degree Requirements

A minimum of three years in residence, and completion of the following:

1. Take a minimum of 13 courses in sociology (at least eight as seminars) other than thesis or dissertation research, including the Proseminar in Sociology (900, 2 cr.), Sociological Theory I and II (911 and 912), Sociological Methods I and II (901 and 902), and one other course in methods or statistics (SOC 903 or 904), three courses in a major area, and two in a minor area of sociology, and two elective courses.

2. Complete a second minor consisting of three related courses whether or not sociological in content (these three courses are in addition to the thirteen required courses in sociology); no preliminary examination is required.

3. Pass written examinations in the major and minor areas of sociological specialization and in advanced theory and methodology.

4. Demonstrate reading-level proficiency in a foreign language or a research tool appropriate to the overall program of the student.

5. Write and defend the doctoral dissertation.

Courses

SOC 830	Political Sociology	4 cr.
SOC 860	Aging and Late Life Family	4 cr.
SOC 873	Sociology of Childhood	4 cr.
SOC 880	Social Conflict	4 cr.
SOC 892	Research Internship	4 cr.
SOC 894	Evaluation of Social Programs	4 cr.
SOC 897	Special Topics	4 cr.
SOC 899	Master's Thesis	6 to 10 cr.
SOC 900	Proseminar	2 cr.
SOC 901	Sociological Methods I: Intermediate Social Statistics	4 cr.
SOC 902	Sociological Methods II: Research Design	4 cr.
SOC 903	Sociological Methods III: Advanced Social Statistics	4 cr.
SOC 904	Sociological Methods IV: Qualitative and Historical Research Methods	4 cr.
SOC 911	Sociological Theory I	4 cr.
SOC 912	Sociological Theory II	4 cr.
SOC 942	Sociology and Social Policy	4 cr.
SOC 975	Sociology of the Family	4 cr.
SOC 976	Violence in the Family	4 cr.
SOC 980	Social Stratification	4 cr.
SOC 990	Teaching Sociology Seminar	4 cr.
SOC 995	Reading and Research	2 to 8 cr.
SOC 996	Reading and Research	2 to 8 cr.
SOC 997	Advanced Special Topics	2 or 4 cr.
SOC 999	Doctoral Research	

Spanish (SPAN)

www.unh.edu/spanish/graduate.html

Professor: F. William Forbes

Associate Professors: John M. Chaston, Janet Gold, Lori Hopkins, Lina Lee

Assistant Professors: Carmen Garcia de la Rasilla, Marco Dorfsman, Stephen D. Johnson, Jaume Marti-Olivella

Degree Offered: M.A.

The program in Spanish in the Department of Languages, Literatures, and Cultures offers a master of arts degree in Spanish with courses in the following four areas: Medieval and Golden Age literature and culture; Modern Peninsular literature and culture; Latin American literature and culture; and Hispanic linguistics and foreign language pedagogy. The program also supports work in interdisciplinary Hispanic studies.

Admission Requirements

Applicants shall have received a bachelor's degree from an accredited institution with an undergraduate major in Spanish or its equivalent.

M.A. Degree Requirements

To obtain the degree, the candidate must fulfill a minimum of 30 credits. The candidate must also pass a comprehensive examination based on the master's degree reading list. To satisfy the course requirements, the candidate must:

1. successfully complete 10 graduate courses, eight of which should be from the offerings of the Spanish program;

2. take two of the 10 courses in allied fields approved by the department;

3. take four of the 10 courses as graduate seminars; or

4. write an acceptable thesis in lieu of two courses. If a thesis option is selected, it must embody the results of independent investigation and be written in Spanish in a form acceptable to the Spanish faculty and the Graduate School.

5. In addition, master of arts degree candidates must take Spanish 901 (a 1-credit course dealing with bibliography and methods of research) during their first year of study. Graduate assistants teaching in the department must take Spanish 903 (a 1-credit course in applied linguistics).

Courses

SPAN 833	History of the Spanish Language	3 cr.
SPAN 852	Drama and Poetry of the Siglo de Oro	3 cr.
SPAN 854	Age of Cervantes	3 cr.
SPAN 855	Literature of 19th Century	3 cr.
SPAN 856	Modern Spanish Poetry	3 cr.
SPAN 857	Spanish Drama of the 20th Century	3 cr.
SPAN 858	Spanish Prose of the 20th Century	3 cr.
SPAN 871	Latin American Drama	3 cr.
SPAN 872	Latin American Novel	3 cr.
SPAN 873	Latin American Short Story	3 cr.
SPAN 874	Major Latin American Authors	3 cr.
SPAN 890	Grammatical Structure of Spanish	3 cr.
SPAN 891	Methods of Foreign Language Teaching Spanish	3 cr.
SPAN 897	Special Studies in Spanish Language and Literature	3 cr.
SPAN 898	Special Studies in Spanish Language and Literature	3 cr.
SPAN 899	Master's Thesis	6 cr.
SPAN 901	Bibliography and Methods of Research	1 cr.
SPAN 903	Applied Linguistics	1 cr.
SPAN 995	Independent Study	1 to 3 cr.
SPAN 997	Graduate Seminar	3 cr.
SPAN 998	Graduate Seminar	3 cr.

Zoology (ZOOL)

zoology.unh.edu

Professors: Ann C. Bucklin, John F. Burger, Donald S. Chandler, James F. Haney, Larry G. Harris, W. Huntting Howell, Thomas D. Kocher, Michelle P. Scott, James T. Taylor, Charles W. Walker, Winsor H. Watson III

Research Professor: Michael Lesser

Affiliate Professors: Arthur C. Borror, Miyoshi Ikawa, John J. Sasner, Edward K. Tillinghast

Associate Professors: Jessica A. Bolker, Marianne Klauser Litvaitis

Research Associate Professor: Raymond E. Grizzle

Affiliate Associate Professor: Richard Langan

Assistant Professors: David L. Berlinsky, James E. Byers

Research Assistant Professor: Karen L. Carleton

Degrees Offered: M.S., Ph.D.

Admission Requirements

Applicants ordinarily must have completed an undergraduate major in biology or zoology. A basic array of courses including general biology, development, general ecology, genetics, morphology, and physiology is normally required. Additionally, organic chemistry and a semester each of calculus and physics are necessary. Applicants who are deficient in any of these requirements may be admitted to graduate status but may be required to remedy their deficiencies by taking courses that do not give graduate credit. Applicants must submit general and subject biology scores from the Graduate Record Examination.

M.S. Degree Requirements

Students plan a program of study (minimum of 30 credits) in conjunction with a faculty advisory committee. Students complete a thesis of 6 to 10 credits that is acceptable to the thesis-examining committee. Prior to the receipt of the master's degree, all candidates must pass a thesis defense, which will include questions covering general knowledge in zoology in addition to specific questions relevant to the student's research at the University of New Hampshire.

Ph.D. Degree Requirements

Students plan a program of study in conjunction with a faculty guidance committee. All doctoral students must demonstrate proficiency in one foreign language. The student will present to the committee a research proposal in which the soundness, originality, and feasibility of the investigative ideas are clearly revealed, and which, when approved, should serve as the basis of the doctoral dissertation. After the successful completion of all required courses, and the approval of the proposal, students who wish to be admitted to doctoral candidacy must demonstrate a broad basic knowledge of their major and minor fields and their ability to carry out basic research in zoology in a qualifying examination. All students must complete an original dissertation project, present the results at a public seminar, and pass an oral defense consisting of questions put forth by members of the dissertation committee.

Teaching Requirement

All graduate students are encouraged to obtain appropriate teaching experience, preferably as a teaching assistant.

Research and Facilities

The zoology graduate program is enhanced by courses and research in other biological science departments and institutes at the University. These include the Marine Program and its associated centers and programs, the Center for Marine Biology, the Center for Ocean Sciences, the Center for Ocean Engineering, N.H. Sea Grant Program, the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), the Center of Excellence in Coastal Ocean Observation and Analysis (COOA), the Institute for the Study of Earth, Oceans, and Space (EO), UNH Center for Coastal and Ocean Mapping (CCOM), and the Joint Hydrographic Center, Ocean Processes Analysis Laboratory (OPAL), and the Cooperative Institute for New England Mariculture and Fisheries (CINEMar), including the UNH Open Ocean Aquaculture Demonstration Project. There are five marine laboratories, Jackson Estuarine Lab, Coastal Marine Lab, Anadromous Fish and Aquatic Invertebrate Research Lab (AFAIR, the Aquaculture Research Center and Shoals Marine Lab) and two specialized research facilities, the Polynucleotide Sequencing and the Image Analysis Lab. In addition, the newly established Center for Freshwater Biology jointly administers (with the Cooperative Extension Services) the Lakes Lay Monitoring Program, which is dedicated to the preservation and sound management of lakes through citizen-based monitoring and research. The newest research center, the Hubbard Center for Genomic Studies, was established in 2001. It provides training and research in comparative and environmental genomics, with a special emphasis on novel model species. It provides expertise in constructing DNA libraries, DNA sequencing, fragment analysis, and the analysis of gene expression.

Courses

ZOOL 801	Conservation Biology	4 cr.
ZOOL 805	Population Genetics	4 cr.
ZOOL 808	Stream Ecology	4 cr.
ZOOL 810	Ichthyology	4 cr.
ZOOL 811	Zooplankton Ecology	4 cr.
ZOOL 812	Mammalogy	4 cr.
ZOOL 813	Animal Behavior	4 cr.
ZOOL 815	Molecular Evolution	4 cr.
ZOOL 817	General Limnology	4 cr.
ZOOL 819	Field Limnology	4 cr.
ZOOL 823	Quantitative Genetics	4 cr.
ZOOL 825	Marine Ecology	4 cr.
ZOOL 827	Field Ecology of Amphibians and Reptiles	4 cr.
ZOOL 829	Developmental Biology of the Vertebrates	4 cr.
ZOOL 831	Systems Approach to Biological Ocean Science	3 cr.
ZOOL 832	Lake Management: A Multidisciplinary Approach	4 cr.

ZOOL 833	Behavioral Ecology	4 cr.
ZOOL 840	Introduction to Biogeography	4 cr.
ZOOL 845	Biology and Diversity of Insects	4 cr.
ZOOL 850	Biological Oceanography	4 cr.
ZOOL 872	Fisheries Biology	4 cr.
ZOOL 873	Physiology of Fish	4 cr.
ZOOL 877	Neurobiology and Behavior	4 cr.
ZOOL 895	Advanced Studies	1 to 4 cr.
ZOOL 896	Special Investigations	1 to 4 cr.
ZOOL 899	Master's Thesis	10 cr.
ZOOL 901	Research Methods	2 cr.
ZOOL 997	Seminar	1 to 2 cr.
ZOOL 998	Seminar	1 to 2 cr.
ZOOL 999	Doctoral Research	

The University of New Hampshire

The University is ideally located within easy driving distance to the White Mountains, the Seacoast Area of New Hampshire, and Boston, and enrolls more than 13,000 students in Durham and has a full-time faculty of more than 600. The student body includes more than 2,100 graduate students. A rising star among research universities, the University retains the look and feel of a New England liberal arts college with a faculty dedicated to teaching.

UNH is a land-, sea-, and space-grant research university. It is made up of seven schools and colleges, including the Colleges of Liberal Arts, Engineering and Physical Sciences, Life Sciences and Agriculture, the Whittemore School of Business and Economics, the School of Health and Human Services, and the Thompson School of Applied Science; the Division of Continuing Education; the University of New Hampshire at Manchester; and the Graduate School.

The University System of New Hampshire, of which UNH is a member, also includes Keene State College, Plymouth State University, and the College for Lifelong Learning.

The University awarded its first Ph.D. in 1896, placing it among the earliest American universities to award that degree. Doctoral programs in their present form began in the 1950s.

Graduate Education

The mission of the Graduate School is to provide innovative, responsive, and accessible master's and doctoral programs of the highest quality to graduate students. Our programs foster a close interdependence between research and classroom teaching. The 550 graduate faculty members and 2,100 graduate students at UNH work together to develop new theoretical and empirical knowledge, design innovative methods and technologies to discover and disseminate that knowledge, and engage in undergraduate and graduate state-of-the-art teaching. The Graduate School is a source of intellectual capital for the University, the region, and the nation.

UNH is the primary institution within the University System of New Hampshire responsible for providing graduate programs that meet state, regional, and national needs and the only one at which doctoral programs are offered. Other units of the University System do offer some master's programs.

The Graduate School is led by the dean, who implements the policies of the graduate faculty. The dean is advised by the Graduate Council, which is composed of elected faculty members and graduate student representatives.

Master's Programs

The University offers master's degree programs in a wide variety of disciplines, which can serve either as professional terminal degrees or as intermediate degrees for those intending to pursue further graduate study. In many programs, students can elect options that will permit them to study one aspect of a discipline in depth by preparing a thesis or to gain a broader mastery of a discipline by electing to take coursework in lieu of a thesis.

Doctoral Programs

The University offers doctoral programs in those disciplines that have both the faculty and facilities to support high-quality advanced graduate education. Care has also been taken to ensure that the programs will make a significant contribution to the opportunities for doctoral education in the New England region. Doctoral education properly focuses upon preparing the student to contribute to the growth of knowledge through research. Most doctoral programs also provide opportunities for students to work as teaching assistants and to participate in seminars on teaching led by experienced faculty members. After receiving a dual grounding in the development and communication of knowledge, graduates from UNH doctoral programs have gone on to find excellent teaching and research positions.

Interdisciplinary Programs

The Graduate School encourages and supports interdisciplinary study within existing programs and in the form of new and innovative graduate curricula. While self-designed courses of study are not available at the University, many of our programs offer a range of electives, cross-disciplinary study, and independent projects that allow students to tailor their work to reflect individual interests. This is especially true at the doctoral level. In addition, the Graduate School oversees intercollege programs that involve faculty and coursework from more than one school or college. Intercollege programs offer students the opportunity to pursue new and emerging fields of study that draw upon multiple disciplines, leading to solid disciplinary foundations as well as cross-disciplinary skills useful for solving new social and scientific problems. Opportunities for interdisciplinary research are also available in the institutes and centers at the University.

Center for Graduate and Professional Studies

The Graduate School extends its programs and services into central and southern New Hampshire through the Center for Graduate and Professional Studies, located at our urban campus in Manchester's historic mill yard. The center offers a wide range of post-baccalaureate programs for professionals in business, counseling, education, social services, health care, government, and related fields. All graduate programs supported by the center are directed by UNH faculty. The mission of the center is to bring the resources and expertise of the University of New Hampshire to the population and economic center of the state, to focus and extend UNH's professional education programs, and to further distinguish professional graduate education at UNH.

Thompson Hall in winter

Research and Scholarship

The University's research and scholarly activities range from highly specialized investigations in the physical and biological sciences to broad interdisciplinary studies. Graduate students are intimately involved in these activities.

Research and educational activities are conducted not only in individual departments but also in multidisciplinary research centers and institutes.

Office of Sponsored Research

www.unh.edu/osr

Office of Sponsored Research (OSR) fosters and facilitates research and scholarly activity, serves as steward for externally-sponsored programs, promotes accountability, and engages in outreach to the UNH community. Research is conducted according to ethical principles provided by professional associations, and federal regulations and guidelines. Accordingly, UNH has institutional policies governing the conduct of research and scholarly activities, including but not limited to the use of animal subjects, human subjects, hazardous materials, misconduct, and financial conflict of interest. Graduate students are expected to be familiar with these policies as institutional approval is required before certain research may proceed.

Office of Intellectual Property Management

www.unh.edu/osr

The Office of Intellectual Property Management (OIPM) is charged with the responsibility to manage UNH's intellectual property in accordance with UNH's Intellectual Property Policy. Graduate students are covered by this policy.

Adolescence Resource Center

www.adolescence.unh.edu

Providing the infrastructure for a coordinated effort, the Adolescence Resource Center supports the health and well-being of New Hampshire youth. The center provides research-based information about positive youth development and recommends best practices for helping youth thrive and make a successful transition to adulthood. The center is affiliated with the Institute for Health Policy and Practice.

Agricultural Experiment Station

www.colsa.unh.edu/aes.htm

One of the largest research and service units at the University, the New Hampshire Agricultural Experiment Station is responsible for areas of research ranging from the innovation of agricultural technology to a deeper understanding of natural resources; it is a part of College of Life Sciences and Agriculture. This research is funded jointly by the State of New Hampshire and the U.S. Department of Agriculture as well as grants from other federal and private agencies.

Biomolecular Interaction Technologies Center

www.bitc.unh.edu

The Biomolecular Interaction Technologies Center (BITC) is a National Science Foundation Industry/University Cooperative Research Center established to carry out research in coordination with pharmaceutical and biotechnology companies.

Browne Center

www.brownecenter.com

An internationally recognized teaching, training, and research site for professional development, the Browne Center is an auxiliary enterprise of the Outdoor Education Program. The Browne Center is dedicated to advancing the standards of excellence in experiential learning.

The Carsey Institute for Effective Families and Communities

www.carseyinstitute.unh.edu

The Carsey Institute is a newly established center for innovative research in the social, behavioral, and health sciences at the University of New Hampshire. Its distinctive mark will be an emphasis on collaborative scholarship, aimed at understanding the larger forces that shape individual behavior and affect the well-being of families and communities.

Dimond Library

CATlab

www.catlab.unh.edu/about

The CATlab project is a collaborative research and development effort between the University of New Hampshire and the New Hampshire Department of Safety and is supported by the U.S. Department of Justice. The faculty and students of CATlab work on introducing advanced technologies into the operations of the New Hampshire State Police and other law enforcement agencies.

Center for Business and Economic Research

orbit.unh.edu/cber/over.htm

Supporting applied research on business and economic affairs, the Center for Business and Economic research especially encourages the linkages between public policy and regional economic development. The center also helps clients find qualified business and economic consultants and hosts visiting scholars from around the world.

The Center for Coastal and Ocean Mapping/Joint Hydrographic Center

www.ccom-jhc.unh.edu

The Center for Coastal and Ocean Mapping (C-COM)/Joint Hydrographic Center (JHC) is a recently established program aimed at creating a national center for expertise in ocean mapping and hydrographic sciences. The University's graduate degree program in ocean mapping has been awarded Category A Recognition by the International Federation of Surveyors/International Hydrographic Organization (FIG/IHO) Advisory Board on Standards of Competence for Hydrographic Surveyors.

Center for Freshwater Biology

www.fbg.unh.edu

New Hampshire's lakes and streams are among the state's most valuable and delicate resources. Maintaining the quality of these aquatic ecosystems for present and future generations requires an understanding of the potential problems and their solutions. The center promotes training, research, and outreach activities concerning freshwater systems with the state, region, and world.

Center for the Humanities

www.unh.edu/humanities-center

The center inspires and nurtures innovative research, teaching, and public service in the fields that are the heart of a liberal education. Its fundamental concerns are to create

an environment in which excellent humanities research and teaching, broadly defined, flourish at the University, as well as to share the accomplishments and intellectual riches of humanities faculty with the community beyond the University campus.

Center for Teaching Excellence

www.unh.edu/teaching-excellence

The goal of the Center for Teaching Excellence is to assist faculty and teaching graduate students who wish to become more effective and efficient teachers. It is a service-oriented, University-wide program staffed and administered by faculty for faculty, future faculty, and graduate students. Peer commitment and support are essential to its success. The center collaborates with the Graduate School's college teaching programs. The center collaborates with the Graduate School's college teaching programs e.g., the national Preparing Future Faculty (PFF) Program and UNH's unique cognate, certificate, and master's degree programs in college teaching.

Center for Venture Research

www.unh.edu/cvr

The center's principal area of expertise is in the study of early stage equity financing for high-growth ventures. Research is disseminated internationally.

Center to Advance Molecular Interaction Sciences

www.camis.unh.edu

Develops new tools and techniques to characterize and control the interaction of biological molecules, knowledge that is essential in biochemical and biomaterials research. CAMIS serves academia and the pharmaceutical, biotechnology, and material science industries.

Child Study and Development Center

www.unh.edu/csdc/geninfo.htm

A laboratory school affiliated with the Department of Family Studies, the Child Study and Development Center has both an early care and education mission as well as an academic mission. Children attending the center, and the UNH students working at the center, benefit from the highly trained teaching staff and from the family studies faculty.

Cooperative Institute for Coastal and Estuarine Environmental Technology

www.ciceet.unh.edu

The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) supports the scientific development of innovative technologies for understanding and reversing the impacts of coastal and estuarine contamination and degradation.

Cooperative Institute for New England Mariculture and Fisheries

cinemar.unh.edu

The Cooperative Institute for New England Mariculture and Fisheres (CINEMar) was established to provide regional leadership and integration for research, development, education, and outreach for issues of resource use, management, and preservation in New England's waters. The institute focuses on mariculture, fisheries science and management, and ocean policy.

Crimes Against Children Research Center

www.unh.edu/ccrc

The Crimes Against Children Research Center (CCRC) combats crimes against children by providing high-quality research and statistics to public policy makers, law enforcement personnel, and other child welfare practitioners.

Dairy Teaching and Research Center

www.ANSCandNUTR.unh.edu

The Dairy Teaching and Research Center is a key component in UNH's efforts to provide the state with a well-prepared agricultural work force. A state-of-the art center supports research on the nutritional needs of dairy cows through the Department of Animal and Nutritional Sciences.

Environmental Research Group

www.unh.edu/erg

The Environmental Research Group's (ERG) principal mission is applied and fundamental environmental engineering and science research. ERG specializes in five areas, each an important issue to New Hampshire, New England communities, and private sector firms, as well as to the nation.

WATER TREATMENT TECHNOLOGY ASSISTANCE CENTER

The Water Treatment Technology Assistance Center is one of eight technology assistance centers in the United States funded by the U.S. Environmental Protection Agency. The mission of the Technology Assistance Center is to form a network with the common goal to protect public health, improve water system sustainability, and enhance compliance.

RECYCLED MATERIALS RESOURCE CENTER

The Recycled Materials Resource Center is a national center created to promote the wise use of recycled materials (pavements, secondary, waste, byproduct materials) in the highway environment.

BEDROCK BIOREMEDIATION CENTER

The Bedrock Bioremediation Center specializes in multidisciplinary research on bioremediation of organically-contaminated bedrock aquifers.

CENTER FOR CONTAMINATED SEDIMENT RESEARCH

The Center for Contaminated Sediment Research was developed in response to regional and national needs to characterize, treat and manage contaminated dredged materials from ports, harbors and waterways.

ELECTROTECHNOLOGIES RESEARCH PROGRAM

The Electrotechnologies Research Program examines the applications of ultraviolet light, pulsed ultraviolet light, electric fields, pulsed electric fields, electron beams, sonic waves and other emerging technologies for treatment of hazardous wastes and air pollution and for the disinfection of drinking water and wastewater.

Family Research Laboratory

www.unh.edu/frl

The Family Research Laboratory (FRL) devotes itself to understanding family violence and the impact of violence on families. Researchers at the FRL provide reliable information to public and professional audiences and have brought international recognition to the FRL.

Hamel Center for the Management of Technology and Innovation

www.unh.edu/msmot

The Hamel Center provides educational and technical assistance to individuals and companies. It enables them to manage technological change and to commercialize emerging technologies.

Hubbard Center for Genome Studies

hcgs.unh.edu

The Hubbard Center concentrates on comparative and environmental genomics, with a special emphasis on novel model species. The center provides technical assistance, plays a leading role in education and training in genomics, and engages partners to promote the development of the biotechnology industry in the region.

Institute for Policy and Social Science Research

www.unh.edu/ipssr

The Institute for Policy and Social Science Research (IPSSR) operates at the University within the College of Liberal Arts to serve two goals: facilitate innovation in the teaching and research programs of the University and help to focus the intellectual resources of the school on important problems of the community.

JUSTICEWORKS

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

SURVEY CENTER

The Survey Center conducts mail, telephone, Internet, e-mail, and self-administered surveys for University researchers, public agencies, nonprofit organizations, private businesses, and media clients.

Institute for the Study of Earth, Oceans, and Space

www.eos.unh.edu

The Institute for the Study of Earth, Oceans, and Space (EOS) at the University is a multidisciplinary scientific research institute dedicated to understanding the integrated behavior of the Earth and its surrounding universe. Established in 1985, the institute has become a world leader in the fields of space science, terrestrial ecosystems, oceanography, atmospheric science, and global climate change. The Institute for Scientific Information ranks UNH first in geoscience research citations and fourth in environmental science citations.

SPACE SCIENCE CENTER

The Space Science Center fosters research and graduate education in all of the space sciences, with studies ranging from the ionosphere, to the Earth's magnetosphere, to the local solar system, out to the farthest reaches of the universe. Investigations of the Earth's environment in the solar system utilize space as a laboratory for plasma physics. Both theoretical and satellite investigations are conducted of the solar-terrestrial radiation environment. High energy astrophysics investigations involve the sensing of energetic astrophysical objects with ground, balloon, and satellite detectors. The center is currently a research and analysis hub for NASA's Compton Gamma Ray Observatory, participates in several solar terrestrial satellite programs, and is a Center of Excellence in theoretical solar-terrestrial research.

COMPLEX SYSTEMS RESEARCH CENTER

The Complex Systems Research Center investigates the effects of human disturbance on the Earth's biogeochemical processes. Utilizing satellite remote sensing, field and laboratory investigation, computer modeling, and policy analysis, Complex Systems Research Center faculty, staff, and students are currently examining the ocean's role in the global carbon cycle, the geochemistry of deep ocean ridge vent systems, forest decline and land-use change, nutrient cycling and decomposition in terrestrial ecosystems, processes contributing to changes in climate and atmospheric chemistry, and the impact of policy decisions on the global environment.

OCEAN PROCESS ANALYSIS LABORATORY

Research in the Ocean Process Analysis Laboratory focuses on a range of physical, geochemical, and biological processes in the Gulf of Maine, Gulf Stream, North Atlantic, and California Current. Current research topics include changes in global distributions of phytoplankton biomass and productivity documented with ocean color imagery, the use of molecular population genetic analysis to trace zooplankton dispersal in the coastal and open ocean, the dynamical role of the North Brazil Current in climate change, and the relation of changes in water properties and circulation to external forcing in the Gulf of Maine.

CLIMATE CHANGE RESEARCH CENTER

The Climate Change Research Center investigates atmospheric dynamics and chemistry and various aspects of regional climate change. Center faculty, staff, and students are involved in major field measurement programs ranging from the collection of regional ice cores and other paleoclimate records in North America, the Pacific Rim and Asia, to New England air quality and climate studies, to global-scale airborne science missions.

Institute on Disability

www.iod.unh.edu

The Institute on Disability (IOD) provides a coherent University-based focus for the improvement of knowledge, policy, and practice related to the lives of persons with disabilities and their families. The institute's mission is to promote the full inclusion of people with disabilities into their communities.

Instrumentation Center

www.unh.edu/instrumentation-center

The Instrumentation Center (UIC) provides analytical services and scientific support to the area's research community. The UIC offers scientific instruments whose acquisition and upkeep are beyond the financial scope of many researchers.

Joan and James Leitzel Center for Mathematics, Science, and Engineering Education

leitzelcenter.unh.edu

The Joan and James Leitzel Center works to transform education in mathematics, science, and engineering in colleges and universities, in elementary and secondary schools, in informal schools, and in informal settings through high-quality research, carefully examined practice, and interdisciplinary collaboration.

Marine Program

marine.unh.edu

The UNH Marine Program supports research, education, and service projects involving the estuarine, coastal, and

deep ocean environments. Laboratories and facilities that support and enhance the work of the Marine Program include: the Jere A. Chase Ocean Engineering Laboratory, Coastal Marine Laboratory, Jackson Estuarine Laboratory, Ocean Process Analysis Lab, DNA Facility, Anadromous Fish and Aquatic Invertebrate Research Laboratory, Shoals Marine Laboratory, and the Institute for the Study of Earth, Oceans, and Space. The Marine Program includes the following units:

CENTER FOR OCEAN ENGINEERING

The Center for Ocean Engineeringintegrates academic and research missions in Ocean Engineering. The center is concerned with the effective and wise use of the coastal ocean.

CENTER FOR OCEAN SCIENCES

The Center for Ocean Sciences addresses critical questions concerning the coupled atmosphere/ocean/land system. The center's research programs emphasize both direct and remote observation of the oceans and atmosphere, as well as integration of those observations with modeling efforts.

CENTER FOR MARINE BIOLOGY

The Center for Marine Biology fosters excellence in marine biological research and education. Its primary goals are to strengthen and focus research and graduate education in modern marine biology and to encourage the development of high-quality undergraduate programs in all aspects of marine biology.

UNIVERSITY DIVING PROGRAM

The University Diving Program courses range from basic SCUBA diving to advanced and scientific diving and are offered through the Department of Kinesiology. Workshops in rescue diving and diving accident management are also offered. Many certified student divers participate in University-sponsored underwater research projects.

R/V GULF CHALLENGER

The R/V Gulf Challenger is a 50-foot research vessel. The vessel was built to meet current and future research and educational needs, providing a safe, stable platform suitable for estuarine and coastal research in the Northeast.

Marriage and Family Therapy Center

www.unh.edu/family-studies/mft.html

The Marriage and Family Therapy Center provides assistance to individuals, couples, and families experiencing a wide range of personal or relationship problems.

New Hampshire Industrial Research Center

www.nhirc.unh.edu

Assisting New Hampshire industry in becoming more competitive, the New Hampshire Industrial Research Center helps companies through technical assistance grants, training, and market research assistance.

New Hampshire Industries Group

www.unh.edu/management/nhind/nhind.htm

The mission of the New Hampshire Industries Group is to further knowledge of industrial and economic competitiveness and facilitate endeavors that advance growth and development.

New Hampshire Institute for Health Policy and Practice

www.nhhealthpolicyinstitute.unh.edu

Seeking to improve the health of and health care received by citizens in the state, the New Hampshire Institute for Health Policy and Practice (NHIPP) provides the information and skills necessary for fact-based policy and program development.

Nanostructured Polymers Research Center

www.unh.edu/apl/nprc.htm

The center fosters the development of complex polymeric materials based on multiple phases with significant structure at the nanometer scale. The center comprises three laboratories: the Polymer Research Group, the Polymer Nanoparticle Laboratory, and the Advanced Polymer Laboratory. Beyond a primary mission of fostering research in nanostructured polymers, the center takes an active role in the education and training of professionals.

POLYMER RESEARCH GROUP

The Polymer Research Group, part of the Materials-Science Program, works on research problems of interest to both industry and academia.

ADVANCED POLYMER LABORATORY

This laboratory solves challenging problems relevant to both the academic and industrial world by combining engineering and chemistry in the context of polymer science.

POLYMER NANOPARTICLE LABORATORY

The Polymer Nanoparticle Laboratory prepares novel organic materials having a variety of specific properties.

New Hampshire Small Business Development Center

www.nhsbdc.org

Working with local and regional business owners each year, the New Hampshire Small Business Development Center (NHSBDC) provides a wide range of services and information from local offices around New Hampshire. These services include free, one-on-one, confidential business counseling, low-cost training programs, and access to information and referrals.

New Hampshire Water Resource Research Center

www.wrrc.unh.edu

The New Hampshire Water Resource Research Center (WRRC) serves as a focal point for research and information on water issues in the state and region.

Non-Lethal Technology Innovation Center

www.unh.edu/ntic

Non-Lethal Technology Innovation Center (NTIC) identifies and develops materials and technologies that can produce the next generation of non-lethal weapons.

The UNH Dairy Teaching and Research Center

Office of Sustainability Programs

www.sustainableunh.unh.edu

The Office of Sustainability Programs (OSP) develops University-wide education programs that link the principles of sustainability to community life. OSP initiatives integrate sustainability practices into all facets of our land-grant mission including teaching, research, operations, campus culture, and public service.

Research Computing Center

www.sr.unh.edu/

The Research Computing Center supports the needs of sponsored Research Programs at the University. The center provides computational and networking support to its customers, advises the University community on subjects pertaining to computing and communications, and conducts research and testing to facilitate its mission. The Research Computing Center also operates the InterOperability Lab.

INTEROPERABILITY LAB

The InterOperability Lab (IOL) has two distinct missions: to provide testing services for vendors of computer communications devices; and to provide educational and employment opportunities for qualified UNH undergraduate and graduate students.

Robotics Laboratory

www.ece.unh.edu/robots/rbt_home.htm

The research emphasis of the Robotics Laboratory is the application of fast associative memories and other neural network learning techniques to problems in control, pattern recognition, and signal processing. The basic concept is to design hardware/software systems, which improve their own performance through practice.

Sea Grant Program at the University of New Hampshire

marine.unh.edu/seagrant.htm

The University of New Hampshire Sea Grant Program provides support, leadership, and expertise for marine research, education, and outreach in Northern New England. The program is one of 30 in the nation.

Shoals Marine Laboratory

www.sml.unh.edu

The Shoals Marine Laboratory is located on Appledore Island, just six miles off the coast of Portsmouth, New Hampshire. This field station caters to undergraduate students interested in focusing on marine topics in their college majors. The Shoals Marine Laboratory is jointly operated by the Division of Biological Sciences at Cornell University and the University of New Hampshire.

Speech-Language-Hearing Center

www.unh.edu/communication-disorders/audiology.html

The clinic provides speech-language-hearing services to the University and seacoast community and conducts research.

William Rosenberg International Center of Franchising

franchising.unh.edu/mission.htm

The William Rosenberg International Center of Franchising was created according to the vision of William Rosenberg, a franchising pioneer and founder of Dunkin' Donuts. He saw the need for a specialized center that would advance the field of franchising through relevant research and innovative teaching.

Environmental Technology Building

Academic and Support Services

The home of the main campus of the University is in Durham—one of the oldest towns in northern New England—near the picturesque seacoast of New Hampshire. Students have found Durham to be an ideal place to live while completing a graduate degree at UNH. For those interested in cultural pursuits, Boston is a quick 65 miles to the south. Outdoor enthusiasts will find skiing, hiking, and the scenery of the White Mountains 60 miles to the north and the sandy beaches and rocky coast of New Hampshire and Maine 10 miles east.

The 200-acre campus is surrounded by more than 2,400 acres of fields, farms and woodlands owned by the University. College Woods, on the edge of campus, includes five miles of well-kept paths through 260 acres of woods.

Downtown Durham

Graduate School

www.gradschool.unh.edu

The Graduate School provides assistance to prospective and current students from the time of the their first inquiry about graduate study until completion of their graduate programs. Students are encouraged to contact the Graduate School staff with questions regarding academic policy, financial assistance, and availability of University services.

Center for Graduate and Professional Studies in Manchester

www.unhmgrad.unh.edu

The Graduate School's center in Manchester brings the resources and expertise of the University to the population and economic center of the state, to focus and extend UNH's professional education programs, and to further distinguish professional graduate education at UNH. The staff at the center is committed to facilitating these goals.

McNair Graduate Opportunity Program

www.unh.edu/mcnair

The McNair Graduate Opportunity Program provides eligible undergraduate students with ongoing consultation and support from faculty mentors and staff to help ensure their success in making the transition from undergraduate to graduate education. There is both an academic year and a summer component to the program. Application is required.

Graduate Council

The Graduate Council comprises 12 graduate faculty members and three graduate students. The council advises the dean of the Graduate School on policies concerning graduate education and is responsible to the graduate faculty for recommendations concerning new graduate programs. Standing committees of the council include the doctoral program committee, the master's program committee, the student affairs committee, and program review committee.

Graduate Student Organization

www.gradschool.unh.edu/gso

The Graduate Student Organization (GSO) serves to provide a collective voice for the more than 2,000 graduate students who form an integral part of the University community. The GSO provides a representative structure for the graduate student body. Its board, comprising representatives from each approved graduate program, helps to find graduate student representatives for various University boards and committees. The board also maintains communication among graduate students through its listserv, Web page, and newsletter.

Library

www.library.unh.edu

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, and manuscripts. The library offers extensive electronic resources. 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. Through the consortium, UNH faculty, faculty emeritus, 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 four branch libraries specialize in science, mathematics, and engineering. The Biological Sciences Library is located in Kendall Hall, Chemistry Library is in Parsons Hall, Engineering/Mathematics/Computer Science Library is in Kingsbury Hall, and the Physics Library is in DeMeritt Hall. All branch materials are indicated in the UNH Library catalog.

The Hubbard Room in Dimond Library

Computing and Information Services (CIS)

www.unh.edu/cis

Computer access All students have access to networked computing resources on campus. UNH has three 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; access to the Internet via the World Wide Web; and are staffed by student consultants. Three clusters are available 24 hours/day.

Training Each semester, short courses are offered on a variety of topics. Register for a short course via the Web. Facilities with Dell Pentium and Apple Macintosh systems may be reserved by faculty and students for hands-on training.

Purchase and repair Students may purchase their own computers at the UNH Computer Store, which sells Apple and Dell computers; Apple, Epson, and Hewlett-Packard printers; and a variety of supplies, peripherals, and software at educational pricing to members of the UNH academic community.

CIS Call and Dispatch Center As a unit of Help Desk Professional Services, the CIS Call and Dispatch Center provides UNH and USNH faculty, students, and staff with a centralized contact point for computer-related questions and concerns.

Walk-In Services CIS Telecommunications and Client Services coordinates Walk-In Services, located at MUB 109. Walk-In Services 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 anti-virus software and UNH network software programs.

ResNet, http://at.unh.edu/resnet UNH's Residential Network, provides a high-speed network connection for each student living on campus. There are no monthly fees or time limits for using ResNet. There are minimum standards for hardware and software.

UNHINFO www.unh.edu 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 centers, dorms, and Internet service providers.

Graduate Student Housing

www.unh.edu/housing

Babcock Hall

Babcock Hall is a community of more than 180 graduate, international, and nontraditional students. Six-story Babcock Hall combines social, educational, and cultural opportunities with the convenience of on-campus living.

A community desk is open daily. All rooms are single occupancy, simply furnished, and are wired for telephone, cable television, and Internet access. A kitchenette, lounge, and laundry facility are available in the building. Table tennis, a piano, and a fireplace are on the lobby level.

Following acceptance to the Graduate School, each student will be contacted about housing by the University's Department of Housing.

Family Housing

Forest Park Apartment Complex provides campus housing for newly appointed faculty members, married students, and students with dependent children. The community at Forest Park is diverse, with students and faculty members from all over the world. The six and one-half acre complex is located on the southern edge of campus, within close walking distance of UNH academic and administrative buildings and Durham's shopping and business district. The two- and three-story buildings within Forest park house 154 apartments. These include studio (efficiency), one-bedroom, and two-bedroom apartments.

Summer Housing

Rooms in Babcock Hall are available to graduate students taking courses during the summer. Students interested in summer accommodations should contact the Department of Housing.

Off-Campus and Commuter Services

www.unhmub.com

The Leadership Center, located in the Memorial Union Building, provides resources for off-campus and commuter students. These include listings for off-campus housing and tenants' rights information. Also available is information about day-care, transportation options, and student organizations. Off-campus housing is listed on the Web at www.unhmub.com/housinglist.

Dining Services

www.unh.edu/dining

University Hospitality Services works hard to exceed its guests' expectations. Dining halls offer hot entrees, vegetarian and vegan dishes, a variety of specialty bars, salad bars, and a well-stocked deli. In addition, the MUB Food Court, MUB Coffee Office, Wildcatessen, Philbrook Café, and Panache offer grab-and-go foods. A variety of meal

Babcock Hall

plans are available to all UNH community members. Cash and Cat's Cache (the UNH debit program) are accepted as well.

Campus Recreation

campusrec.unh.edu

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, a fitness center, basketball/volleyball courts, an indoor track, a lounge, locker rooms, towel and lock service at the equipment room, saunas, and new synthetic sports fields.

Participants may participate in group exercise classes such as step aerobics, Reebok cycling, or cardio kickboxing. 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 and to men's and women's teams. There are also many sport club teams.

Ice skating in the Whittemore Center arena is available during nonpeak/nonteam hours. During the summer, the Department of Campus Recreation manages a large outdoor recreation facility on Mendum's Pond in Barrington.

Memorial Union Building

www.unhmub.com

The University's community center is the Memorial Union Building (MUB). The original building was a gift from UNH alumni and is the official state war memorial.

Currently the MUB is the only building on campus to have complete wireless capabilities in all public spaces and meeting rooms. Housed in the MUB are the Information Center; two movie theaters; a Games Room, the UNH Copy Center; the UNH Bookstore; the Ticket Office; specific lounge/study space for both nontraditional and graduate students. Computing and Information Services provides a computer cluster, and help desk with walk-in service. The Food Court offers expanded dining options and food service is also available in the Coffee Office. Nearly 60 student organizations have office space in the MUB.

Memorial Union Building

Student Organization Services (SOS), a division of the Memorial Union, is responsible for the registration and recognition of more than 130 student organizations and assists students with the mandatory registration process.

Health Services

www.unh.edu/health-services

The University has a state-licensed and nationally-accredited health and wellness program.

Medical Services

Health Services provides comprehensive, student-focused, primary medical care, laboratory testing, radiology, and pharmacy services. During the academic year, the clinical staff consists of board-certified physicians, nurse practitioners, nurses, and medical assistants who are committed to prevention and holistic care. They work in teams, three of which focus on general medicine services, e.g., infectious diseases, injuries, and mental health concerns. The fourth team focuses on women's health. There is also a Travel Clinic providing clearance 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.

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

Office of Health Education and Promotion

The Office of Health Education and Promotion presents educational workshops, offers support groups, 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, as well as 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 room contains information on physical and emotional health issues, including HIV/AIDS, alcohol/other drugs, and men's and women's health issues.

Health Insurance

A student health insurance policy is available to students. Please contact Health Services for current information.

Health Record Requirement

In order to provide effective care, Health Services requires that students who have been formally accepted for a graduate program in Durham, and who register for five or more credits, must have medical records on file with Health Services. These records consist of (1) a health history to be completed by students before registration on a form provided by Health Services and (2) proof of immunity to measles. This is mandatory for registration for all undergraduate and graduate students. For measles, students must meet one of the following criteria: 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 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. Students requesting a religious exemption from vaccination must submit a formal exemption form from their religious affiliation or complete the UNH Health Services Request for Exemption, form 202.5. 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 classes.

Counseling Center

www.unhcc.unh.edu/index.html

The Counseling Center offers confidential professional consultation, individual and group therapy, and educational workshops for a broad range of emotional, psychological, and interpersonal concerns.

Appointments can be made over the phone or in person. In addition, emergency services are offered by the Counseling Center during regular business hours and after hours.

The UNH Counseling Center

The staff comprises certified psychologists, counselors, and consulting psychiatrists. 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.

University Advising and Career Center

www.unh.edu/uacc

The University Advising and Career Center provides career development support to the University's students and alumni. It houses a career library and access to a nationwide parent/alumni career advisers network of more than 1,400 members.

Job and internship opportunities are offered through W.O.R.K. (Wildcat Online Recruiting Kit), 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.

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 administers national tests for postbaccalaureate study.

Center for International Education

www.unh.edu/cie

The Center for International Education is the clearinghouse for international activities on campus. The center runs the New Hampshire International Seminar Series and houses study abroad programs and academic programs in international affairs. Small travel grants are available to graduate students for international travel to conferences or for research. Annual competitions for the Student Fulbright and National Security Education Program are administered by the center.

Multicultural Student Affairs

www.unh.edu/omsa

The mission of the Office of Multicultural Student Affairs (OMSA) at UNH is twofold: (1) to provide services to Black, Latino/a, Asian and Pacific Islanders, Native American, and Lesbian, Gay, Bisexual, Transgender and Questioning students, in order to increase their retention and graduation rates; (2) to support, promote, and assist students and student groups that contribute to making the University a diverse, multicultural community.

In addition, OMSA acts as an advocate for students as well as being a liaison to various student organizations and offices. Some of these organizations include the Diversity Support Coalition, Mosaico (the Latino/a Student Association), Black Student Union (BSU), United Asian Coalition (UAC), The Alliance (the Lesbian, Gay, Bisexual, Transgender Student Association), the Native American Cultural Association (NACA), and Hillel (the Jewish Student Association), among others.

OMSA is open to all students at the University of New Hampshire.

International Students and Scholars

www.unh.edu/oiss

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.

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.

President's Commission on the Status of People of Color

www.unh.edu/cspc

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.

President's Commission on the Status of Women

www.unh.edu/womens-commission

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.

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

www.unh.edu/glbt

The UNH President's Commission on the Status of Gay, Lesbian, Bisexual and Transgender Issues facilitates the development of a University community that is equitable and inclusive of all sexual orientations and gender expressions.

Access: Support Services for Students with Disabilities

www.unh.edu/access

The University is committed to providing students with documented disabilities a living and learning experience with equal access to all 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 e.g., academic aids, scheduling of classes, parking permits, health and dietary needs, and housing accommodations. Access is located in the Memorial Union Building, Room 118, (603) 862-2607 (voice/TTY).

Sexual Harassment and Rape Prevention Program

www.unh.edu/student-life/sharpp

The Sexual Harassment and Rape Prevention Program (SHARPP) is a crisis intervention center dedicated to providing free and confidential services for all members of the University community. SHARPP operates a 24-hour crisis line to respond to the needs of survivors of sexual assault, sexual harassment, childhood sexual abuse or incest, intimate partner violence, and stalking. SHARPP provides crisis services for those who are close to the survivor. Additionally SHARPP presents a wide range of programs to the University community.

UNH Transportation Services

www.unh.edu/transportation

UNH Transportation Services administers visitor parking; parking for faculty, staff, and students; University mass transit. Other services offered by Transportation Services are Cat Courier, Guaranteed Ride Home, and Safe Rides.

Wildcat Transit, Campus Connector, Wildcat Access

Wildcat Transit Bus Service provides public transportation from Durham to Dover, Portsmouth, and Newmarket, with connections to other local and interstate bus service providers.

Campus Connector is the on-campus bus service. **Wildcat Access** provides rides for people with either permanent or temporary disabilities who cannot access Campus Connector around campus.

University Police

www.unh.edu/upd

The University Police Department is committed to the enforcement of laws and University policies supportive of the rights and dignity of all persons. The department seeks to maintain a campus environment in which learning may thrive. Self-defense courses, and crime prevention literature are some of the services they offer. A walking patrol provides an escort service for students, faculty, and staff. Officers, professionally trained in their respective areas, staff both the police and Security Services units.

Veterans Information

The UNH veterans' coordinator 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. The coordinator also provides a framework for networking among campus veterans. For further information, call (603) 862-1595.

Hamilton Smith Hall

Admission and Registration

In this section you'll find details regarding the University's admission and course registration process. Please contact us at the Graduate School or at Registrar's Office if you need further clarification. We will be happy to answer your questions regarding University procedures and policy.

Applying for Admission

Persons holding a baccalaureate degree from an accredited college or university may apply for admission to the Graduate School. Admission is both limited and competitive and is based solely upon academic qualifications and potential of the individual.

Application procedures are included in the application packet, which is available either from the Graduate School or at www.gradschool.unh.edu.

Applicants to programs that lead to the master of science for teachers degree must meet, in addition to the normal requirements, one of the following admission requirements: (1) completion of education courses sufficient for certification, (2) completion of three years of teaching experience, or (3) current employment in a full-time teaching position.

All application materials become part of the permanent records of the University of New Hampshire and will not be returned. Access to this material is limited under the Family Rights and Privacy Act of 1974. Applicants who are not admitted, or who are admitted and do not register in the Graduate School, do not have access to their application files. Materials received as part of the application process will not be duplicated for personal use by the applicant or forwarded to a third party. Materials received from applicants who do not complete their application, who are not admitted, or who are admitted and do not register are held for one year before being destroyed.

Applicants from Foreign Countries

All applicants from non-English-speaking countries must, in addition to all of the above, provide TOEFL (Test of English as a Foreign Language) scores. A minimum TOEFL score of 550 (213 computer-based) is required for admission. TOEFL scores are valid for only two years. A financial declaration on official University forms is also required.

Applications from residents of foreign countries will be considered only for regular admission.

Application Deadlines

Application deadlines vary by program. These are updated on an annual basis and may be found on our Web site as well as in our application packet. Applicants for financial assistance (assistantships and scholarships) should complete their applications prior to February 15 to ensure consideration for the following academic year.

Foreign applicants who are not currently residing in the United States will be considered for admission for the fall session only and must have their applications completed by April 1. Foreign applicants currently residing in the United States should have their applications completed at least four months prior to the session for which they are applying.

Incomplete Applications

Applications that remain incomplete after the first day of classes of the term for which admission was desired will be placed in an inactive status. A written request is required to reactivate an application.

Application Review

Once an application is complete, it is reviewed by an admissions committee of graduate faculty members, which makes recommendations to the Graduate School. The Graduate School will review these recommendations and make the final decision. While applicants with bachelor's degrees may apply directly to certain doctoral programs, the Graduate School also reserves the right to offer applicants admission at the master's degree level in its place.

Admission Categories

Official offers of admission from the Graduate School are made for a specific term and year in one of the following categories: regular, provisional, or conditional. Applicants who are in the final year of an undergraduate or, in some cases, a graduate degree program are contingent upon the successful completion of that degree program. An official final transcript showing grades and the awarding of the degree must be received by the Graduate School before the student may enroll for the graduate program.

Regular Admission

Regular admission may be offered to applicants whose academic records and supporting documents indicate that they are fully qualified to undertake graduate study in their chosen fields.

Provisional Admission

Provisional admission may be offered to applicants whose academic records and supporting documents indicate that they are qualified to undertake graduate study, but whose undergraduate preparation was not in the intended field of graduate study. Applicants offered provisional admission must meet the specific criteria, usually undergraduate coursework, stated at the time of their admission, before being changed to regular graduate student status.

Conditional Admission

Conditional admission may be offered to applicants whose academic records indicate deficiencies but suggest some promise of success in graduate study. Students offered conditional admission must meet the specific requirements stated at the time of their admission in order to remain in the Graduate School. Conditionally admitted students are not eligible for assistantships and scholarships offered through the Graduate School until the conditional status is removed.

Deferred Admission

Applicants who cannot enroll in the term for which admission was offered may request to have their admission deferred for up to one year. Such requests must be in writing and will be considered only once. Because enrollments are limited and competition for admission may vary from year to year, such requests may not be granted. Applicants who have received approved deferment of their admission cannot register for graduate coursework as special students at the University during the period of deferment.

Early Admission—University of New Hampshire Seniors

Qualified senior students at the University of New Hampshire may be admitted to the Graduate School provided they have followed normal application procedures; they must have been admitted for the semester in which they wish to enroll in courses for graduate credit. A 3.20 cumulative grade-point average is normally required to be considered for early admission. Such seniors are normally admitted prior to the start of their last undergraduate semester. Seniors who have been admitted under early admission may register for a maximum of two courses for up to 8 graduate credits.

Admission to the 3/2 Program

Undergraduate UNH students may be admitted to one of the approved five-year combined bachelor's degree/master of business administration programs, which normally commence during the fall semester of their senior year. Approved undergraduate programs include the B.S. programs in chemical engineering, civil engineering, electrical engineering, or mechanical engineering in the College of Engineering and Physical Sciences; the B.A. programs in French, history, philosophy, or psychology in the College of Liberal Arts; the B.S. program in plant biology in the College of Life Sciences and Agriculture; and the B.A. program in economics in the Whittemore School of Business and Economics. Interested undergraduate students in economics should contact the Whittemore School for specific information. Application to the Graduate School is made during the second semester of the junior year.

Additional Information

Special Students

Individuals holding baccalaureate degrees may register for graduate courses on campus through the Division of Continuing Education, or for off campus through the Center for Graduate and Professional Studies at the University of New Hampshire at Manchester. These individuals are designated as "special students." Special students are not required to file an application for admission to the Graduate School and are not candidates for a graduate degree. Special students are not normally permitted to register as full-time students.

Applicants Not Admitted

Applicants who are denied admission may have their applications reconsidered only if they furnish significant additional material that was not available at the time of the original decision, such as evidence of further academic achievement or more recent and significantly improved GRE or GMAT scores. Reapplication is not encouraged.

Registration

Academic Year

Registration information and the Time and Room Schedule is available at www.unhinfo.unh.edu/registrar.

Continuous Registration

Unless a leave of absence is granted, graduate students are required to maintain continuous enrollment each semester of the academic year until their degree is formally awarded by registering for course credits, research, or continuing enrollment. Master's students must enroll for course credits, thesis credits, Master's Continuing Research (GRAD 900), or Continuing Enrollment (GRAD 800). C.A.G.S. students must enroll for course credits or Continuing Enrollment (GRAD 800). Pre-candidacy doctoral students must enroll for course credits, Doctoral Research (999), or Continuing Enrollment (GRAD 800). All doctoral candidates must register for Doctoral Research (999) each semester after advancement to candidacy until their degree is conferred, even if the minimum requirement (two semesters) has been met. Students enrolled in summer only programs—currently, Math M.S.T., English M.S.T., and College Teaching M.S.T.—are required to enroll in course credit or GRAD 800 each summer until their degree is formally awarded.

Full-Time Students

Graduate students registered for 9 or more credits, Master's Continuing Research, or Doctoral Research are classified as full-time students. Students holding assistantship appointments are also considered full time and must register for a minimum of 6 credits, Master's Continuing Research, or Doctoral Research each semester.

Three-Quarter-Time Students

Graduate students not on an assistantship and registered for 7 or 8 credits are classified as three-quarter-time students.

Half-Time Students

Graduate students not on an assistantship and registered for 5 or 6 credits are classified as half-time students.

Maximum Load

The maximum graduate load allowed is 16 credits (12 credits for a student on a full assistantship). Only under unusual circumstances will a student be allowed to exceed these limits, and then only with the recommendation of the student's adviser and graduate program coordinator and the approval of the dean of the Graduate School.

Dropping and Adding Courses

Graduate students may add or drop courses in accordance with the procedures and deadlines published by the Registrar's Office in the Time and Room Schedule. Deadlines are also published annually in the Graduate School calendar.

Auditing Courses

A graduate student may, with the approval of his or her adviser and the faculty member concerned, audit courses. The deadline for requesting an audit is listed on the Registrar's calendar. Subsequent requests for change to audit require a petition form and must be approved by the course faculty member, the student's adviser, graduate program coordinator, and the dean of the Graduate School.

Change of Name or Address

It is the responsibility of the student to complete a change of name or address form whenever a change is made. Forms are available in the Registrar's Office and the Graduate School.

Summer Session

Although many graduate-level courses are offered during the summer session, the University does not guarantee that any particular course will be offered. The availability of individual faculty members to supervise research or to participate in qualifying examinations and final examinations or defenses during the summer session varies from year to year.

Course information and registration materials may be obtained at www.learn.unh.edu/summer.

Maximum Load

The maximum graduate load allowed is 12 credits for the entire summer session. A student will be allowed to exceed this limit only by petition with the recommendation of the student's adviser, graduate program coordinator, and the approval of the dean of the Graduate School.

Student Load for Veterans Benefits

Graduate students eligible for V.A. benefits during the summer receive benefits according to the following schedule of average credit registrations: 1/2 credit/week or more = full time; 3/8 credit/week or more = 3/4 time; 1/4 credit/week or more = 1/2 time; less than 1/4 credit/week = tuition and fees only.

Nonregistration

Leave of Absence

Students who, because of unforeseen circumstances, are unable to pursue their graduate program may request a leave of absence for a maximum of one calendar year. Such circumstances may include medical reasons, military obligation, family emergencies, or hardship. The procedure for an approved leave of absence requires that students submit a request, available at the Graduate School, along with appropriate documentation, prior to the term for which the leave is requested. The dean of the Graduate School, upon recommendation of the student's adviser and graduate program coordinator, will review the request. If the request for a leave is granted, the time limit for completion of the student's program will be extended appropriately. Students on an approved leave of absence are exempt from paying the continuing enrollment fee. Graduate students who do not return from a leave of absence will have their degree status discontinued.

Demeritt Hall

Withdrawal

A student may withdraw from the Graduate School during any semester by obtaining a withdrawal form from the Graduate School. This form should be signed by the student's adviser and the dean of the Graduate School. Students who formally withdraw are required to apply for readmission if they subsequently desire to resume their academic program.

Degree Status Discontinued

Students who do not formally withdraw and do not register and pay for course credits, research, or continuing enrollment by the appropriate registration deadline, or do not return from an approved leave of absence, will have their degree status discontinued. Students are notified by the Graduate School when this administrative action is taken and are required to apply for readmission or reinstatement if they subsequently desire to resume their academic program.

Administrative Withdrawal for Reasons of Health

The vice president for Student Affairs or dzean of the Graduate School or designee, in consultation with Health Services and/or Counseling Center officials, may temporarily suspend a student from the University without prejudice for reasons of seriously impaired physical or mental health and/or in consideration of the physical health, safety, and well-being of members of the University community. Such action shall be taken only for bona fide health and safety emergencies and may not be used as a means of excluding qualified students with disabilities.

The vice president or dean or designee shall provide the student with a written statement of the reasons for the temporary suspension. The student may request a hearing with the vice president, dean, or designee to dispute the reasons. The student may be represented at the hearing by a member of the University community. If the student fails to request such a hearing within 10 days of beginning the temporary suspension is upheld at the hearing, the temporary suspension shall be changed to an administrative withdrawal.

Readmission is contingent upon receipt by the directors of counseling and/or health services, or their agents, of a medical release from a licensed attending medical authority; and a personal interview with the vice president for student affairs or designee, who, on the basis of the information received, will either approve or disapprove the application.

Readmission

Students who withdraw, who have their degree status discontinued, or whose time limit has expired and subsequently desire to resume their academic program are required to apply for readmission. Readmission forms are available at the Graduate School. Students who are applying for readmission are required to pay an application fee plus, if readmitted, any accumulated continuing enrollment fees for the period during which they have been inactive. Students are not guaranteed readmission and may be evaluated in competition with current applicants to the program.

Reinstatement

Students who have their degree status discontinued for failure to register and pay for course credits, research, or continuing enrollment may petition the Graduate School to be reinstated for the term in which the action to discontinue their status was taken. Such a petition requires a reinstatement fee, plus payment of current semester charges and late fees.

Change in Degree

Students who wish to pursue a degree program other than the one for which admission was granted originally must complete the appropriate application for a change in degree. This includes students enrolled in UNH master's programs who intend to pursue the Ph.D. in the same department in which they were admitted for the master's degree. These forms are available from the Graduate School or at www.gradschool.unh.edu. The dean of the Graduate School will notify the student of the decision after consulting with the appropriate departments.

Fees and Financial Support

There are many opportunities for financial aid. To ensure that you will benefit, contact us either at the Graduate School or at the Financial Aid Office to talk about what opportunities may be available to you.

Residency

Each graduate student is classified as a resident or nonresident for tuition purposes at the time of admission to the University. The decision, made by the Graduate School, is based upon information furnished by the student's application and any other relevant information. Nonresident undergraduates continuing directly to the Graduate School will be classified as nonresidents.

All applicants claiming New Hampshire residency are required to have been legally domiciled in New Hampshire continuously for at least twelve months immediately prior to registering for the term for which in-state status is claimed.

Students admitted from states other than New Hampshire or from foreign countries are considered nonresident throughout their entire attendance at the University unless they shall have acquired bona fide domicile in New Hampshire. Changes in residency for enrolled students as well as appeals are reviewed by the Registrar's Office and will only occur if the student can clearly establish that his or her residence in New Hampshire is for some purpose other than the temporary one of obtaining an education at the University.

The burden of proof in all cases is upon the applicant. In all cases, the University reserves the right to make the final decision as to resident status for tuition purposes. The University rules governing tuition rates are fully set forth in the application for admission package; all students are bound by them.

New England Regional Student Program

The University of New Hampshire participates in the New England Regional Student Program administered by the New England Board of Higher Education. Under this program, admitted graduate students from New England may qualify for regional tuition rates (New Hampshire resident tuition, plus 50 percent) if the program to which they are admitted is one that is not available at their home state university. Inquiries and requests for further information may be directed to the Graduate School or to the New England Board of Higher Education, www.nebhe.org.

Sub-Degree Exchange Program

The Graduate School participates in a sub-degree exchange program sponsored by the New England land-grant universities. The program is designed to provide any admitted student at one of the six land-grant universities access to the full range of talent and resources available in the region. Under the agreement, graduate students may, with the approval of the dean of the Graduate School at UNH, and the graduate dean of the host university, take advantage of courses or other special resources not available at UNH. Specific information about the program may be obtained from the Graduate School.

Tuition and Fees

Tuition and fees are established by a vote of the Board of Trustees. Approval normally occurs between April and July. The current academic year rates are published annually on the University's Web site. Mandatory fees for all students include a Memorial Union fee, which funds the personnel, programs, and maintenance of the building; a health and counseling fee, which funds University Health Services and the Counseling Center; a recreation fee, which funds recreational sports facilities; a technology fee, which funds technology services and support for students and faculty, and a transportation fee, which funds transportation services on the Durham campus. The services and facilities are available to all and students are required to pay all mandatory fees charged regardless of actual usage of the programs and services. Tuition and fees are due by the published deadline; and students are not considered registered until they have paid. Graduate tuition and fees apply to admitted graduate students enrolling for courses, graduate or undergraduate, at the University during the academic year. Admitted graduate students planning to enroll for UNH courses through weekend or executive programs during the summer session, or through the Center for Graduate and Professional Studies should consult the relevant publications for information regarding tuition and fees.

McConnell Hall

Special Fees

CONTINUING ENROLLMENT FEE

Students registered for Continuing Enrollment (GRAD 800) will pay $100. This fee will be waived for students who subsequently register for course credits or research within the semester.

MASTER'S CONTINUING RESEARCH FEE

Master's students registered for Master's Continuing Research (GRAD 900) will pay $300 plus full mandatory fees.

DOCTORAL RESEARCH FEE

Doctoral students in residence and registered for Doctoral Research (999) will pay $500 plus full mandatory fees. Students who register for coursework in addition to Doctoral Research will pay the appropriate additional tuition charges up to the appropriate maximum tuition rate for full-time students. Doctoral candidates not in residence who are conducting their research away from the Durham campus may petition the Graduate School for a waiver of the mandatory fees.

DIFFERENTIAL TUITION

Students majoring in accounting, business administration, computer science, economics, engineering, and management technology will be charged a tuition differential. Students in these programs who are registered for Doctoral Research (999) or Masters-Continuing Research (GRAD 900) are considered full time and pay the full tuition differential. The current academic year rates are published annually.

Tuition Waiver for Senior Citizens

Any New Hampshire resident senior citizen who submits evidence of being 65 years of age or over, and whose participation is not intended for economic improvement, will be allowed to take courses at UNH with the tuition waived. Such waivers shall cover the cost of tuition only and are limited to a maximum of 8 academic credits per semester for each eligible individual. Admission into particular courses will be granted on a space-available basis, at the discretion of the graduate dean. All other costs of attendance are to be borne by the student.

Other Charges and Fees

OVERLOAD

Graduate students are charged full tuition plus the appropriate course charge for each credit beyond 16 if registered for more than 16 credits 30 days after the semester has begun. (No refund will be made if a student subsequently drops a course, reducing his or her course load to 16 or fewer credits.) Tuition waivers awarded with assistantships and scholarships do not cover charges for overload.

ZERO-CREDIT SEMINARS

Seminars for 0 credit are billed as if they were for 1 credit.

AUDIT

Charges for auditing a course are the same as those for taking it for credit.

LATE FEES

A $25 late registration fee is charged to students who register after the last day scheduled for graduate registration. Late fees are also charged for changes in registration as follows: A $25 fee is charged for each course dropped after the third Friday of classes; a $25 fee is charged for each course added after the third Friday of classes. The late-add fee is charged in addition to the reinstatement fee when students register after the third week of classes. A change of section (within the same course) is accomplished by a "drop" of one section and an "add" of another section. The fee will not be assessed for the add portion of a late section change; but the $25 drop fee will still apply for the drop portion of the late section change.

REINSTATEMENT FEE

A $50 reinstatement fee is charged to any student who has his or her degree status discontinued and subsequently petitions to be reinstated during the same semester that the action to discontinue the degree status was taken. This fee will not be waived.

REGISTRATION FEE

Part-time students (i.e., those registering for 1 to 8 credits) pay a nonrefundable registration fee.

Student Accident and Sickness Insurance

The University strongly urges all students to be insured against illness or injury that may arise in the course of the academic year. International students are required to have insurance. A student accident and sickness insurance policy is available for all students. Graduate students may enroll in this insurance program on a voluntary basis during graduate registration or through University Health Services. The cut-off date for enrollment is the second Friday following graduate registration. Insurance coverage is also available for the spouse or children of a student, provided the student is also enrolled in the plan.

Outside of Murkland Hall

Refunds

Tuition during the academic year is refundable in accordance with the calendar published in the Time and Room Schedule and the Graduate School calendar. Students receiving federal financial aid will have their refund calculated in accordance with the U.S. Department of Education regulations in effect at the time of their withdrawal. Specific details regarding the regulations are available in the UNH Financial Aid Office. Mandatory fees are nonrefundable.

Financial Assistance

Several forms of financial assistance are available to graduate students through the Graduate School and individual departments, most of which are awarded for an academic year commencing in the fall. To be eligible for any assistance, the student must first be admitted to the Graduate School. In most cases, the application for admission with supporting documents serves as the application for new graduate students for the scholarship and assistantship programs available to them. In other cases, individual departments have their own application forms. Students are advised to contact individual programs for more information about assistantships and scholarships, and any departmental application forms.

Scholarships and Fellowships

Graduate Scholarships for Merit

The Graduate School maintains a limited number of scholarships to reward students for outstanding potential and/or performance in a graduate program. Availability and criteria for award of these scholarships are announced annually by the Graduate School.

Scholarships for Full-Time Students

Students who are full-time may be granted full or 1/2 tuition scholarships for the academic year or semester. These awards provide for waiver of tuition and are subject to the maintenance of a high scholastic record in the Graduate School. Application is made to the student's department or program.

Scholarships for Part-Time Students

Students who are part-time may be granted tuition scholarships, which provide a partial waiver of tuition charges. The scholarships are awarded each semester of the academic year. Applications are available at the Graduate School. University employees or family members who are eligible for staff benefits are not eligible to receive scholarships for part-time students.

Dissertation Fellowships

Dissertation fellowships for a maximum tenure of one academic year are available on a competitive basis to doctoral students who have been advanced to candidacy. These awards include a stipend and a waiver of the doctoral research and mandatory fees for the period of the award. Application is made to the dean of the Graduate School.

Summer Fellowships for Teaching Assistants

A limited number of summer fellowships are awarded to students who have held graduate assistantships involving teaching during a previous academic year. Application is made to the dean of the Graduate School.

Assistantships

The University offers a variety of forms of financial assistance to graduate students in support of their efforts to obtain a graduate degree. Graduate appointments are made to postbaccalaureate students who have been regularly or provisionally admitted to the Graduate School and who have been recommended by the appropriate department or program and approved for appointment by the Graduate School. Appointments are normally for one academic year and may be renewed provided that funds are available and that the student's academic perfor-

mance, as well as performance in carrying out the responsibilities of the appointment, is satisfactory. Appointments may be made in the following categories:

Graduate Assistants: Graduate assistants are student who provide instructional or administrative support as specified by the appointing department and are normally supported by University funds.

Graduate Associates: Graduate associates are doctoral candidates who because of their advanced standing and experience are appointed to teach one or two courses per semester and are normally supported by University funds.

Graduate Part-Time Lecturers: Graduate part-time lecturers are master's, C.A.G.S., or precandidacy doctoral students who because of their specific expertise are appointed to teach one or more courses per semester, and are normally supported by University funds.

Graduate Interns/Trainees: Graduate interns/trainees are students who are assigned to a specific project or subject area to acquire additional learning experiences and are normally supported by external funds.

Graduate Fellows: Graduate fellows are students who have been awarded a fellowship normally through an external grant to the University of New Hampshire or directly to the student. Appointment will normally not exceed one fiscal year and may be renewed in accordance with the terms of the fellowship program.

Graduate Research Assistants: Graduate research assistants are students who are appointed to conduct research on grants supported by the Agricultural Experiment Station, or external grants and contracts.

Graduate Research Associates: Graduate research associates are doctoral candidates, who because of their advanced standing and experience are appointed to conduct research on grants supported by the Agricultural Experiment Station, or external grants and contracts.

Graduate Stipend Only Appointments: Graduate stipend only appointments may be made to students during the academic year under one of the above categories. Students on such appointments have responsibilities of less than those of students on regular graduate appointments; have a workload of less than those of students on regular graduate appointments, and receive a lower stipend than students on regular graduate appointments.

Graduate Supplemental Appointments: Graduate students on appointment in one of the above categories may supplement their regular appointments for up to an average of 10 hours per week (20 hours per week when classes are not in session). F-1 and J-1 students on full assistantships may not accept additional appointments while classes are in session. Such appointments may be processed as stipends or hourly.

Graduate Hourly Appointments: Graduate hourly appointments are appointments made to students in support of the instructional, administrative, or research activities of the University. Students on such appointments have responsibilities of less than those of students on regular graduate appointments.

Graduate Summer Appointments: Graduate summer appointments are appointments made to students during the summer in one of the categories. Students on summer appointments may work for up to 40 hours per week. Graduate students working full time on research or combined teaching and research for the entire summer earn 2/3 of their prior academic year stipend. Appointments for less than the maximum time are prorated.

Reappointment: A graduate student who holds a working appointment directly connected with his/her graduate studies may be reappointed for an additional period, provided that funds are available and that the student's academic performance, as well as performance in carrying out the responsibilities of the appointment is satisfactory, and the student's status as a graduate student is maintained.

Non-reappointment: The University, for any reason, may elect not to renew a graduate student's working appointment at the end of the appointment period. No advance notice nor any reason need be given to the graduate student in the case of non-reappointment, and the appeal procedure is not available.

Termination: A hiring unit may be recommend to the Graduate School that a graduate student be terminated from a working appointment prior to the end of the appointment. The associate dean of the Graduate School will act on this recommendation. A student who is terminated is entitled to a written statement of the reasons for the termination from the hiring unit. A student who is terminated may initiate an appeal except when the termination is due to the loss of funding for the position; or the termination is due to either a voluntary or involuntary loss of graduate student status. If the graduate student is eligible, and does not initiate an appeal using the following procedure, he or she may be placed on leave of absence without pay during the period of time involved in processing the appeal. If the case is found in favor of the student, "back pay" will be awarded.

Ski jumping behind Thompson Hall

Step 1: The student should request that the hiring unit making the original recommendation reconsider the decision. The student's request should be written and should contain any information that the student feels warrants a reconsideration of the decision. A copy of the request should be sent to the dean of the Graduate School. As soon as possible after receiving this request, the hiring unit will reconsider the decision and notify the student and the dean of the Graduate School of the results of the deliberation in writing.

Step 2: If the student is not satisfied with the decision reached in Step 1, he or she may request that the dean of the Graduate School review the decision. The student's request should be in writing and must stipulate the reasons for his or her dissatisfaction with the decision reached in Step 1. The Step 2 appeal will be heard by the Student Affairs Committee of the Graduate Council, unless the student requests that the dean or the dean's designee hear the appeal. When the appeal is heard by the dean's designee or the student affairs committee, a recommendation is made to the dean, who will render a decision. The dean's decision will be communicated in writing to the student, the hiring unit, and the hiring unit's college dean, director, or vice president.

Federal Financial Aid

Graduate students who are enrolled in a degree program at least half time (5 or more credits per semester) and are a U.S. citizen or eligible non-citizen be considered for Federal Financial Aid. Graduate students are reviewed for loans and work study. There are no Federal or University grants or scholarships awarded to graduate students by the UNH Financial Aid Office.

To apply for Federal Financial Aid you must complete the Free Application for Federal Student Aid (FAFSA) or a Renewal Application. You can complete a paper application or find this form online at www.fafsa.ed.gov. The UNH priority deadline for applying for financial aid is March 1. This is the date by which the FAFSA/Renewal Application must be received by the Federal processor. However, students applying after March 1 will still be considered for the Federal Stafford Loan, which is not subject to the priority deadline.

Graduate students must also complete a Graduate Student Aid Verification Form and a Graduate Student Credit Verification Form before their application can be reviewed. These forms are available at the UNH Financial Aid Office or can be found on their Website at www.unh.edu/financial-aid. Be aware that the Financial Aid Office will make their offer of aid based on your actual tuition charges. If you will be enrolled for less than 9 credits or paying reduced tuition in either semester, your aid package may be adjusted. If you change your status (i.e., from full to part time), receive a scholarship, tuition waiver or other resource, or correct and/or change the information on the FAFSA, an aid adjustment may result.

TYPES OF AID AVAILABLE:

Federal College Work Study utilizes federal funds to provide employment opportunities to graduate students who file on time and demonstrate financial need.

The Federal Perkins Loan is a federally funded loan program administered by UNH and is available to graduate students who file on time and demonstrate exceptional need.

The Federal Subsidized Stafford Loan is a federally funded loan available to graduate students who demonstrate financial need.

The Federal Unsubsidized Stafford Loan is available to graduate students regardless of financial need.

For more information about the Stafford Loan Programs visit www.nhheaf.org.

Please feel free to visit the UNH Financial Aid Website at www.unh.edu/financial.aid for further information or call (603) 862-3600 to speak to an information specialist or to set up an appointment with the Graduate School Coordinator.

Veterans Benefits

Veterans and their dependents should investigate their eligibility for veterans benefit payments. Questions may be addressed to any local Veterans Administration office or the UNH Veterans Coordinator, Registrar's Office at (603) 862-1595.

Satisfactory Academic Progress

Satisfactory progress in a course of study must be maintained by all students who receive federal financial aid. The current standards for satisfactory academic progress are available upon request from the Financial Aid Office.

It is the student's responsibility to become familiar with the academic regulations and degree requirements of the Graduate School as well as the special requirements of his or her own academic program. The general requirements of the Graduate School are found in the catalog. Individual program requirements may be found in the catalog or obtained from the respective department.

The Whittemore Center

It is the student's responsibility to become familiar with the academic regulations and degree requirements of the Graduate School as well as the special requirements of his or her own academic program. These are found in the catalog or can be obtained from the respective department.

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.

Graduate Courses

Graduate credits may be earned in courses numbered from 800 through 999. The faculty of each graduate program prescribes the courses that make up the degree program. In addition, the Graduate School has general requirements for master's and doctoral degree programs.

800- and 900-Level Courses

These courses are offered for graduate credit only and therefore are open only to admitted or special graduate students.

700-Level Courses

These are advanced undergraduate courses. Up to 12 credits earned in 700-level courses may be taken for graduate credit by a graduate degree student, provided such courses are approved by the student's adviser, graduate program coordinator, and the dean of the Graduate School, and provided they are given in a program other than the one in which the student is seeking the degree. Such courses must be taken for a letter grade. Petition forms are available at the Graduate School.

Graduate Grading

Letter grades: The following grades are used at the University: A (4.0), A- (3.67), B+ (3.33), B (3.0), B- (2.67), C+ (2.33), C (2.0), C- (1.67), D+ (1.33), D (1.0), D- (.67), F (0). Graduate credit is normally only granted for courses completed with a grade of B- or higher. Individual programs may have stricter requirements, and those are published with their degree program requirements.

C+ Grades: The dean of the Graduate School may, under limited conditions, approve two courses, up to 8 credits of C+ grades for graduate credit. When a student's advisory committee or a student's adviser, in conjunction with the appropriate departmental committee, shall forward its recommendation, with appropriate justification, to the dean of the Graduate School within one month of the completion of the course. Normally these courses will be elective courses outside the student's major area.

AF Grades: An "AF" grade, Administrative F, is assigned for failure to either drop or complete a course. An "AF" is considered the same as an "F".

Credit/Fail Grades: A "CR" grade is assigned for complete, approved theses and dissertations, as well as other approved courses and seminars.

Pass/Fail Grades: A graduate students may petition to take undergraduate courses on a pass/fail basis. Such a petition must be approved by the end of the add period for the term the course is taken. A grade of "C" is the minimum grade in order to receive a "P." Courses at the 700-level approved for graduate credit cannot be taken for pass/fail.

Audit Grades: An "AU" grade is assigned for completion of courses for which an audit was granted. No credit is earned.

Incomplete Grades: An "IC" grade is assigned with the approval of the instructor for excused unfinished work only. The work must be completed and submitted to the instructor by the date agreed to with the instructor, but not later than the last day of the classes of the semester immediately following the one in which the incomplete was granted (800- and 900-level course only; midsemester for 400-, 500-,600-, and 700-level courses). A petition requesting additional time within which to resolve the incomplete, approved by the instructor, the student's adviser and graduate program coordinator, may be submitted to the Graduate School by the appropriate deadline. An extension will be granted by the dean only under unusually circumstances. An incomplete grade becomes an "F" if not resolved or if a petition for an extension is not approved within the allowed time period. This policy also applies to students who withdraw from the University or who are on an approved leave of absence.

IA Grades: An "IA" grade is assigned for approved continuing courses such as thesis or doctoral research and remains on the record until the course requirements are completed. In the case of doctoral research, the "IA" grades remain on the official transcript for all semesters prior to the completion of the degree. The "IA" grade for the final term of enrollment will be changed to "CR" to signify successful completion of the dissertation.

W Grades: If a student withdraws from school or drops a course prior to the fifth Friday of the semester, the course(s) will not appear on the student's permanent record. If a student withdraws from school or, for compelling nonacademic reasons, submits an approved petition to drop a course after the fifth Friday of the semester, a notation of "W" will be shown on the student's academic record. If the withdrawal or drop is after the midpoint in the class, a grade of "WP" or "WF" is shown on the record. A "WF" is considered a failing grade and will calculate into the GPA as such. Deadlines for courses scheduled for any time period other than a full semester are apportioned at the same rate as semester courses. The actual dates are determined on a term-by-term basis.

Appeals: Every instructor must be prepared to discuss and explain the basis for her or his evaluation of students. If, after consulting the instructor, a student still believes that he or she was treated unfairly, he or she has the right to seek redress from the chairperson of the department or program in which the course is offered. Under exceptional circumstances, a final appeal may be made to the dean of the college or school in which the program is offered.

Repeated courses: Repeating a course does not remove the original course or grade from the record. Only the most recent grade is included in the cumulative grade-point average; only the most recent credit, if any, is included in the cumulative credits earned. A course may only be repeated once.

Academic Standards

Graduate students receiving grades below "B–" in 9 or more credits, including undergraduate courses taken while a graduate student, will be dismissed from the Graduate School.

Graduate students will have a maximum of two opportunities to successfully complete final examinations for the master's or C.A.G.S. degree.

Doctoral students will have a maximum of two opportunities to successfully complete qualifying or final examinations for the Ph.D. degree.

Graduate students admitted on a conditional or provisional basis must meet the conditions or provisions as stated in the letter of admission in order to remain in the Graduate School.

Each individual program may set and announce standards for coursework, examinations and/or research achievement that are more rigorous than the Graduate School standard. Thus, students may be dismissed if they accumulate less than 9 credits of grades below the "B-" level, and/or fail to make adequate progress in other aspects of their graduate program.

Appeals Procedure for Graduate Students Dismissed for Academic Reasons

A department chairperson, a director of graduate studies of a Program, or an appropriate faculty committee may recommend dismissal for a student who is not performing satisfactorily. This recommendation will be acted upon by the associate dean of the Graduate School. A student disagreeing with the action taken should make every effort to resolve the situation through informal discussions with the individuals involved in the decision. After such efforts, a student wishing to enter a formal appeal should follow the procedure outlined below. A student who has been dismissed for academic reasons may, with the permission of the dean of the Graduate School, enroll as a special student in courses in his/her program pending a final decision on the appeal. Note: This procedure is not available to graduate students who have received failing grades in 9 or more credits.

Step 1

The student should request that the faculty member or committee making the original recommendation reconsider their decision. The student's request should be written and should contain any information which the student feels warrants a reconsideration of the decision. A copy of the request should be sent to the dean of the Graduate School. As soon as possible after receiving this request, the faculty member or committee group will reconsider their decision and notify the student and the dean of the Graduate School of the result of their deliberations in writing.

Step 2

If the student is not satisfied with the decision reached in Step 1, he/she may request that the chairperson of the appropriate department or program convene a meeting of all faculty in the department or program to review the decision. The student's request should be in writing, and a copy should be sent to the dean of the Graduate School. After the meeting, the chairperson will provide the student and the dean of the Graduate School with written notification of the decision of the faculty.

Step 3

If the student is dissatisfied with the decision reached in Step 2, he/she may request that the dean of the Graduate School review the decision. The student must request such a review in writing and stipulate the reasons for his/her dissatisfaction with the decisions reached in the earlier steps in the review procedure. Within a reasonable period of time, the dean of the Graduate School will hold separate meetings with the students and the appropriate faculty to discuss the case. After these meetings and after reviewing any other information he/she deems appropriate, the dean of the Graduate School will inform the college dean about the appeal process to date. In consultation with the Graduate Council, the dean of the Graduate School will then arrive at a final decision, which he/she will communicate in writing to the student, the department or program faculty, and the college dean.

In Steps 1 and 2, the student may, at the discretion of the faculty body involved in hearing the appeal, be present during the review of his/her appeal. A member of the University community may appear with the student, as an adviser, before the dean of the Graduate School and before any faculty meeting which the student is permitted to attend. An adviser may be present, but may not directly participate, in any of these proceedings.

Dual Credit UNH Seniors

University of New Hampshire seniors who have been admitted to the Graduate School under early admission may, upon recommendation of the department and approval of the Graduate School, be allowed a maximum of two graduate-level courses for up to 8 credits, to count toward both a bachelor's and master's degree. Dual credit forms must be completed and approved by the dean of the Graduate School at the beginning of the semester for which dual credit is sought. Dual credit forms are available at the Graduate School.

Transfer Credit

Students may request that a maximum of two courses, for up to 8 semester credit hours of resident courses completed on the campus of an accredited institution authorized to grant graduate degrees, be transferred to count toward their graduate program. All courses presented for transfer must have been completed with a grade of B or better and must have been taken for graduate credit. Courses cannot be transferred for credit if used in earning another degree. Transfer of credits must be recommended by the program faculty and approved by the dean of the Graduate School. Students taking courses at another university for transfer after enrolling at UNH should obtain approval of their adviser and the graduate dean prior to enrolling in the course.

Dimond Library

Special Student Credits

A maximum of three courses for up to 12 credits completed by a special student in University of New Hampshire graduate courses may, upon recommendation of the program faculty and approval of the dean of the Graduate School, be applied to a student's degree program. The 12-credit limitation applies to all courses completed or in process on the date when the official letter of admission is written. This number could be reduced if transfer credits are also applied.

Master's Degree Requirements

Credits

A minimum of 30 graduate credits is required for all master's degrees. Many programs require substantially more than the minimum 30 credits. Individual program requirements are outlined in the program descriptions of this catalog. Graduate credits are normally earned in courses numbered 800–999. Up to 12 credits earned in courses numbered 700–799 may be taken for graduate credit by master's degree students provided the courses are approved by the dean of the Graduate School and given in a department other than the one in which the degree is sought. A maximum of 12 credits taken by a student prior to admission can be applied to a degree program.

Residency

A student will normally spend at least one calendar year, or the equivalent, in satisfying the requirements for the degree.

Master's Continuing Research

Master's students who have completed all course requirements and have previously registered for the maximum number of thesis or project credits and are in residence completing their master's program must register for Master's Continuing Research.

Time Limit

All graduate work for any master's degree must be completed within six years from the date of matriculation (enrollment following admission) in the program. Progress toward the degree will be carefully monitored by the adviser and the Graduate School to ensure that adequate advancement is made toward the completion of the program and that any deficiencies noted at the time of admission are removed.

Nonthesis Option

Students who are in a nonthesis program may be required to pass a final examination. This examination may be oral, written, or both. The schedule of final examinations will be at the convenience of the department concerned, except that all such examinations must be given at least two weeks before the graduation date at which the degree is to be conferred. Further regulations governing the final written examination, when required, will be made by the department concerned, subject to the approval of the dean of the Graduate School.

Examining Committee

Examining committees, when required, are appointed by the dean of the Graduate School, upon recommendation of the department or program concerned. Normally three members are required. The dean of the Graduate School is an ex officio member of all examining committees.

Thesis Option

Students who are in a thesis program are required to conduct independent research and prepare a scholarly paper for submission to the Graduate School. Each department will determine the date when the student must submit for approval a statement of the subject of the thesis and the date when the thesis must be completed. Students writing a thesis should obtain a copy of the Thesis and Dissertation Manual from the Graduate School. Students in thesis programs may also be required to pass a final examination. The regulations concerning this exam are the same as those in the nonthesis option. The thesis committee will normally also serve as the examining committee.

Thesis Credit

A student completing a thesis must enroll for a minimum of 6 thesis (899) credits (8 credits in economics, mechanical engineering, and political science). A maximum of 10 thesis credits may be applied toward a master's degree. The exact number of credits within this range to be applied toward the degree will be determined by the faculty of the individual programs. No thesis credit shall be given until the completed thesis has been approved by the thesis committee and accepted by the Graduate School. Satisfactory acceptance of the thesis will be recorded as a credit (CR).

Thesis Committee

A master's thesis must be approved by a committee composed of the faculty member under whose direction it was written and two other members of the graduate faculty nominated by the department chairperson or graduate program coordinator and appointed by the dean of the Graduate School.

Submission of Thesis

Two copies of the approved thesis, ready for binding, must be submitted to the Graduate School Office by the appropriate deadline as published in the Graduate School calendar. Binding fees will be paid at the Graduate School and are due upon submission of final copies. Most programs require one additional copy of the thesis.

Certificate of Advanced Graduate Study

Requirements for completion of the Certificate of Advanced Graduate Study are found under the program descriptions of the education department. A maximum of 12 credits taken by a student prior to admission to the C.A.G.S. can be applied to a C.A.G.S. program.

All graduate work for the C.A.G.S. must be completed within six years from the date of matriculation (enrollment after admission) in the program.

Doctoral Degree Requirements

The degree of doctor of philosophy is conferred on qualified candidates who have passed an oral or written examination(s) on the subject matter of their field of study,

who have completed an original investigation in this field and have embodied the results in an acceptable dissertation, and who have passed an oral examination in defense of the dissertation. The degree of doctor of philosophy is essentially a research degree.

Credits

Each program specifies the number of courses required for the Ph.D. degree.

Residency

A minimum of three academic years of graduate study is required for the doctorate. Resident graduate work done at other universities may be counted toward the minimum requirement upon approval of the guidance committee and the dean of the Graduate School, but one full academic year must be in residence at the University of New Hampshire. In individual cases, the major department and the dean of the Graduate School may grant permission to pursue the research for the dissertation at another institution where access to special facilities would be advantageous.

Doctoral Research

A minimum of two semesters of registration in Doctoral Research is required. However, doctoral students at candidacy must register for 999 each semester during the academic year, even if the minimum requirement has been met.

Guidance Committee

A guidance committee is appointed by the dean of the Graduate School upon the recommendation of the program faculty as soon as possible after a student has begun study for the doctoral degree. The committee assists the student in outlining a program and preparing for the qualifying examination, and administers the examination.

Qualifying Examination

The qualifying examination is required and may be written, oral, or both. This examination will test (1) the student's general knowledge in the student's major and minor work and (2) the student's fitness for engaging in research, particularly in the subject proposed for the dissertation. The chairperson of the student's program will communicate the examination results to the Graduate School dean.

Language/Research Proficiency

Each doctoral program has its own language and/or research proficiency requirements. These requirements can be found in the individual program descriptions.

Degree Candidacy

A doctoral student is advanced to candidacy for the degree by the dean of the Graduate School upon recommendation of the graduate program coordinator after the student has passed the qualifying examination, met the language or proficiency requirements as are deemed desirable by the student's program, and declared a topic for dissertation research.

Doctoral Committee

After the student has been advanced to candidacy, a doctoral committee will be appointed to supervise and pass on the dissertation and administer the final examination. This committee will be nominated by the department of major concentration and appointed by the dean of the Graduate School. It shall consist of a minimum of five members, usually three from the major department and two from related departments. The dean of the Graduate School is an ex officio member of all doctoral committees.

Time Limit

All graduate work for the doctorate must be completed within eight years of matriculation (enrollment after admission) or within seven years if the student entered with a master's degree in the same field. The student must be advanced to candidacy within five years after matriculation or within four years if the student entered with a master's in the same field.

Dissertation

The dissertation must be a significant contribution to scholarship in the student's discipline, demonstrating the student's ability to conduct independent and original research and to communicate the results of the research through a coherent, integrated, and mature piece of writing.

Final Defense

A copy of the completed dissertation must be made available to the members of the examining committee two weeks before the final examination date.

The final oral examination is conducted by the doctoral committee and is intended to give the candidate an opportunity to defend the dissertation. A written final examination, on subject matter not covered in the qualifying examination, may also be required. This written examination is conducted by the major department. These final examinations must be completed by the date listed in the Graduate School calendar. After consultation with the major program, the dean of the Graduate School may appoint, for participation in the final oral examination, additional members of the faculty under whom the student has worked. The doctoral committee alone shall decide on the merits of the candidate's performance by a majority vote.

Submission of Dissertation

Three copies of the approved dissertation, ready for binding, must be submitted to the Graduate School Office by the appropriate deadline in the Graduate School calendar. Binding, microfilming, and copyright fees will be paid at the Graduate School and are due when the final copies are submitted. Most departments require one additional copy of the dissertation. Students should consult their advisers concerning dissertation requirements.

Publication of the dissertation by University Microfilms is required, and the student assumes the cost. Students may choose to copyright their dissertation at the time of microfilming. If the dissertation material is further published, it should be designated as having been accepted as a doctoral dissertation by the University of New Hampshire.

Graduation

Students must file an Intent-to-Graduate card with the Graduate School by the appropriate deadline specified in the Graduate School calendar. Specific information is available at the Graduate School.

All coursework completed prior to the official conferral of the degree will be applied only to that degree program.

Deadlines for graduation are listed in the Graduate School calendar. While graduation occurs three times a year, the annual commencement ceremony is held in May. Doctoral candidates must have completed all requirements for the Ph.D. degree including submission of the final copies of the dissertation by the deadline in order to participate in the ceremony.

Graduate Students must have a cumulative GPA of 3.0 or higher in order to graduate.

Murkland Courtyard

Trustees and Administrative Officers

University System of New Hampshire Trustees

Officers of the Board

Chair of the Board
John H. Lynch
Hopkinton, N.H. (2000–2007)

Vice Chairman of the Board
Andrew E. Leitz
Rye, N.H. (2001–2004)

Secretary of the Board
Lorraine S. Merrill
Stratham, N.H. (1997–2005)

Members of the Board

The Honorable Craig R. Benson
Governor of New Hampshire
Rye, N.H. *(ex officio)*

John D. Crosier
Concord, N.H. (1998–2006)

Nicholas C. Donohue
Commissioner of Education
Concord, N.H. *(ex officio)*

Edward C. Dupont
Durham, N.H. (2003–2005)

George Epstein
Conway, N.H. (2002–2006)

Marie F. Gross
Bedford, N.H. (2002–2006)

Jennifer Hall
Student Trustee (KSC)
Gardner, Mass.

Ann Weaver Hart, Ph.D.
President, University of New Hampshire
Durham, N.H. *(ex officio)*

Chester L. Jordan
Bow, N.H. (2003–2007)

Peter F. H. Lamb
Newmarket, NH (2003–2007)

John H. Lawson, Ph.D.
Amesbury, Mass. (2000–2004)

Debra B. Miller
Londonderry, N.H. (2002–2004)

John H. Moody
Derry, N.H. (2003–2007)

Terry L. Morton
Rye, N.H. (1987–2007)

The Honorable
Walter R. Peterson
Peterborough, N.H. (1996–2006)

Kristopher M. Quigley
Student Trustee (PSC)
Dover, N.H.

Stephen J. Reno, Ph.D.
Chancellor, University System
Durham, N.H. *(ex officio)*

Thomas M. Rocco, Ph.D.
President, College for Lifelong Learning
Concord, N.H. *(ex officio)*

Eugene A. Savage
Barrington, N.H. (1999–2007)

Merle W. Schotanus
Grantham, N.H. (1998–2005)

Stephen H. Taylor
Commissioner of Agriculture
Concord, N.H. *(ex officio)*

Edwinna Vanderzanden
Rochester, N.H. (2001–2005)

Donald P. Wharton, Ph.D.
President, Plymouth State University
Plymouth, N.H. *(ex officio)*

Stanley J. Yarosewick, Ph.D.
President, Keene State College
Keene, N.H. *(ex officio)*

University Administration

President
Ann Weaver Hart, Ph.D.

Provost and Executive Vice President for Academic Affairs
Bruce L. Mallory, Ph.D.

Interim Vice President for Research and Public Service
John D. Aber, Ph.D.

Vice President for Finance and Administration
Candace R. Corvey, M.B.A.

Vice President for Student and Academic Services
Mark Rubinstein, Ph.D.

Academic Units

Dean of the College of Liberal Arts
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
Andrew A. Rosenberg, Ph.D.

Dean of the Whittemore School of Business and Economics
Stephen F. Bolander, Ph.D.

Dean of the University of New Hampshire at Manchester
Karol A. LaCroix, Ph.D.

Acting Director of the Division of Continuing Education and Summer Session
Nancy J. S. Hamer, M.L.S., M.P.A.

Interim 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.

Faculty

Aber, John D. (1987)
Interim Vice President for Research and Public Service and Professor of Natural Resources and Earth, Oceans, and Space; Ph.D., Yale University, 1976.

Abrams, Eleanor D. (1994)
Associate Professor of Education; Ph.D., Louisiana State University, 1993.

Afolayan, Funso (1996)
Associate Professor of History; Ph.D., Obafemi Awolowo University, Nigeria, 1991.

Aikins, Janet (1979)
Professor of English; Ph.D., University of Chicago, 1980.

Aitkenhead-Peterson, Jacqueline Ann (2002)
Research Assistant Professor of Natural Resources; Ph.D., University of New Hampshire, 2000.

Alexander, Lee (2000)
Research Associate Professor of Ocean Engineering; Ph.D., Yale University, 1986.

Amato-wierda, Carmela C. (1995)
Associate Professor of Materials Science; Ph.D., Rensselaer Polytechnic Institute, 1993.

Andrew, David S. (1976)
Professor of Art History and the Humanities; Ph.D., Washington University, 1977.

Andrew, Michael D. (1966)
Professor of Education; Ed.D., Harvard University, 1969.

Annicchiarico, Michael J. (1991)
Associate Professor of Music; Ph.D., Brandeis University, 1993.

Archer, John M. (1996)
Associate Professor of English; Ph.D., Princeton University, 1988.

Armstrong, Capt. Andrew (1999)
Co-Director of Center for Coastal & Ocean Mapping/Joint Hydrography Center and Affiliate Professor of Ocean Engineering; M.S., Johns Hopkins University, 1991.

Babbitt, Kimberly J. (1996)
Associate Professor of Wildlife Ecology; Ph.D., University of Florida, 1996.

Baber, Kristine M. (1984)
Associate Professor of Family Studies; Ph.D., University of Connecticut, 1983.

Bachrach, David (2003)
Assistant Professor of History; Ph.D., University of Notre Dame, 2001.

Bacon, Charlotte M. (1998)
Assistant Professor of English; M.F.A., Columbia University, 1994.

Bailey, Brigitte Gabcke (1987)
Associate Professor of English; Ph.D., Harvard University, 1985.

Baker, Alan L. (1972)
Associate Professor of Plants Biology (Phycology); Ph.D., University of Minnesota, 1973.

Baldwin, Kenneth C. (1982)
Director, Center for Ocean Engineering and Professor of Mechanical Engineering and Ocean Engineering; Ph.D., University of Rhode Island, 1982.

Ballestero, Thomas P. (1983)
Associate Professor of Civil/Environmental Engineering; Ph.D., Colorado State University, 1981.

Balling, L. Christian (1967)
Professor of Physics; Ph.D., Harvard University, 1965.

Banach, Mary (1995)
Associate Professor of Social Work; D.S.W., Columbia University, 1995.

Banyard, Victoria L. (1995)
Associate Professor of Psychology; Ph.D., University of Michigan at Ann Arbor, 1994.

Barber, Heather (1993)
Associate Professor of Kinesiology; Ph.D., University of Oregon, 1992.

Barcelona, Robert J. (2003)
Assistant Professor of Recreation Management and Policy; Ph.D., Indiana University at Bloomington, 2001.

Barkey, Dale P. (1987)
Professor of Chemical/Environmental Engineering; Ph.D., University of California at Berkeley, 1987.

Barnett, Carole K. (1994)
Associate Professor of Management; Ph.D., University of Michigan at Ann Arbor, 1994.

Bartos, Radim (1997)
Associate Professor of Computer Science; Ph.D., University of Denver, 1997.

Basterra, Maria (2001)
Assistant Professor of Mathematics; Ph.D., University of Chicago, 1998.

Bauer, Christopher F. (1981)
Professor of Chemistry; Ph.D., Colorado State University, 1979.

Beane, Silas Robert, III (2003)
Assistant Professor of Physics; Ph.D., University of Texas at Austin, 1994.

Becker, Mimi Larsen (1993)
Associate Professor of Natural Resources and Environmental Policy; Ph.D., Duke University, 1993.

Becker Blease, John R. (2003)
Assistant Professor of Corporate Finance and Investments; Ph.D., University of Oregon, 2001.

Bedker, Patricia D. (1985)
Associate Professor of Animal Science; Ph.D., Cornell University, 1985.

Bellamy, Elizabeth Jane (1993)
Professor of English; Ph.D., Duke University, 1982.

Beller-McKenna, Daniel (1998)
Associate Professor of Music; Ph.D., Harvard University, 1994.

Benassi, Victor A. (1982)
Professor of Psychology; Ph.D., City College of New York, 1974.

Bennett, Albert B., Jr. (1967)
Professor of Mathematics; Ed.D., University of Michigan at Ann Arbor, 1966.

Benoit, Jean (1983)
Professor of Civil Engineering; Ph.D., Stanford University, 1983.

Bergeron, Linda Rene (1997)
Associate Professor of Social Work; Ph.D., Boston College, 1997.

Bergeron, R. Daniel (1974)
Professor of Computer Science; Ph.D., Brown University, 1973.

Berglund, N. Per (2003)
Assistant Professor of Physics; Ph.D., University of Texas at Austin, 1993.

Berlinsky, David L. (2001)
Assistant Professor of Zoology; Ph.D., University of Rhode Island, 1989.

Berndtson, William E. (1979)
Professor of Animal Science; Ph.D., Cornell University, 1971.

Bhattacharjee, Amitava (2003)
Professor of Physics and Earth, Oceans, and Space; Ph.D., Princeton University, 1981.

Bianchi, Charles H. (2001)
Affiliate Associate Professor of Electrical and Computer Engineering; Ph.D., University of New Hampshire, 1995.

Birch, Francis S. (1972)
Professor of Earth Sciences; Ph.D., Princeton University, 1969.

Black, Kelly J. (1994)
Associate Professor of Mathematics; Ph.D., Brown University, 1992.

Blakemore, Richard P. (1977)
Professor of Microbiology; Ph.D., University of Massachusetts at Amherst, 1975.

Blanchard, Robert O. (1972)
Professor of Plant Biology (Mycology); Ph.D., University of Georgia, 1971.

Blum, Linda M. (1996)
Associate Professor of Sociology and Women's Studies; Ph.D., University of California at Berkeley, 1987.

Bobick, Melvin T. (1958)
Professor of Sociology; Ph.D., University of Illinois at Urbana-Champaign, 1958.

Bobilya, Dennis J. (1991)
Associate Professor of Nutritional Sciences; Ph.D., University of Missouri, 1989.

Bocarro, Jason N. (2003)
Assistant Professor of Recreation Management and Policy; Ph.D., Texas A & M University, 2001.

Bolander, Steven F. (2000)
Dean of the Whittemore School of Business and Economics and Professor of Decision Sciences; D.B.A., Kent State University, 1972.

Bolker, Jessica A. (1997)
Associate Professor of Zoology; Ph.D., University of California at Berkeley, 1993.

Bolster, Carl H. (2001)
Assistant Professor of Water Resources Management; Ph.D., University of Virginia, 1999.

Bolster, W. Jeffrey (1991)
Associate Professor of History; Ph.D., Johns Hopkins University, 1991.

Bornstein, Steven P. (1989)
Director of Audiology Clinic and Associate Professor of Communication Sciences and Disorders; Ph.D., University of Connecticut, 1981.

Borror, Arthur C. (1961)
Professor Emeritus of Zoology and Affiliate Professor of Zoology; Ph.D., Florida State University, 1961.

Bothner, Wallace A. (1967)
Professor of Geology; Ph.D., University of Wyoming, 1967.

Boulton, Elizabeth P. (1988)
Associate Professor of Animal Science; D.V.M., University of Georgia, 1980.

Bowden, William B. (1987)
Affiliate Professor of Natural Resources; Ph.D., North Carolina State University, 1982.

Boysen, Andrew A. (1998)
Assistant Professor of Music; D.M.A., Eastman School of Music, 1998.

Braswell, Bobby H. (2001)
Research Assistant Professor of Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1996.

Brettschneider, Marla A. (1996)
Associate Professor of Political Science and Women's Studies; Ph.D., New York University, 1993.

Briggs, Janet C. (1963)
Assistant Professor of Animal Science; B.S., University of Massachusetts at Amherst, 1962.

Broussard, Cynthia Anne (2000)
Associate Professor of Social Work; Ph.D., Washington State University, 1986.

Brown, Benjamin C. (1996)
Associate Professor of Sociology; Ph.D., Emory University, 1996.

Brown, Warren R. (1972)
Associate Professor of Political Science and the Humanities; Ph.D., Claremont Graduate School and University Center, 1976.

Bryce, Julia G. (2003)
Assistant Professor of Geochemistry; Ph.D., University of California at Davis, 1998.

Bstieler, Ludwig A. (2001)
Assistant Professor of Marketing; Ph.D., University of Innsbruck, Austria, 1997.

Bubier, Jill L. (1997)
Affiliate Assistant Professor of Natural Resources; Ph.D., McGill University, 1994.

Bucklin, Ann C. (1992)
Director of UNH Sea Grant College Program and Professor of Zoology and Earth, Oceans, and Space and Genetics; Ph.D., University of California at Berkeley, 1980.

Burdick, David M. (1992)
Research Associate Professor of Marine Wetland Ecology and Restoration; Ph.D., Louisiana State University, 1988.

Burger, John F. (1977)
Professor of Zoology; Ph.D., University of Arizona, 1971.

Byers, James E. (2001)
Assistant Professor of Zoology; Ph.D., University of California at Santa Barbara, 1999.

Calarco, John R. (1981)
Professor of Physics; Ph.D., University of Illinois at Urbana-Champaign, 1969.

Calculator, Stephen N. (1983)
Professor of Communication Sciences and Disorders; Ph.D., University of Wisconsin at Madison, 1980.

Calder, Brian P. (2001)
Research Assistant Professor of Electrical and Computer Engineering; Ph.D., Heriot-Watt University, 1997.

Campbell, Janet W. (1993)
Research Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., Virginia Polytechnic Institute and State University, 1973.

Carey, Gale B. (1989)
Professor of Nutritional Sciences; Ph.D., University of California at Davis, 1981.

Cariens, Benjamin S. (2002)
Assistant Professor of Art (Sculpture and Drawing); M.F.A., Boston University, 1993.

Carleton, Karen L. (1997)
Research Assistant Professor of Zoology; Ph.D., University of Colorado, 1987.

Carney, John J. (1973)
Professor of Education; Ph.D., Syracuse University, 1973.

Carnicelli, Thomas A. (1967)
Professor of English; Ph.D., Harvard University, 1966.

Carr, Russell T. (1984)
Professor of Chemical/Environmental Engineering; Ph.D., University of Rochester, 1984.

Carroll, John E. (1974)
Professor of Environmental Conservation; Ph.D., Michigan State University, 1974.

Carter, Michael J. (1987)
Associate Professor of Electrical and Computer Engineering; Ph.D., University of Michigan at Ann Arbor, 1984.

Carter, Vernon Brooks (2003)
Assistant Professor of Social Work; Ph.D., Boston College, 2003.

Celikkol, Barbaros (1969)
Professor of Mechanical Engineering and Ocean Engineering; Ph.D., University of New Hampshire, 1972.

Cerullo, John J. (1983)
UNHM Professor of History; Ph.D., University of Pennsylvania, 1980.

Chamberlin, Kent A. (1985)
Professor of Electrical and Computer Engineering; Ph.D., Ohio University, 1982.

Chandler, Donald S. (1981)
Curator and Professor of Zoology; Ph.D., Ohio State University, 1976.

Charpentier, Michel (1999)
Assistant Professor of Computer Science; Ph.D., Institut National Polytechnique, 1997.

Chasteen, N. Dennis (1972)
Professor of Chemistry; Ph.D., University of Illinois at Urbana-Champaign, 1969.

Chaston, John M. (1989)
Associate Professor of Spanish; Ph.D., University of Texas at Austin, 1987.

Chavajay, J. Pablo (2002)
Assistant Professor of Psychology; Ph.D., University of California at Santa Cruz, 1999.

Chini, Gregory P. (1999)
Assistant Professor of Mechanical Engineering; Ph.D., Cornell University, 1999.

Chiu, Monica E. (1998)
Assistant Professor of English; Ph.D., Emory University, 1996.

Choi, Chi-Young (2001)
Assistant Professor of Economics; Ph.D., Ohio State University, 2000.

Christie, Drew (1981)
Associate Professor of Philosophy; Ph.D., Massachusetts Institute of Technology, 1983.

Chu, Brian W.K. (2001)
Assistant Professor of Art (Painting/Drawing); M.F.A., Queens College, City University of New York, 1993.

Chupp, Edward L. (1962)
Professor of Physics and Earth, Oceans, and Space; Ph.D., University of California at Berkeley, 1954.

Ciccone, Stephen J. (2000)
Assistant Professor of Finance; Ph.D., Florida State University, 2000.

Cioffi, Grant L. (1980)
Associate Professor of Education; Ph.D., University of Minnesota, 1980.

Clark, Lisa B. (2001)
Assistant Professor of Biochemistry and Molecular Biology; Ph.D., Dartmouth College, 1996.

Clark, Mary Morris (1978)
Professor of English; Ph.D., University of Massachusetts at Amherst, 1978.

Claverie, Jerome P. (2002)
Research Associate Professor of Materials Science; Ph.D., California Institute of Technology, 1995.

Clyde, William C. (1998)
Assistant Professor of Paleontology; Ph.D., University of Michigan at Ann Arbor, 1997.

Cohn, Ellen S. (1978)
Professor of Psychology; Ph.D., Temple University, 1978.

Collins, John J. (1988)
Associate Professor of Biochemistry and Molecular Biology and Genetics; Ph.D., University of Wisconsin at Madison, 1984.

Collins, Karen E. (2002)
Assistant Professor of Kinesiology; Ph.D., University of North Carolina at Greensboro, 2002.

Collins, Michael R. (1985)
Professor of Civil/Environmental Engineering; Ph.D., University of Arizona, 1985.

Collopy, Katherine S. (2000)
Assistant Professor of Nursing; Ph.D., Boston College, 2000.

Condon, William A. (1976)
Professor of Animal Science; Ph.D., University of Massachusetts at Amherst, 1975.

Congalton, Russell G. (1991)
Professor of Remote Sensing & Geographic Information Systems; Ph.D., Virginia Polytechnic Institute and State University, 1984.

Connell, James (2002)
Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., Washington University, 1988.

Conway, Karen Smith (1987)
Associate Professor of Economics; Ph.D., University of North Carolina at Chapel Hill, 1987.

Cook, Jenni Carbaugh (2001)
Assistant Professor of Music; D.M.A., University of Illinois at Urbana-Champaign, 2001.

Cook, Raymond A. (1992)
Associate Professor of Civil Engineering; Ph.D., Cornell University, 1992.

Cooper, Andrew B. (2002)
Research Assistant Professor of Natural Resources; Ph.D., University of Washington, 2000.

Cooper, Barbara T. (1978)
Professor of French; Ph.D., University of Wisconsin at Madison, 1974.

Cote, Rick H. (1988)
Professor of Biochemistry and Molecular Biology; Ph.D., University of Wisconsin at Madison, 1980.

Cotter, Paul F. (1987)
Affiliate Assistant Professor of Animal & Nutritional Sciences; Ph.D., University of New Hampshire, 1973.

Couse, Leslie J. (2003)
Assistant Professor of Education; Ph.D., Syracuse University, 2001.

Crane, Frederick G. (1998)
Affiliate Professor of Marketing; Ph.D., University of Bradford, England, 1987.

Craycraft, Catherine A. (1991)
Associate Professor of Accounting; Ph.D., Ohio State University, 1991; C.P.A.

Crepeau, Elizabeth L. (1981)
Professor of Occupational Therapy; Ph.D., University of New Hampshire, 1994.

Crill, Patrick M. (1988)
Research Professor of Earth Sciences and Earth, Oceans, and Space and Natural Resources; Ph.D., University of North Carolina at Chapel Hill, 1984.

Croce, Ronald V. (1986)
Professor of Kinesiology; Ph.D., University of New Mexico, 1983.

Crow, Garrett E. (1975)
Professor of Plant Biology (Systematics); Ph.D., Michigan State University, 1974.

Curran-Celentano, Joanne (1982)
Associate Professor of Nutritional Sciences; Ph.D., University of Illinois at Urbana-Champaign, 1982.

Daniel, Jo S. (2001)
Assistant Professor of Civil Engineering; Ph.D., North Carolina State University, 2001.

Davis, J. Matthew (1993)
Associate Professor of Hydrogeology; Ph.D., New Mexico Institute of Mining and Technology, 1994.

Davis, Thomas M. (1984)
Professor of Plant Biology and Genetics; Ph.D., University of California at Davis, 1985.

Dawson, John F. (1968)
Professor of Physics; Ph.D., Stanford University, 1963.

de Alba, Pedro A. (1977)
Professor of Civil Engineering; Ph.D., University of California at Berkeley, 1975.

de la Rasilla, Carmen Garcia (2001)
Assistant Professor of Spanish; Ph.D., Johns Hopkins University, 1997.

de la Torre, Pilar (1989)
Professor of Computer Science; Ph.D., University of Maryland, 1987.

De Moustier, Christian P. (2002)
Professor of Electrical and Computer Engineering; Ph.D., University of California, 1985.

Dembla, Pamila (2001)
Assistant Professor of Information Systems; Ph.D., University of Memphis, 2003.

DeMitchell, Todd A. (1990)
Professor of Education; Ed.D., University of Southern California, 1979.

Denis, Clyde L. (1982)
Professor of Biochemistry and Molecular Biology and Genetics; Ph.D., University of Washington, 1982.

Denman, Margaret-Love G. (1992)
Associate Professor of English; M.A., University of Mississippi, 1967.

DeTurk, Mark S. (1988)
Associate Professor of Music; Ph.D., University of Wisconsin at Madison, 1988.

Dibb, Jack E. (1991)
Research Associate Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., State University of New York at Binghamton, 1988.

Diefendorf, Jeffry M. (1976)
Professor of History; Ph.D., University of California at Berkeley, 1975.

Diller, Ann L. (1973)
Professor of Education; Ed.D., Harvard University, 1971.

Dillon, Michele (2001)
Associate Professor of Sociology; Ph.D., University of California at Berkeley, 1989.

DiNapoli, Pamela P. (1999)
Assistant Professor of Nursing; Ph.D., University of Massachusetts at Lowell, 2000.

Dingman, S. Lawrence (1975)
Professor of Hydrology and Water Resources; Ph.D., Harvard University, 1970.

Dobbins, Lori E. (2002)
Assistant Professor of Music; Ph.D., University of California at Berkeley, 1990.

Dolan, Elizabeth M. (1980)
Associate Professor of Family Studies; Ph.D., Virginia Polytechnic Institute and State University, 1980.

Dorfsman, Marco (1999)
Assistant Professor of Spanish; Ph.D., University of Wisconsin at Madison, 1992.

Dorsey, Kurk (1994)
Associate Professor of History; Ph.D., Yale University, 1994.

Drake, Allen D. (1983)
Associate Professor of Electrical and Computer Engineering; Ph.D., Tufts University, 1978.

Drugan, Robert C. (1995)
Associate Professor of Psychology; Ph.D., University of Colorado, 1984.

Drumheller, Grant (1986)
Professor of Art (Painting/Drawing); M.F.A., Boston University, 1978.

Ducey, Mark J. (1998)
Associate Professor of Forest Biometrics and Management; Ph.D., Yale University, 1996.

Durant, Yvon G. (2000)
Research Associate Professor of Materials Science; Ph.D., Universite Claude Bernard, Lyon I, France, 1994.

Durocher, Joseph F., Jr. (1986)
Associate Professor of Hospitality Management; Ph.D., Cornell University, 1980.

Dutta, Mitrajit (2000)
Assistant Professor of Mathematics; Ph.D., University of Maryland, 2000.

Eagar, Christopher (1995)
Affiliate Professor of Natural Resources; Ph.D., University of Tennessee, 1985.

Eaton, Alan T. (1978)
Extension Specialist, Entomology and Extension Professor; Ph.D., North Carolina State University, 1978.

Echt, Olof E. (1990)
Professor of Physics; Ph.D., University of Konstanz, Germany, 1979.

Eckert, Robert T. (1978)
Professor of Natural Resources; Ph.D., Ohio State University, 1978.

Edwards, David G. (2002)
Assistant Professor of Kinesiology; Ph.D., University of Florida, 2002.

Eggers, Walter F. (1989)
Professor of English; Ph.D., University of North Carolina at Chapel Hill, 1971.

Eighmy, T. Taylor (1987)
Director, Environmental Research Group and Research Professor of Civil/Environmental Engineering; Ph.D., University of New Hampshire, 1986.

Elmslie, Bruce T. (1989)
Professor of Economics; Ph.D., University of Utah, 1988.

Emison, Patricia A. (1987)
Associate Professor of Art History and the Humanities; Ph.D., Columbia University, 1985.

England, Richard W. (1976)
Professor of Economics and Natural Resources; Ph.D., University of Michigan at Ann Arbor, 1974.

Enoch, Jessica (2002)
Assistant Professor of English; Ph.D., Pennsylvania State University, 2002.

Erickson, Peter S. (1997)
Assistant Professor of Animal Sciences; Ph.D., University of Illinois at Urbana-Champaign, 1989.

Ernest, John Richard (1993)
Associate Professor of English; Ph.D., University of Virginia, 1989.

Eshbach, Robert W. (1987)
Associate Professor of Music; M.M., New England Conservatory of Music, 1976.

Etebari, Ahmad (1980)
Professor of Business Administration; Ph.D., University of North Texas, 1979.

Fagerberg, Wayne R. (1984)
Associate Professor of Plant Biology (Cell Biology); Ph.D., University of South Florida, 1975.

Fairchild, Thomas P. (1969)
Professor of Animal Science and Genetics; Ph.D., University of Wisconsin at Madison, 1964.

Falvey, Janet Elizabeth (1984)
Professor of Education; Ph.D., Pennsylvania State University, 1983.

Fan, Stephen S.T. (1962)
Professor of Chemical Engineering; Ph.D., Stanford University, 1962.

Farag, Ihab H. (1976)
Professor of Chemical/Environmental Engineering; Sc.D., Massachusetts Institute of Technology, 1976.

Farrugia, Charles J. (2002)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Bern, Switzerland, 1984.

Federer, C. Anthony (1970)
Affiliate Professor of Natural Resources; Ph.D., University of Wisconsin at Madison, 1964.

Feintuch, Burt H. (1988)
Director of Center for the Humanties and Professor of English; Ph.D., University of Pennsylvania, 1975.

Feldman, Barry N. (2001)
Assistant Professor of Social Work; Ph.D., Boston College, 2001.

Feldman, David V. (1987)
Associate Professor of Mathematics; Ph.D., Wesleyan University, 1987.

Ferber, Michael K. (1987)
Professor of English and the Humanities; Ph.D., Harvard University, 1975.

Fernald, Peter S. (1966)
Professor of Psychology; Ph.D., Purdue University, 1963.

Fetzer, Susan J. (1996)
Associate Professor of Nursing; Ph.D., Adelphi University, 1998.

Finkel, Elizabeth A. (1999)
Assistant Professor of Education; Ph.D., University of Wisconsin at Madison, 1993.

Finkelhor, David (1992)
Professor of Sociology; Ph.D., University of New Hampshire, 1978.

Fisher, Lester A. (1968)
Professor of English; Ph.D., Brown University, 1976.

Fisher, Paul R. (1996)
Associate Professor of Plant Biology (Horticulture); Ph.D., Michigan State University, 1995.

Fitzpatrick, Ellen (1997)
Professor of History; Ph.D., Brandeis University, 1981.

Fletcher, E. Scott (1996)
Associate Professor of Education; Ph.D., University of Colorado, 1997.

Forbes, F. William (1970)
Professor of Spanish; Ph.D., University of Arizona, 1971.

Forbes, Terry (1987)
Research Professor of Physics and Earth, Oceans and Space; Ph.D., University of Colorado, 1978.

Forrest, David J. (1984)
Research Associate Professor of Physics and Earth, Oceans, and Space and Electrical and Computer Engineering; Ph.D., University of New Hampshire, 1969.

Foust, Janice B. (2001)
Assistant Professor of Nursing; Ph.D., University of Pennsylvania, 1994.

Foxall, Thomas L. (1984)
Professor of Animal Science; Ph.D., University of New Hampshire, 1980.

Fraas, Michael (2003)
Assistant Professor of Communication Sciences and Disorders; Ph.D., University of Cincinnati, 2003.

Frankel, Barbara R. (1988)
Director, Marriage and Family Therapy Program and Associate Professor of Family Studies; Ph.D., Purdue University, 1988.

Frankfurter, David (1995)
Professor of History and Religious Studies; Ph.D., Princeton University, 1990.

Franzosa, Susan D. (1979)
Professor of Education; Ph.D., State University of New York at Buffalo, 1979.

Fredriksson, David W. (2001)
Research Assistant Professor of Ocean Engineering; Ph.D., University of New Hampshire, 2001.

Freear, John (1983)
Professor of Accounting and Finance; M.A., University of Kent, England, 1969; F.C.A.

Freedman, Diane P. (1992)
Associate Professor of English; Ph.D., University of Washington, 1989.

Frey, Serita D. (2002)
Assistant Professor of Soil Microbial Ecology; Ph.D., Colorado State University, 1999.

Freyre, Rosanna (2003)
Research Assistant Professor of Environmental Horticulture; Ph.D., Michigan State University, 1993.

Frierson, Cathy A. (1991)
Professor of History; Ph.D., Harvard University, 1985.

Fries, Mary K. (2002)
Assistant Professor of Education; Ph.D., Boston College, 2002.

Frolking, Stephen E. (1995)
Research Associate Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1993.

Fuld, Kenneth (1979)
Professor of Psychology; Ph.D., Dartmouth College, 1976.

Fussell, Barry K. (1987)
Professor of Mechanical Engineering; Ph.D., Ohio State University, 1987.

Galvin, Antoinette B. (1997)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Maryland, 1982.

Gardner, Jim (2000)
Affiliate Professor of Ocean Engineering; Ph.D., Columbia University, 1973.

Gardner, Kevin H. (1999)
Research Associate Professor of Civil/Environmental Engineering; Ph.D., Clarkson University, 1996.

Garland, Virginia E. (1988)
Associate Professor of Education; Ph.D., University of Connecticut, 1981.

Garrett, Peter W. (1970)
Affiliate Professor of Natural Resources; Ph.D., University of Michigan at Ann Arbor, 1969.

Gass, Michael A. (1981)
Professor of Kinesiology; Ph.D., University of Colorado, 1986.

Gaudard, Marie A. (1977)
Professor of Mathematics; Ph.D., University of Massachusetts at Amherst, 1977.

Ge, Liming (1998)
Professor of Mathematics; Ph.D., University of Pennsylvania, 1995.

Geeslin, William E. (1972)
Associate Professor of Mathematics; Ph.D., Stanford University, 1973.

Gibson, Brett M. (2003)
Assistant Professor of Psychology; Ph.D., University of Nebraska at Lincoln, 1999.

Giraud, Kelly L. (2001)
Assistant Professor of Community Development; Ph.D., Colorado State University, 1999.

Gittell, Ross J. (1993)
Associate Professor of Management; Ph.D., Harvard University, 1989.

Givan, Curtis V. (1990)
Professor of Plant Biology (Plant Biochemistry); Ph.D., Harvard University, 1968.

Gold, Janet (1995)
Associate Professor of Spanish; Ph.D., University of Massachusetts at Amherst, 1990.

Goldberg, Michael D. (1991)
Associate Professor of Economics; Ph.D., New York University, 1991.

Golinski, Jan V. (1990)
Professor of History and the Humanities; Ph.D., The University of Leeds, England, 1983.

Goodman, Raymond J., Jr. (1982)
Professor of Hospitality Management; Ph.D., Cornell University, 1979.

Goodridge, Lyndon E. (1990)
Professor of Environmental and Resource Economics; Ph.D., Purdue University, 1971.

Goodspeed, Charles H. (1978)
Director, Transportation Research and Computation Group and Associate Professor of Civil Engineering; Ph.D., University of Cincinnati, 1972.

Gould, Eliga H. (1993)
Associate Professor of History; Ph.D., Johns Hopkins University, 1992.

Gove, Jeffrey H. (1991)
Research Forester USDA Forest Service and Affiliate Professor of Natural Resources; Ph.D., Pennsylvania State University, 1989.

Graham, Karen J. (1987)
Professor of Mathematics; Ph.D., University of New Hampshire, 1986.

Greenberg, Arthur (2000)
Dean of the College of Engineering and Physical Sciences and Professor of Chemistry; Ph.D., Princeton University, 1971.

Gress, David L. (1974)
Professor of Civil Engineering; Ph.D., Purdue University, 1976.

Griffin, Robert J. (2003)
Assistant Professor of Atmospheric Chemistry; Ph.D., California Institute of Technology, 2000.

Grinberg, Eric L. (2003)
Professor of Mathematics; Ph.D., Harvard University, 1983.

Grinde, Roger B. (1993)
Associate Professor of Management Science; Ph.D., Pennsylvania State University, 1993.

Griswold, Lou Ann (1987)
Associate Professor of Occupational Therapy; Ph.D., University of New Hampshire, 1995.

Grizzle, Raymond E. (2000)
Director of the Jackson Estuarine Laboratory and Research Associate Professor of Zoology; Ph.D., Rutgers University, 1988.

Gross, Charles W. (1986)
Professor of Marketing; Ph.D., University of Colorado, 1972.

Gross, Todd S. (1988)
Professor of Mechanical Engineering; Ph.D., Northwestern University, 1981.

Gullace, Nicoletta F. (1995)
Associate Professor of History; Ph.D., University of California at Berkeley, 1993.

Gupta, Nivedita R. (2002)
Assistant Professor of Chemical Engineering; Ph.D., Pennsylvania State University, 1999.

Gutman, Jonathan (1987)
Professor of Marketing; Ph.D., University of Southern California, 1967.

Hackett, Robin (2001)
Assistant Professor of English; Ph.D., City University of New York, 2000.

Hadwin, Donald W. (1977)
Professor of Mathematics; Ph.D., Indiana University at Bloomington, 1975.

Hageman, Elizabeth H. (1971)
Professor of English; Ph.D., University of North Carolina at Chapel Hill, 1971.

Hall, Francine S. (1980)
Professor of Organizational Behavior; Ph.D., University of Toronto, Canada, 1975.

Hallett, Richard (1996)
Affiliate Assistant Professor of Natural Resources; Ph.D., University of New Hampshire, 1996.

Halstead, John M. (1988)
Professor of Environmental and Resource Economics; Ph.D., Virginia Polytechnic Institute and State University, 1988.

Hamilton, Lawrence C. (1977)
Professor of Sociology; Ph.D., University of Colorado, 1978.

Haney, James F. (1972)
Professor of Zoology; Ph.D., University of Toronto, Canada, 1970.

Hansen, Larry J. (1973)
Associate Professor of Family Studies; Ph.D., Florida State University, 1973.

Hardy, Stephen H. (1988)
Professor of Kinesiology and Affiliate Professor of History; Ph.D., University of Massachusetts at Amherst, 1980.

Harkless, Gene E. (1985)
Associate Professor of Nursing; D.N.Sc., Boston University, 1991.

Harper, James M.E. (2003)
Professor of Physics; Ph.D., Stanford University, 1975.

Harrigan, Jane T. (1985)
Professor of English; M.A., Syracuse University, 1976.

Harris, Benjamin (2001)
Professor of Psychology; Ph.D., Vanderbilt University, 1975.

Harris, J. William (1985)
Professor of History; Ph.D., Johns Hopkins University, 1982.

Harris, Larry G. (1969)
Professor of Zoology; Ph.D., University of California at Berkeley, 1970.

Hart, Ann Weaver (2002)
President and Professor of Education; Ph.D., University of Utah, 1983.

Hatcher, Philip J. (1986)
Professor of Computer Science; Ph.D., Illinois Institute of Technology, 1985.

Hausner, Alejandro (2002)
Assistant Professor of Computer Science; Ph.D., Princeton University, 2001.

Heath, Linda S. (2001)
Affiliate Associate Professor of Natural Resources; Ph.D., University of Washington, 1989.

Hebert, David J. (1967)
Professor of Education; Ph.D., Kent State University, 1967.

Heisenberg, Jochen (1978)
Professor of Physics; Doctor, University of Hamburg, Germany, 1966.

Henry, Robert M. (1980)
Associate Dean of the College of Engineering and Physical Sciences and Associate Professor of Civil Engineering; Ph.D., University of Pennsylvania, 1980.

Herold, Marc W. (1975)
Associate Professor of Economics; Ph.D., University of California at Berkeley, 1979.

Hersman, F. William (1984)
Professor of Physics; Ph.D., Massachusetts Institute of Technology, 1982.

Hertz, Susan Margaret (1986)
Associate Professor of English; B.A., University of New Hampshire, 1978.

Hibschweiler, Rita A. (1988)
Professor of Mathematics; Ph.D., State University of New York at Albany, 1988.

Hight, Eleanor M. (1992)
Associate Professor of Art History; Ph.D., Harvard University, 1986.

Hiller, Marc D. (1979)
Associate Professor of Health Management and Policy; Dr.P.H., University of Pittsburgh, 1978.

Hinson, Edward K. (1985)
Associate Professor of Mathematics; Ph.D., Northwestern University, 1985.

Hobbie, Erik A. (2002)
Research Assistant Professor of Earth, Oceans, and Space; Ph.D., University of Virginia, 1997.

Hollinger, David Y. (1995)
Affiliate Associate Professor of Natural Resources; Ph.D., Stanford University, 1984.

Hollweg, Joseph (1980)
Professor of Physics and Earth, Oceans, and Space; Ph.D., Massachusetts Institute of Technology, 1968.

Holtrop, Maurik (2002)
Assistant Professor of Physics; Ph.D., Massachusetts Institute of Technology, 1995.

Hood, Craig A. (1981)
Associate Professor of Art(Painting/Drawing); M.F.A., Indiana University at Bloomington, 1981.

Hopkins, Lori (1997)
Associate Professor of Spanish; Ph.D., University of Wisconsin at Madison, 1993.

Hornbeck, James W. (1979)
Affiliate Professor of Natural Resources; Ph.D., S.U.N.Y. College of Environmental Science and Forestry at Syracuse, 1973.

Hornstein, John F. (2001)
Assistant Professor of Education; Ed.D., Harvard University, 1999.

Hoskin, Marilyn (1995)
Dean of the College of Liberal Arts and Professor of Political Science; Ph.D., University of California at Los Angeles, 1973.

Houston, Barbara E. (1991)
Professor of Education; Ph.D., University of Western Ontario, Canada, 1977.

Howard, Theodore E. (1982)
Director, Center for International Education and Professor of Forestry Economics; Ph.D., Oregon State University, 1982.

Howell, David L. (1982)
Professor of Education; Ph.D., Ohio State University, 1973.

Howell, W. Huntting (1980)
Professor of Zoology; Ph.D., University of Rhode Island, 1980.

Hrabak, Estelle M. (1995)
Associate Professor of Plant Biology and Genetics; Ph.D., University of Wisconsin at Madison, 1992.

Hristovich, Sonia (2001)
Assistant Professor of Mathematics; Ph.D., Purdue University, 2001.

Huang, Ju-Chin (1998)
Associate Professor of Economics; Ph.D., North Carolina State University, 1994.

Huff, Lloyd (2003)
Research Professor of Ocean Engineering; Ph.D., University of Rhode Island, 1976.

Hurtt, George C. (1998)
Assistant Professor of Natural Resources and Earth, Oceans, and Space; Ph.D., Princeton University, 1997.

Ikawa, Miyoshi (1963)
Professor Emeritus of Biochemistry and Affiliate Professor of Zoology; Ph.D., University of Wisconsin at Madison, 1948.

Irani, Afshad J. (1998)
Assistant Professor of Accounting; Ph.D., Pennsylvania State University, 1998.

Isenberg, Philip A. (1991)
Research Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Chicago, 1977.

Jacoby, A. Robb (1961)
Professor of Mathematics; Ph.D., University of Chicago, 1946.

Jacoby, Sally W. (1996)
Associate Professor of Communication; Ph.D., University of California at Los Angeles, 1998.

Jahnke, Leland S. (1977)
Associate Professor of Plant Biology (Physiology); Ph.D., University of Minnesota, 1973.

Janson-Sand, Colette H. (1981)
Associate Professor of Nutritional Sciences; Ph.D., University of New Hampshire, 1980.

Jerard, Robert (1988)
Professor of Mechanical Engineering; Ph.D., University of Utah, 1977.

Johnson, Paul C. (1979)
Associate Professor of Natural Resources; Ph.D., Cornell University, 1974.

Johnson, Richard P. (1985)
Professor of Chemistry; Ph.D., Syracuse University, 1976.

Johnson, Stephen D. (2002)
Assistant Professor of Spanish; Ph.D., University of Wisconsin at Madison, 1999.

Jolley, Robert E. (1979)
Associate Professor of Social Work; Ph.D., Smith College, 1983.

Jones, Stephen H. (1989)
Research Associate Professor of Natural Resources and Marine Science; Ph.D., University of Wisconsin at Madison, 1983.

Jordanova, Vania K. (1999)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Michigan at Ann Arbor, 1995.

Kaen, Fred R. (1973)
Professor of Finance; Ph.D., University of Michigan at Ann Arbor, 1972.

Kalinowski, Michael F. (1980)
Associate Professor of Family Studies; Ed.D., University of Massachusetts at Amherst, 1976.

Kaufman, Allen M. (1983)
Professor of Business Administration; Ph.D., Rutgers, The State University of New Jersey, 1980.

Kaufmann, Richard L. (1963)
Professor of Physics; Ph.D., Yale University, 1960.

Kayser, John R. (1969)
Associate Professor of Political Science; Ph.D., Claremont Graduate School and University Center, 1969.

Kazura, Kerry (1995)
Associate Professor of Family Studies; Ph.D., Auburn University, 1995.

Keim, Barry D. (1994)
Associate Professor of Geography and Earth, Oceans, and Space and Affiliate Associate Professor of Earth Sciences; Ph.D., Louisiana State University, 1994.

Kempster, William G. (1999)
Assistant Professor of Music; D.M.A., University of Alberta, Canada, 1999.

Kenefick, Robert W. (1995)
Associate Professor of Kinesiology; Ph.D., University of Connecticut, 1995.

Kerns, Georgia M. (1991)
Associate Professor of Education; Ph.D., University of Kansas, 1987.

Kies, Christopher (1979)
Professor of Music; Ph.D., Brandeis University, 1984.

Kinner, Nancy E. (1983)
Professor of Civil/Environmental Engineering; Ph.D., University of New Hampshire, 1983.

Kinsey, Brad Lee (2001)
Assistant Professor of Mechanical Engineering; Ph.D., Northwestern University, 2001.

Kistler, Lynn M. (2002)
Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Maryland, 1987.

Klein, Anita S. (1985)
Associate Professor of Biochemistry and Molecular Biology and Genetics and Plant Biology; Ph.D., Michigan State University, 1981.

Kocher, Thomas D. (1989)
Co-Director, Hubbard Center for Genome Studies and Professor of Zoology and Genetics; Ph.D., University of Colorado, 1986.

Kopsell, Dean A. (2000)
Assistant Professor of Plant Biology(Nutrition); Ph.D., University of Georgia, 1999.

Kouzett, Delia (2003)
Assistant Professor of English; Ph.D., University of Chicago, 1997.

Kraft, L. Gordon (1978)
Professor of Electrical and Computer Engineering; Ph.D., University of Connecticut, 1977.

Krasner, James (1989)
Associate Professor of English; Ph.D., University of Pennsylvania, 1989.

Krislov, Daniel R. (1998)
Assistant Professor of Political Science; Ph.D., University of California at Berkeley, 1999.

Krysiak, Barbara H. (1995)
Associate Professor of Education; Ed.D., Northeastern University, 1981.

Krzanowski, James E. (1985)
Associate Professor of Mechanical Engineering; Ph.D., Massachusetts Institute of Technology, 1983.

Kun, Andrew L. (2000)
Assistant Professor of Electrical and Computer Engineering; Ph.D., University of New Hampshire, 1997.

Kuntz, Aline M. (1988)
Associate Professor of Political Science; Ph.D., Cornell University, 1987.

LaCourse, John R. (1980)
Professor of Electrical and Computer Engineering; Ph.D., University of Connecticut, 1981.

Laird, Jo (1979)
Associate Professor of Geology; Ph.D., California Institute of Technology, 1977.

Langan, Richard (1992)
Co-Director; Cooperative Institute for Coastal and Estuarine Environmental Technology and Affiliate Associate Professor of Zoology; Ph.D., University of New Hampshire, 1992.

Lanier, Douglas M. (1990)
Associate Professor of English; Ph.D., Duke University, 1988.

Latham, Paul W., II (2002)
Affiliate Associate Professor of Electrical and Computer Engineering; Ph.D., University of New Hampshire, 1992.

Laudano, Andrew P. (1986)
Associate Professor of Biochemistry and Molecular Biology; Ph.D., University of California at San Diego, 1981.

Laue, Thomas M. (1984)
Professor of Biochemistry and Molecular Biology; Ph.D., University of Connecticut, 1981.

Leak, William B. (1967)
Affiliate Professor of Natural Resources; M.F., S.U.N.Y. College of Environmental Science and Forestry at Syracuse, 1956.

Lee, Lina (1996)
Associate Professor of Spanish; Ph.D., University of Texas at Austin, 1992.

Lee, Martin A. (1984)
Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Chicago, 1971.

Lee, Michael J. (2001)
Affiliate Associate Professor of College Teaching; Ph.D., University of New Hampshire, 1978.

Lee, Thomas D. (1980)
Associate Professor of Forest Ecology; Ph.D., University of Illinois at Urbana-Champaign, 1980.

Leichtman, Michelle D. (2002)
Assistant Professor of Psychology; Ph.D., Cornell University, 1994.

Lenharth, William H. (2000)
Director, Research Computing Center and Research Associate Professor of Electrical and Computer Engineering; Ph.D., University of New Hampshire, 1978.

Lesser, Michael (1993)
Research Professor of Zoology; Ph.D., University of Maine at Orono, 1989.

Levery, Steven B. (2002)
Associate Professor of Chemistry; Ph.D., University of Washington, 1993.

Lewis, Frederick C. (1976)
Associate Professor of Communication Sciences and Disorders; Ph.D., Ohio University, 1970.

Lewis, James B. (1989)
Associate Professor of Health Management and Policy; Sc.D., Johns Hopkins University, 1985.

Li, Changsheng (1992)
Research Professor of Earth, Oceans, and Space and Natural Resources; Ph.D., University of Wisconsin and Chinese Academy of Science, 1988.

Li, Linyuan (2002)
Assistant Professor of Mathematics; Ph.D., Michigan State University, 2002.

Li, Yeping (1999)
Assistant Professor of Mathematics; Ph.D., University of Pittsburgh, 1989.

Licciardi, Joseph M. (2002)
Assistant Professor of Earth Sciences; Ph.D., Oregon State University, 2000.

Lieber, Rochelle (1981)
Professor of English; Ph.D., Massachusetts Institute of Technology, 1980.

Limber, John E. (1971)
Associate Professor of Psychology; Ph.D., University of Illinois at Urbana-Champaign, 1969.

Linder, Ernst (1987)
Professor of Mathematics; Ph.D., Pennsylvania State University, 1987.

Lindsay, Bruce E. (1976)
Professor of Environmental and Resource Economics; Ph.D., University of Massachusetts at Amherst, 1976.

Little, Liza (1994)
Associate Professor of Nursing; Psy.D., Antioch Graduate School, 1992.

Litvaitis, John A. (1985)
Professor of Wildlife Ecology; Ph.D., University of Maine at Orono, 1984.

Litvaitis, Marianne Klauser (1987)
Associate Professor of Zoology; Ph.D., University of Maine at Orono, 1986.

Litvinenko, Yuri E. (2001)
Research Assistant Professor of Physics and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1996.

Loder, Theodore C., III (1972)
Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of Alaska at Fairbanks, 1971.

Lofty, John S. (1991)
Professor of English; Ph.D., University of Michigan at Ann Arbor, 1986.

Lopate, Clifford (2002)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Chicago, 1988.

Loranger, Ann L. (1992)
Associate Professor of Education; Ed.D., Boston University, 1988.

Lord, William G. (1973)
Extension Specialist, Fruit and Extension Professor; M.S., University of Massachusetts at Amherst, 1972.

Loy, J. Brent (1967)
Professor of Plant Biology and Genetics; Ph.D., Colorado State University, 1967.

Lu, Yan (1996)
Associate Professor of History; Ph.D., Cornell University, 1996.

Lyon, Alynna J. (2003)
Assistant Professor of Political Science; Ph.D., University of South Carolina, 1999.

MacFarlane, Lisa Watt (1987)
Professor of English; Ph.D., University of Michigan at Ann Arbor, 1987.

Mair, Robert G. (1985)
Professor of Psychology; Ph.D., Brown University, 1979.

Malley, James P. (1988)
Professor of Civil/Environmental Engineering; Ph.D., University of Massachusetts at Amherst, 1988.

Mallory, Bruce L. (1979)
Provost and Executive Vice President for Academic Affairs and Professor of Education; Ph.D., George Peabody College, 1979.

Manalo, Alberto B. (1986)
Associate Professor of Environmental and Resource Economics; Ph.D., Kansas State University, 1986.

Margolin, Aaron B. (1988)
Professor of Microbiology; Ph.D., University of Arizona, 1986.

Marti-Olivella, Jaume (2003)
Assistant Professor of Spanish; Ph.D., University of Illinois at Urbana-Champaign, 1988.

Martin, Mary E. (1998)
Research Assistant Professor of Natural Resources and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1994.

Marx, Jerry D. (1995)
Associate Professor of Social Work; D.S.W., Boston College, 1994.

Mathieson, Arthur C. (1965)
Professor of Plant Biology (Phycology); Ph.D., University of British Columbia, 1965.

Mathur, Virendra K. (1974)
Professor of Chemical/Environmental Engineering; Ph.D., University of Missouri at Rolla, 1970.

Matsuda, Aya (2000)
Assistant Professor of English; Ph.D., Purdue University, 2000.

Matsuda, Paul Kei (2001)
Assistant Professor of English; Ph.D., Purdue University, 2000.

Mautz, William W. (1969)
Professor of Wildlife Ecology; Ph.D., Michigan State University, 1969.

Mayer, John D. (1989)
Professor of Psychology; Ph.D., Case Western Reserve University, 1982.

Mayer, Larry A. (2000)
Professor of Earth Sciences and Ocean Engineering; Ph.D., University of California at San Diego, 1979.

Mayne, Howard R. (1985)
Professor of Chemistry; Ph.D., University of Manchester, England, 1977.

McBride, Mekeel (1979)
Professor of English; B.A., Mills College, 1972.

McCann, Francis D., Jr. (1971)
Professor of History; Ph.D., Indiana University at Bloomington, 1967.

McCarthy, James F. (2001)
Dean of the School of Health and Human Services and Professor of Health Management and Policy; Ph.D., Princeton University, 1977.

McConnell, Mark L. (1991)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1987.

McDowell, William H. (1989)
Director, Water Resources Research Center and Professor of Water Resources Management; Ph.D., Cornell University, 1982.

McHugh, John Philip (1986)
Associate Professor of Mechanical Engineering; Ph.D., University of Michigan at Ann Arbor, 1986.

McKibben, R. Bruce (2002)
Research Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Chicago, 1972.

McKinsey, Martin (2002)
Assistant Professor of English; Ph.D., University of Virginia, 2002.

McMahon, Gregory (1988)
Associate Professor of History and the Humanities; Ph.D., Oriental Institute of the University of Chicago, 1988.

Meadows, Dennis (1988)
Director of the Institute for Policy and Social Science Research and Professor of Policy Analysis; Ph.D., Massachusetts Institute of Technology, 1969.

Mebert, Carolyn J. (1979)
Associate Professor of Psychology; Ph.D., Boston University, 1978.

Melton, Jeffrey S. (2002)
Research Assistant Professor of Civil Engineering; Ph.D., Dartmouth College, 1999.

Mennel, Robert M. (1969)
Professor of History and the Humanities; Ph.D., Ohio State University, 1969.

Meredith, Dawn C. (1987)
Associate Professor of Physics; Ph.D., California Institute of Technology, 1987.

Merenda, Michael J. (1977)
Professor of Strategic Management; Ph.D., University of Massachusetts at Amherst, 1978.

Merton, Andrew H. (1972)
Professor of English; B.A., University of New Hampshire, 1967.

Messier, Victor R. (1970)
Associate Professor of Family Studies; Ph.D., Pennsylvania State University, 1973.

Messner, Richard A. (1985)
Associate Professor of Electrical and Computer Engineering; Ph.D., Clarkson University, 1985.

Middleton, Michael J. (2001)
Assistant Professor of Education; Ph.D., University of Michigan at Ann Arbor, 2000.

Miller, Glen P. (1995)
Associate Professor of Chemistry; Ph.D., Clarkson University, 1991.

Miller, John P. (1992)
Associate Professor of Kinesiology; Ph.D., University of Maryland, 1992.

Miller, Lisa C. (1993)
Associate Professor of English; M.A., University of New Hampshire, 1988.

Miller, W. Thomas, III (1979)
Professor of Electrical and Computer Engineering; Ph.D., Pennsylvania State University, 1977.

Minocha, Rakesh (1991)
Affiliate Associate Professor of Plant Biology and Natural Resources; Ph.D., University of New Hampshire, 1985.

Minocha, Subhash C. (1974)
Professor of Plant Biology and Genetics; Ph.D., University of Washington, 1974.

Möbius, Eberhard (1990)
Professor of Physics and Earth, Oceans, and Space; Ph.D., Ruhr-Universitat, Bochum, Germany, 1977.

Mohr, Robert D. (2001)
Assistant Professor of Economics; Ph.D., University of Texas at Austin, 2001.

Moore, Berrien, III (1969)
Director of the Institute for the Study of Earth, Oceans, and Space and Associate Professor of Mathematics and Professor of Earth, Oceans, and Space; Ph.D., University of Virginia, 1969.

Moore, Sean D. (2003)
Assistant Professor of English; Ph.D., Duke University, 2003.

Morgan, Ann L. (1981)
Associate Professor of Recreation Management and Policy; Re.D., Indiana University at Bloomington, 1981.

Morris, Douglas E. (1984)
Associate Professor of Environmental and Resource Economics; Ph.D., Oklahoma State University, 1972.

Moses, Jennifer K. (1990)
Associate Professor of Art(Painting/Drawing); M.F.A., Indiana University at Bloomington, 1988.

Mulligan, Shelley E. (1996)
Associate Professor of Occupational Therapy; Ph.D., University of Washington, 1997.

Nagy, Naomi G. (1996)
Associate Professor of English; Ph.D., University of Pennsylvania, 1996.

Nahin, Paul J. (1975)
Professor of Electrical and Computer Engineering; Ph.D., University of California at Irvine, 1972.

Naumes, William (1989)
Associate Professor of Business Administration; Ph.D., Stanford University, 1971.

Neal, Catherine A. (1999)
Extension Specialist, Ornamental Horticulture and Extension Professor; Ph.D., Cornell University, 1983.

Neefus, Christopher D. (1998)
Associate Professor of Plant Biology and Biometrics; Ph.D., University of New Hampshire, 1982.

Newkirk, Thomas R. (1977)
Professor of English; Ph.D., University of Texas at Austin, 1977.

Nicovich, Stefan G. (2000)
Assistant Professor of Marketing; Ph.D., University of Memphis, 1999.

Nikshych, Dmitri A. (2001)
Assistant Professor of Mathematics; Ph.D., University of California at Los Angeles, 2001.

Niman, Neil B. (1985)
Associate Professor of Economics; Ph.D., University of Texas at Austin, 1985.

Nimmo, John W. (2003)
Associate Professor of Family Studies; Ed.D., University of Massachusetts at Amherst, 1992.

Nisbet, Jane A. (1987)
Director Institute on Disability and Associate Professor of Education; Ph.D., University of Wisconsin at Madison, 1982.

Nordgren, Eric A. (1964)
Professor of Mathematics; Ph.D., University of Michigan at Ann Arbor, 1964.

O'Brien, Edward J. (1988)
Professor of Psychology; Ph.D., University of Massachusetts at Amherst, 1984.

Ogembo, Justus M. (2000)
Assistant Professor of Education and Anthropology; Ph.D., Harvard University, 1997.

Oja, Sharon N. (1977)
Professor of Education; Ph.D., University of Minnesota, 1978.

Ollinger, Scott V. (2001)
Research Assistant Professor of Earth, Oceans, and Space; Ph.D., University of New Hampshire, 2000.

Onosko, Joseph J. (1989)
Associate Professor of Education; Ph.D., University of Wisconsin at Madison, 1988.

Ormrod, Jeanne E. (1998)
Affiliate Professor of Education; Ph.D., Pennsylvania State University, 1975.

Orovich, Nicholas N. (1980)
Professor of Music; M.M., New England Conservatory of Music, 1978.

Park, Soyeon (2001)
Assistant Professor of Family Studies; Ph.D., Virginia Polytechnic Institute and State University, 2001.

Parsons, Alexander M. (2002)
Assistant Professor of English; M.A., New Mexico State University, 1999.

Pekins, Peter J. (1987)
Professor of Wildlife Ecology; Ph.D., Utah State University, 1988.

Pennock, Jonathan R. (2002)
Director of the UNH Marine Program and Associate Professor of Natural Resources; Ph.D., University of Delaware, 1983.

Pescosolido, Anthony T. (2002)
Assistant Professor of Organizational Behavior and Management; Ph.D., Case Western Reserve University, 2001.

Pillemer, David B. (2003)
Professor of Psychology; Ed.D., Harvard Graduate School of Education, 1979.

Pistole, Thomas G. (1971)
Professor of Microbiology; Ph.D., University of Utah, 1969.

Planalp, Roy Paul (1987)
Associate Professor of Chemistry; Ph.D., University of California at Berkeley, 1983.

Pohl, Karsten (2000)
Assistant Professor of Physics; Ph.D., University of Pennsylvania, 1997.

Polasky, Janet L. (1981)
Professor of History; Ph.D., Stanford University, 1978.

Pollard, James E. (1970)
Associate Professor of Plant Biology (Physiology); Ph.D., University of Florida, 1969.

Potter, Sharyn J. (1998)
Assistant Professor of Sociology; Ph.D., Emory University, 1998.

Powell, Lou G. (1981)
Professor of Recreation Management and Policy; Re.D., Indiana University at Bloomington, 1981.

Prelli, Lawrence J. (1985)
Associate Professor of Communication and Affiliate Associate Professor of Natural Resources; Ph.D., Pennsylvania State University, 1984.

Prentice, Michael L. (1994)
Research Associate Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., Brown University, 1988.

Pringle, James M. (2001)
Assistant Professor of Oceanography and Earth, Oceans, and Space; Ph.D., Massachusetts Institute of Technology, 1998.

Quin, Langdon C. (1998)
Associate Professor of Art (Painting/Drawing); M.F.A., Yale University, 1976.

Quinn, Jack M. (1996)
Research Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of California at San Diego, 1981.

Quinn, Timothy J. (1989)
Associate Professor of Kinesiology; Ph.D., Michigan State University, 1987.

Raeder, Joachim (2003)
Associate Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Koln, 1989.

Ramadanovic, Petar (1999)
Associate Professor of English; Ph.D., State University of New York at Binghamton, 1997.

Reagan, Daniel (1999)
Affiliate Professor of College Teaching; Ph.D., University of New Hampshire, 1984.

Reardon, Lawrence C. (1993)
Associate Professor of Political Science; Ph.D., Columbia University, 1991.

Rebellon, Cesar (2002)
Assistant Professor of Sociology; Ph.D., Emory University, 2002.

Reid, R. Daniel (1987)
Associate Professor of Operations Management; Ph.D., Ohio State University, 1987.

Reilly, Ruth A. (1996)
Clinical Assistant Professor of Nutritional Sciences; Ph.D., University of New Hampshire, 1998.

Reinhold, Vernon N. (1998)
Research Professor of Biochemistry and Molecular Biology and Chemistry; Ph.D., University of Vermont, 1965.

Rentschler, Dorothy D. (1990)
Associate Professor of Nursing; Ph.D., New York University, 1986.

Richards, Harry J. (1979)
Interim Dean of the Graduate School and Affiliate Associate Professor of Education; Ph.D., Florida State University, 1978.

Ripley, David K. (1992)
Associate Professor of Music; M.M., New England Conservatory of Music, 1977.

Robb, Judith A. (1982)
Associate Professor of Education; Ed.D., University of Rochester, 1982.

Roberts, John M. (1979)
Extension Specialist, Turf and Associate Professor of Plant Biology (Turf); Ph.D., Purdue University, 1977.

Robertson, Robert A. (1993)
Associate Professor of Tourism Planning and Development; Ph.D., University of Illinois at Urbana-Champaign, 1990.

Rock, Barrett N. (1987)
Director of the Complex Systems Research Center and Professor of Natural Resources and Earth, Oceans and Space; Ph.D., University of Maryland, 1972.

Rodgers, Frank G. (1985)
Professor of Microbiology; Ph.D., University of Surrey, England, 1977.

Rodriguez, Julia E. (1999)
Assistant Professor of History and Women's Studies; Ph.D., Columbia University, 1999.

Rogers, John E. (1967)
Professor of Music; M.F.A., Princeton University, 1966.

Rompalla, Ronald E. (2000)
Affiliate Professor of Animal and Nutritional Sciences; Ph.D., Northeastern University, 1987.

Rosenberg, Andrew A. (2000)
Dean of the College of Life Sciences and Agriculture and Professor of Natural Resources Policy and Management; Ph.D., Dalhousie University, Canada, 1984.

Rubinstein, Zachary (2002)
Assistant Professor of Computer Science; Ph.D., University of Massachusetts at Amherst, 2002.

Rucinski, Andrzej (1984)
Professor of Electrical and Computer Engineering and Earth, Oceans, and Space; Ph.D., Technical University of Gdansk, Poland, 1982.

Russell, Keith (2003)
Assistant Professor of Kinesiology; Ph.D., University of Idaho, 1999.

Russell, Robert D. (1975)
Associate Professor of Computer Science; Ph.D., Stanford University, 1972.

Russell, Sylvia Weber (1979)
Affiliate Associate Professor of Computer Science; Ph.D., Stanford University, 1975.

Ryan, James M. (1984)
Professor of Physics and Earth, Oceans, and Space; Ph.D., University of California at Riverside, 1978.

Sable, Janet R. (1989)
Professor of Recreation Management and Policy; Ed.D., Boston University, 1988.

Safford, Lawrence (1995)
Affiliate Professor of Natural Resources; Ph.D., University of Maine at Orono, 1968.

Sahagian, Dork L. (1995)
Research Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of Chicago, 1987.

Salloway, Jeffrey Colman (1988)
Professor of Health Management and Policy; Ph.D., Boston University, 1969.

Salvio, Paula M. (1992)
Associate Professor of Education; Ph.D., University of Rochester, 1989.

Salyer, Lucy E. (1989)
Associate Professor of History; Ph.D., University of California at Berkeley, 1989.

Sasner, John J. (1965)
Professor Emeritus of Zoology and Affiliate Professor of Zoology; Ph.D., University of California at Los Angeles, 1965.

Schaller, G. Eric (1995)
Associate Professor of Biochemistry and Molecular Biology and Genetics; Ph.D., University of Wisconsin at Madison, 1990.

Schibanoff, Susan (1971)
Professor of English; Ph.D., University of California at Los Angeles, 1971.

Schmidt, Torsten (1988)
Associate Professor of Economics; Ph.D., University of Florida, 1990.

Schnepf, Scott (1981)
Professor of Art (Painting/Drawing/Printmaking); M.F.A., Kansas State University, 1981.

Schram, Thomas H. (1990)
Associate Professor of Education; Ph.D., University of Oregon, 1990.

Schuman, Bernard T. (1999)
Assistant Professor of Political Science; Ph.D., University of Tennessee, 1998.

Schwab, Charles G. (1975)
Professor of Animal Science; Ph.D., University of Wisconsin at Madison, 1974.

Schwarz, Marc L. (1967)
Associate Professor of History; Ph.D., University of California at Los Angeles, 1965.

Scott, Michelle P. (1990)
Professor of Zoology; Ph.D., Harvard University, 1984.

Seavey, John W. (1980)
Professor of Health Management and Policy; Ph.D., University of Arizona, 1973.

Seidel, Alice C. (1976)
Associate Professor of Occupational Therapy; Ed.D., Vanderbilt University, 1994.

Seidel, Lee F. (1977)
Director, Center for Teaching Excellence and Professor of Health Management and Policy; Ph.D., Pennsylvania State University, 1976.

Seiler, David E. (1972)
Professor of Music; M.M., University of Wisconsin at Madison, 1965.

Seiter, Stefan (2000)
Assistant Professor of Plant Biology; Ph.D., Oregon State University, 1997.

Seitz, W. Rudolf (1976)
Professor of Chemistry; Ph.D., Massachusetts Institute of Technology, 1970.

Selikowitz, Stuart M. (1987)
Affiliate Professor of Electrical and Computer Engineering; M.D., State University of New York School of Medicine, 1962.

Selwyn, Jennifer D. (1998)
Assistant Professor of History; Ph.D., University of California at Davis, 1997.

Sendak, Paul Edwin (1995)
Affiliate Professor of Nautural Resources; Ph.D., University of Massachusetts at Amherst, 1972.

Senier, Siobhan (2000)
Assistant Professor of English; Ph.D., University of Illinois at Urbana-Champaign, 1997.

Shannon, Patrick (2001)
Assistant Professor of Social Work; Ph.D., Virginia Commonwealth University, 2000.

Sharkey, Judy (2001)
Assistant Professor of Education; Ph.D., Pennsylvania State University, 2000.

Shea, Christine M. (1994)
Associate Professor of Technology and Operations Management; Ph.D., University of Western Ontario, Canada, 1994.

Shepard, Harvey K. (1969)
Professor of Physics; Ph.D., California Institute of Technology, 1966.

Sherman, Sarah Way (1984)
Associate Professor of English; Ph.D., Brown University, 1983.

Shetty, Sandhya (1988)
Associate Professor of English; Ph.D., University of Rochester, 1987.

Shippee-Rice, Raelene (1979)
Associate Professor of Nursing; Ph.D., Brandeis University, 1990.

Shore, Barry (1974)
Professor of Business Administration; Ph.D., University of Wisconsin at Madison, 1968.

Shore, Samuel D. (1965)
Professor of Mathematics; Ph.D., Pennsylvania State University, 1964.

Short, Frederick T. (1989)
Research Professor of Natural Resources and Marine Science; Ph.D., University of Alaska at Fairbanks, 1981.

Short, Kevin M. (1994)
Professor of Mathematics; Ph.D., Imperial College of Science & Technology, London, 1988.

Shortle, Walter C. (1996)
Affiliate Professor of Plant Biology; Ph.D., North Carolina State University, 1974.

Shwaery, Glenn T. (2000)
Affiliate Assistant Professor of Animal and Nutritional Sciences; Ph.D., University of New Hampshire, 1994.

Siggelakis, Susan J. (1988)
Associate Professor of Political Science; Ph.D., Johns Hopkins University, 1988.

Simic, Charles D. (1973)
Professor of English; B.A., New York University, 1967.

Simos, Evangelos O. (1977)
Professor of Economics; Ph.D., Northern Illinois University, 1977.

Sitkoff, Harvard (1976)
Professor of History; Ph.D., Columbia University, 1975.

Sivaprasad, Kondagunta U. (1969)
Professor of Electrical and Computer Engineering; Ph.D., Harvard University, 1963.

Sive, Barkley C. (2002)
Research Assistant Professor of Earth, Oceans, and Space; Ph.D., University of California at Irvine, 1998.

Small, Deena (2002)
Assistant Professor of Medical Laboratory Science; Ph.D., University of Maine at Orono, 1998.

Smith, Charles W., III (2003)
Research Professor of Physics and Earth, Oceans, and Space; Ph.D., College of William and Mary, 1981.

Smith, Cheryl A. (1992)
Extension Specialist, Plant Health and Extension Professor, Plant Biology; Ph.D., University of New Hampshire, 1992.

Smith, David R. (1979)
Professor of Art History; Ph.D., Columbia University, 1978.

Smith, Kevin T. (1996)
Affiliate Associate Professor of Plant Biology; Ph.D., University of Georgia, 1982.

Smith, Marie-Louise (2001)
Affiliate Assistant Professor of Natural Resources; Ph.D., University of New Hampshire, 2000.

Smith, Samuel C. (1961)
Professor of Animal and Nutritional Sciences and Biochemistry and Molecular Biology; Ph.D., Pennsylvania State University, 1962.

Smith, Tim D. (2001)
Affiliate Professor of Natural Resources; Ph.D., University of Washington, 1973.

Smith, Toni Q. (1999)
Assistant Professor of Accounting; Ph.D., Case Western Reserve University, 1999.

Soares, Lygia (1992)
Affiliate Assistant Professor of Communication Sciences and Disorders; Ph.D., University of Oklahoma, 1990.

Sohl, Jeffrey E. (1983)
Director of Center for Venture Research and Professor of Business Administration; Ph.D., University of Maryland, 1983.

Solloway, Michele R. (1997)
Research Associate Professor of Health Management and Policy; Ph.D., University of California at Berkeley, 1991.

Solorzano, Eleanne M. (1999)
Assistant Professor of Business Statistics; Ph.D., University of South Carolina, 1999.

Sonnenmeier, Rae M. (1996)
Research Assistant Professor of Communication Sciences and Disorders; Ph.D., State University of New York at Buffalo, 1999.

Sower, Stacia A. (1982)
Professor of Biochemistry and Molecular Biology; Ph.D., Oregon State University, 1980.

Sparr, Ted M. (1989)
Professor of Computer Science; Ph.D., Texas A & M University, 1972.

Stibler, Robert (1978)
Professor of Music; D.M.A., Catholic University of America, 1979.

Stine, William Wren (1984)
Associate Professor of Psychology; Ph.D., Georgia Institute of Technology, 1983.

Stokes, Martin (1999)
Affiliate Professor of Animal Science; Ph.D., University of Glasgow, 1978.

Strait, John B. (2001)
Assistant Professor of Geography and Sociology; Ph.D., University of Georgia, 1999.

Stratopoulos, Theophanis (2000)
Assistant Professor of Decision Sciences; Ph.D., University of New Hampshire, 1994.

Straus, Murray A. (1968)
Professor of Sociology; Ph.D., University of Wisconsin at Madison, 1956.

Stucchi, Arthur F. (1994)
Affiliate Associate Professor of Animal and Nutritional Sciences; Ph.D., University of New Hampshire, 1988.

Sugerman, Deborah A. (1997)
Assistant Professor of Kinesiology; Ph.D., University of Maine at Orono, 1990.

Sullivan, Elise R. (2001)
Assistant Professor of Microbiology; Ph.D., University of Maryland, 1999.

Sullivan, Janet R. (1985)
Affiliate Associate Professor of Plant Biology; Ph.D., University of Oklahoma, 1984.

Sullivan, Judith A. (1990)
Professor of Nursing; Ed.D., University of Rochester, 1972.

Sundberg, Donald C. (1978)
Associate Professor of Chemical Engineering and Materials Science; Ph.D., University of Delaware, 1970.

Sussenberger, Barbara (1978)
Associate Professor of Occupational Therapy; M.S., Boston University, 1975.

Swartz, Erik E. (2000)
Assistant Professor of Kinesiology; Ph.D., University of Toledo, 2000.

Swier, Stanley R. (1978)
Extension Specialist, Entomology and Extension Professor; Ph.D., Ohio State University, 1976.

Swift, M. Robinson (1976)
Professor of Mechanical Engineering and Ocean Engineering; Ph.D., University of New Hampshire, 1974.

Tagliaferro, Anthony R. (1978)
Professor of Nutritional Sciences; Ph.D., Cornell University, 1978.

Talbot, Robert W. (1988)
Research Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of Wisconsin at Madison, 1981.

Tate, Stefanie (2001)
Assistant Professor of Accounting; Ph.D., Michigan State University, 2001.

Taylor, James T. (1977)
Professor of Zoology; Ph.D., Oregon State University, 1977.

Taylor, Robert L., Jr. (1984)
Professor of Animal Science and Genetics; Ph.D., Mississippi State University, 1981.

Thein, May-Win L. (1999)
Assistant Professor of Mechanical Engineering; Ph.D., Oklahoma State University, 1999.

Thomas, W. Kelley (2002)
Hubbard Chair; Co-Director, Hubbard Center for Genome Studies and Associate Professor of Biochemistry and Molecular Biology and Genetics; Ph.D., Simon Fraser University, Canada, 1988.

Thompson, Allen R. (1974)
Associate Professor of Economics and Business Administration; Ph.D., University of Texas at Austin, 1973.

Tillinghast, Edward K. (1967)
Professor Emeritus of Zoology and Affiliate Professor of Zoology; Ph.D., Duke University, 1967.

Tisa, Louis S. (1994)
Associate Professor of Microbiology and Genetics; Ph.D., University of Wisconsin at Madison, 1987.

Tomellini, Sterling A. (1985)
Professor of Chemistry; Ph.D., Rutgers, The State University of New Jersey, 1985.

Torbert, Roy B. (1989)
Director, Space Science Center and Professor of Physics and Earth, Oceans and Space; Ph.D., University of California at Berkeley, 1979.

Townson, David H. (1997)
Associate Professor of Animal Science; Ph.D., Ohio State University, 1993.

Triplett, Timm A. (1981)
Associate Professor of Philosophy; Ph.D., University of Massachusetts at Amherst, 1982.

Trout, B. Thomas (1969)
Professor of Political Science; Ph.D., Indiana University at Bloomington, 1972.

Trubowitz, Rachel (1986)
Associate Professor of English; Ph.D., Columbia University, 1985.

Trumble, William R. (1999)
Associate Dean for Research and Agricultural Experiment Station, Director of Agricultural Experiment Station and Professor of Biochemistry and Molecular Biology; Ph.D., University of Texas at Dallas, 1981.

Tsang, Paul C. (1989)
Associate Professor of Animal Science; Ph.D., Boston University, 1986.

Tsukrov, Igor I. (1997)
Associate Professor of Mechanical Engineering; Ph.D., Tufts University, 1996.

Tucker, Corinna Jenkins (2000)
Assistant Professor of Family Studies; Ph.D., Pennsylvania State University, 1998.

Tucker, James (1992)
Associate Professor of Sociology; Ph.D., University of Virginia, 1992.

Turner, Elise H. (1990)
Affiliate Assistant Professor of Computer Science; Ph.D., Georgia Institute of Technology, 1989.

Turner, Heather A. (1991)
Associate Professor of Sociology; Ph.D., University of California at San Francisco, 1990.

Turner, Roy M. (1990)
Affiliate Assistant Professor of Computer Science; Ph.D., Georgia Institute of Technology, 1989.

Ulrich, Laurel (1995)
Affiliate Professor of History; Ph.D., University of New Hampshire, 1980.

Urquhart, Peter W. (1989)
Associate Professor of Music; Ph.D., Harvard University, 1988.

Vagts, Peggy A. (1978)
Professor of Music; M.M., University of Wisconsin at Madison, 1978.

Van Zandt, Cynthia J. (1998)
Assistant Professor of History; Ph.D., University of Connecticut, 1998.

VanDeveer, Stacy D. (1998)
Assistant Professor of Political Science; Ph.D., University of Maryland, 1997.

VanGundy, Karen (2001)
Assistant Professor of Sociology; Ph.D., University of Miami (Fla.), 2001.

Varki, Elizabeth (1997)
Associate Professor of Computer Science; Ph.D., Vanderbilt University, 1997.

Vasquez, Bernard J. (1999)
Research Assistant Professor of Physics and Earth, Oceans, and Space; Ph.D., University of Maryland, 1992.

Vasudevan, Palligarnai T. (1988)
Professor of Chemical/Environmental Engineering; Ph.D., Clarkson University, 1988.

Veal, Larry J. (1982)
Associate Professor of Music; M.M., University of Illinois at Urbana-Champaign, 1976.

Venkatachalam, A. R. (1992)
Professor of Information Systems; Ph.D., University of Alabama, 1990.

Von Damm, Karen L. (1992)
Professor of Geochemistry and Earth, Oceans, and Space; Ph.D., Massachusetts Institute of Technology, 1984.

Vorosmarty, Charles J. (1992)
Research Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1991.

Vroman, Neil B. (1984)
Associate Dean of the School of Health and Human Services and Associate Professor of Kinesiology; Ph.D., Pennsylvania State University, 1982.

Wake, Cameron P. (1995)
Research Associate Professor of Earth Sciences and Earth, Oceans, and Space; Ph.D., University of New Hampshire, 1993.

Walker, Charles W. (1976)
Professor of Zoology; Ph.D., Cornell University, 1976.

Wansart, William L. (1985)
Associate Professor of Education; Ed.D., University of Northern Colorado, 1984.

Ward, Judith D. (1972)
Associate Professor of Occupational Therapy; Ph.D., The Fielding Institute, 1997.

Ward, Larry G. (1989)
Research Associate Professor of Earth Sciences; Ph.D., University of South Carolina, 1978.

Ward, Sally (1980)
Professor of Sociology; Ph.D., Brown University, 1977.

Ware, Colin (2000)
Professor of Computer Science and Ocean Engineering; Ph.D., University of Toronto, Canada, 1980.

Warner, Rebecca M. (1981)
Professor of Psychology; Ph.D., Harvard University, 1978.

Warren, Charles E. (2002)
Assistant Professor of Biochemistry and Molecular Biology and Genetics; Ph.D., Oxford University, England, 1989.

Watson, Winsor H., III (1978)
Professor of Zoology; Ph.D., University of Massachusetts at Amherst, 1978.

Watt, David W. (1987)
Professor of Mechanical Engineering; Ph.D., University of Michigan at Ann Arbor, 1987.

Watters, David H. (1978)
Professor of English; Ph.D., Brown University, 1979.

Weathersby, Rita (1978)
Associate Professor of Organizational Behavior; Ed.D., Harvard University, 1977.

Webb, Dwight (1967)
Associate Professor of Education; Ph.D., Stanford University, 1967.

Webster, Penelope E. (1987)
Associate Professor of Communication Sciences and Disorders; Ed.D., Boston University, 1984.

Weiner, James L. (1979)
Associate Professor of Computer Science; Ph.D., University of California at Los Angeles, 1979.

Weisman, Gary R. (1977)
Professor of Chemistry; Ph.D., University of Wisconsin at Madison, 1976.

Wells, Dave (2000)
Affiliate Professor of Ocean Engineering; Ph.D., University of New Brunswick, 1976.

Weyrick, Richard R. (1964)
Associate Professor of Forest Resources; Ph.D., University of Minnesota, 1968.

Wharton-McDonald, Ruth M. (1997)
Associate Professor of Education; Ph.D., State University of New York at Albany, 1996.

White, Barbara Prudhomme (1998)
Assistant Professor of Occupational Therapy; Ph.D., University of Minnesota, 1997.

Wible, James R. (1984)
Professor of Economics; Ph.D., Pennsylvania State University, 1980.

Williams, Daniel C. (1970)
Associate Professor of Psychology; Ph.D., University of California at Santa Barbara, 1970.

Williams-Barnard, Carol L. (1978)
Associate Professor of Nursing; D.N.Sc., Catholic University of America, 1979.

Windt, Mark R., M.D. (1998)
Affiliate Associate Professor of Communication Sciences and Disorders and Affiliate Professor of Nutritional Sciences; M.D., University of Connecticut, 1978.

Wirth, Clifford J. (1981)
Associate Professor of Political Science; Ph.D., Southern Illinois University at Carbondale, 1976.

Witzling, Mara R. (1977)
Professor of Art History; Ph.D., Cornell University, 1978.

Wolper, Ethel Sara (1996)
Associate Professor of History; Ph.D., University of California at Los Angeles, 1994.

Wong, Edward H. (1978)
Professor of Chemistry; Ph.D., Harvard University, 1975.

Wood, Craig H. (1990)
Associate Professor of Operations Management; Ph.D., Ohio State University, 1991.

Woodward, Robert S. (2001)
Professor of Health Management and Policy; Ph.D., Washington University, 1972.

Woodward, William R. (1975)
Professor of Psychology and Affiliate Professor of History; Ph.D., Yale University, 1975.

Wright, John J. (1970)
Professor of Physics; Ph.D., University of New Hampshire, 1969.

Wright, Steven C. (2002)
Associate Professor of Kinesiology; Ed.D., Boston University, 1992.

Wrighton, J. Mark (2000)
Assistant Professor of Political Science; Ph.D., University of Iowa, 1997.

Wunder, Amanda (2003)
Assistant Professor of History; Ph.D., Princeton University, 2002.

Zercher, Charles K. (1991)
Professor of Chemistry; Ph.D., University of Notre Dame, 1989.

Zhang, Jianqiu (2002)
Assistant Professor of Electrical and Computer Engineering; Ph.D., State University of New York at Stony Brook, 2002.

Zsigray, Robert M. (1970)
Professor of Microbiology and Genetics; Ph.D., Georgetown University, 1969.

Zunz, Sharyn J. (1993)
Associate Professor of Social Work; Ph.D., Fordham University, 1993.

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.

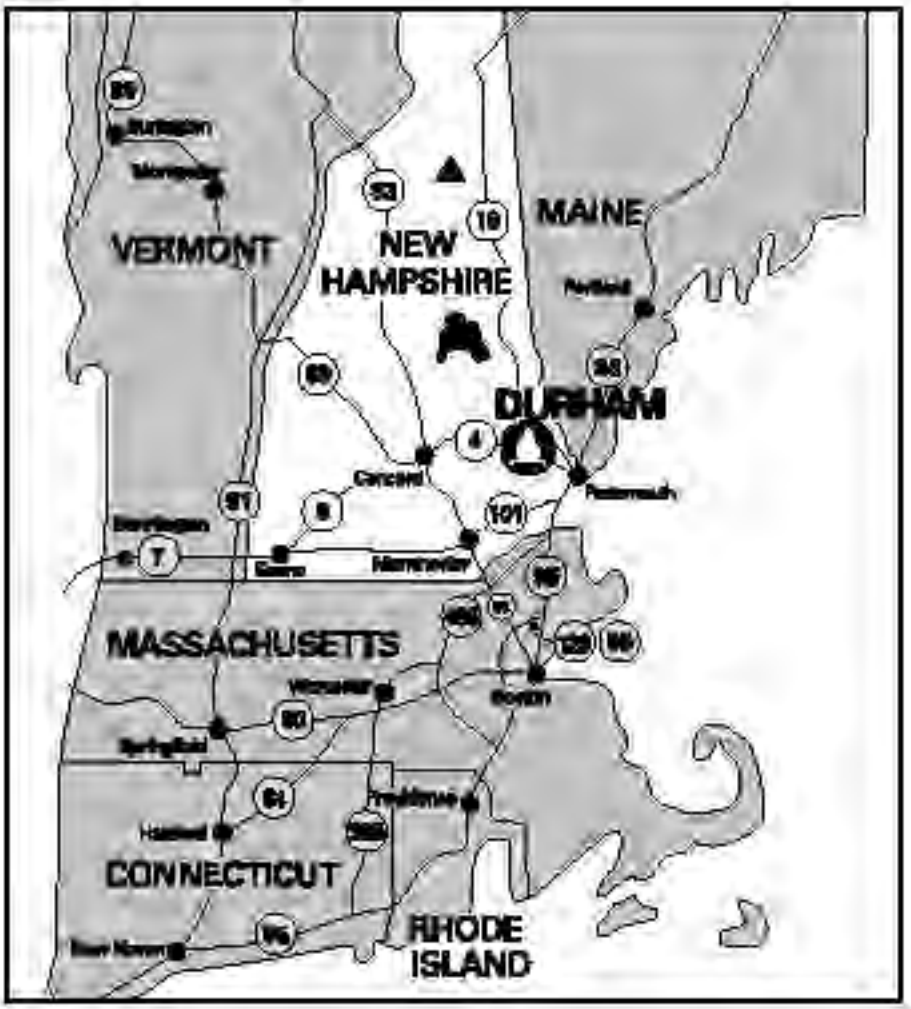
Take I-84/I-86 East out of Hartford to the Mass. Pike (I-90) to Auburn Exit 10 then East on I-290 to I-495 North. Drive east on I-495 North, Exit 26. Continue north on I-95, then follow the directions above for driving from Boston.

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.

By Bus

Depart C & J Trailways Bus Lines from South Station in Boston. For further information call (603) 430-1100 from New Hampshire or (800) 258-7111 outside of New Hampshire. Or visit the Web page at www.cjtrailways.com.

By Train

Amtrak's Downeaster train provides four round trips daily between Portland, Maine, and Boston's North Station. Passenger rail service is available in Durham, N.H., Tuesday through Thursday; otherwise, it stops in nearby Dover, N.H. For further information call 1-800-USA-RAIL, or visit the Web at www.amtrak.com or www.thedowneaster.com.

By Plane

Manchester N.H.

The airport at Manchester, N.H. is approximately 35 miles from Durham.

Flight Line Inc. offers transportation from the Manchester Airport.

Boston, M.A.

Logan International Airport, Boston is approximately 50 miles from Durham.

From Logan International Airport, Boston, you may use the C & J Trailways Airport Bus Service.

Advance reservations are not required. For further information call (603) 742-5111 or, outside New Hampshire, (800) 258-7111. Or visit the Web page at www.cjtrailways.com.

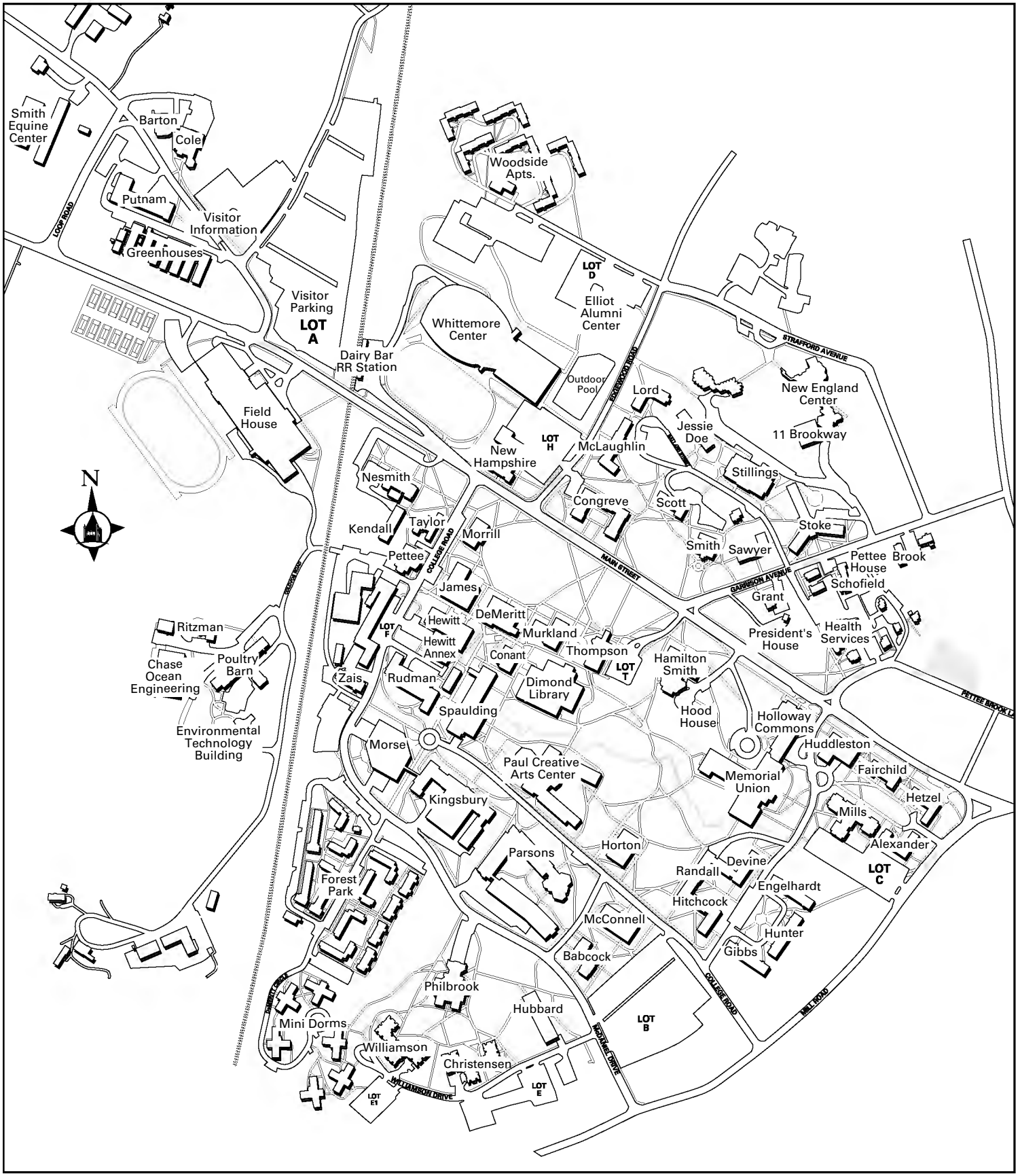
N.H. Flight Line Inc. also offers transportation from Logan Airport.

Call 1-888-942-5044 or visit the Web page at www.flightlineinc.com.

Visit us online!

www.gradschool.unh.edu

Campus Map


Smith Equine Center
Barton
Cole
Putnam
Visitor Information
Greenhouses
LOOP ROAD
Visitor Parking
LOT A
Dairy Bar
RR Station
Field House
Woodside Apts.
Whittemore Center
LOT D
Elliot Alumni Center
Outdoor Pool
EASTWOOD ROAD
STRAFFORD AVENUE
Lord
New England Center
Jessie Doe
11 Brookway
McLaughlin
3RD AVENUE
LOT H
New Hampshire
Stillings
Nesmith
Congreve
Scott
Kendall
Taylor
Morrill
Pettee
COLLEGE ROAD
Stoke
Smith
Sawyer
MAIN STREET
Pettee House
Brook
GARRISON AVENUE
Schofield
Grant
James
Hewitt
DeMeritt
Murkland
Thompson
LOT F
Hewitt Annex
Conant
LOT T
President's House
Health Services
Ritzman
Chase Ocean Engineering
Poultry Barn
Zais
Rudman
Dimond Library
Hamilton Smith
Spaulding
Hood House
Holloway Commons
PETTEE BROOK LA
Environmental Technology Building
Morse
Paul Creative Arts Center
Huddleston
Fairchild
Memorial Union
Hetzel
Kingsbury
Mills
Alexander
Horton
Parsons
Devine
LOT C
Randall
Engelhardt
Forest Park
Hitchcock
McConnell
Hunter
Gibbs
Babcock
Philbrook
Hubbard
LOT B
COLLEGE ROAD
MILL ROAD
Mini Dorms
Williamson
Christensen
WILLIAMSON DRIVE
LOT E1
LOT E
N

Academic Calendars

2003-2004 Academic Calendar

Semester I

Sept. 1, M ..... Labor Day, University Holiday
Sept. 2, Tu ..... Classes begin
Sept. 27, Sat ..... Rosh Hashanah*
Oct. 6, M ..... Yom Kippur*
Oct. 13, M ..... Fall break, no classes
Oct. 17, F ..... Midsemester
Nov. 4, Tu ..... Election day; no exams scheduled
Nov. 11, Tu ..... Veterans Day, University Holiday
Nov. 26, W ..... Classes follow MONDAY schedule
Nov. 27–28, Th–F ..... Thanksgiving Holidays
Dec. 1, M ..... Classes resume
Dec. 12, F ..... Last day of classes
Dec. 15, M ..... Reading Day; Final exams begin 6 p.m.
Dec. 20, Sat ..... Final exams end

Semester II

Jan. 19, M ..... Martin Luther King, Jr. Day, University Holiday
Jan. 20, Tu ..... Classes begin
Mar. 12, F ..... Midsemester
Mar. 15-19, M-F ..... Spring recess
Mar. 22, M ..... Classes resume
Apr. 6, Tu ..... Passover*
Apr. 9, F ..... Good Friday*/Orthodox Good Friday*
May 10, M ..... Last day of classes
May 11-12, Tu-W ..... Reading Days
May 13, Th ..... Final exams begin
May 20, Th ..... Final exams end
May 22, Sat ..... Commencement

2004-2005 Academic Calendar

Semester I

Aug. 30, M ..... Classes begin
Sept. 6, M ..... Labor Day, University Holiday
Sept. 16, Th ..... Rosh Hashanah*
Sept. 25, Sat ..... Yom Kippur*
Oct. 15, F ..... Midsemester, Fall break, no classes
Nov. 2, Tu ..... Election Day, no exams scheduled
Nov. 11, Th ..... Veterans Day, University Holiday
Nov. 23, Tu ..... Classes follow THURSDAY schedule
Nov. 24, W ..... Classes follow FRIDAY schedule
Nov. 25–26, Th–F ..... Thanksgiving Holidays
Nov. 29, M ..... Classes resume
Dec. 10, F ..... Last day of class
Dec. 13, M ..... Reading Day; 6:00 p.m. Final exams begin
Dec. 18, Sat ..... Final exams end

Semester II

Jan. 17, M ..... Martin Luther King Day, University Holiday
Jan. 18, Tu ..... Classes begin
Mar. 11, F ..... Midsemester
Mar. 14–18, M–F ..... Spring recess
Mar. 21, M ..... Classes resume
Mar. 25, F ..... Good Friday*
Apr. 24, Sun ..... Passover*
Apr. 29, F ..... Orthodox Good Friday*
May 9, M ..... Last day of classes
May 10–11, Tu–W ..... Reading Days
May 12, Th ..... Final exams begin
May 19, Th ..... Final exams end
May 21, Sat ..... Commencement

**These holidays, important to many members of the University community, are not University holidays, but they are listed here to facilitate planning of University events.*

Directory

Directory Assistance and Information

University Operators .....(603) 862-1234 (off-campus) Dial 0 (on campus)

University of New Hampshire home page..... www.unh.edu

Other Helpful Numbers

Access Office	V/TTY 862-2607	www.unh.edu/access
Affirmative Action Office	V/TTY 862-2930	www.unh.edu/affirmativeaction
Business Services	862-2230	www.unh.edu/business-services
Campus Recreation	862-2031	http://campusrec.unh.edu
Career Services	862-2010	www.unh.edu/career-services
Center for Graduate and Professional Studies at UNH Manchester	641-4313	www.unhmgrad.unh.edu
Financial Aid Office	862-3600	www.unh.edu/financial-aid
Graduate School	862-3000	www.gradschool.unh.edu
Health Services	862-1530	www.unh.edu/health-services
Housing	862-2120	www.unh.edu/housing
Memorial Union and Information Center	862-2600	www.unhmub.com
Off-Campus Housing	862-3612	www.unhmub.com/housinglist
Office of International Students and Scholars	862-1288	www.unh.edu/oiss
Office of Multicultural Student Affairs	862-2050	www.unh.edu/omsa
Parking	862-1010	www.unh.edu/transportation/parking/index.htm
Registrar's Office	862-1500	www.unh.edu/registrar
Transcripts	862-3787	www.unh.edu/registrar/transcript/transcourinfo.html
UNH at Manchester	641-4321	www.unh.edu/unhm
UNH Bookstore	862-2140	
University Police	862-1427	www.unh.edu/upd/index.html
Veterans Information	862-1595	
Whittemore Center	862-4000	www.whittemorecenter.com
Wildcat Transit bus service	862-2328	www.unh.edu/transportation/wildcat

Programs

Master of Arts
- Counseling
- Economics
- English
  - Language and Linguistics
  - Literature
  - Writing
- Environmental Education
- History
  - Museum Studies
- Music
  - Music Education
  - Music History
- Political Science
- Psychology
- Sociology
- Spanish

Master of Science
- Accounting
- Animal Sciences
- Biochemistry
- Chemical Engineering
- Chemistry
- Civil Engineering
- Communication Sciences and Disorders
- Computer Science
- Earth Sciences
  - Geochemical Systems
  - Geology
  - Ocean Mapping
  - Oceanography
- Electrical Engineering
- Family Studies
  - Marriage and Family Therapy
- Genetics
- Hydrology
- Kinesiology
- Management of Technology
- Materials Science
- Mathematics
  - Applied Mathematics
  - Statistics
- Mechanical Engineering
- Microbiology
- Natural Resources
  - Environmental Conservation
  - Forestry
  - Soil Sciences
  - Water Resources
  - Wildlife
- Nursing
- Nutritional Sciences
- Occupational Therapy
- Ocean Engineering
  - Ocean Mapping
- Physics
- Plant Biology
- Recreation Management and Policy
  - Recreation Administration
  - Therapeutic Recreation Administration
- Resource Administration and Management
- Resource Economics
- Zoology

Master of Arts in Teaching
- Elementary Education
- Secondary Education

Master of Education
- Administration and Supervision
- Counseling
- Early Childhood Education
  - Special Needs
- Elementary Education
- Reading
- Secondary Education
- Special Education
- Teacher Leadership

Master of Science for Teachers
- Chemistry
- College Teaching
- English
- Mathematics

Master of Business Administration

Master of Adult and Occupational Education

Master of Arts in Liberal Studies

Master of Fine Arts
- Painting

Master of Public Administration

Master of Social Work

Certificate of Advanced Graduate Study
- Educational Administration and Supervision

Doctor of Philosophy
- Animal and Nutritional Sciences
- Biochemistry
- Chemistry
- Computer Science
- Earth and Environmental Sciences
  - Geology
  - Oceanography
- Economics
- Education
- Engineering
  - Chemical Engineering
  - Civil Engineering
  - Electrical Engineering
  - Materials Science
  - Mechanical Engineering
  - Ocean Engineering
  - Systems Design
- English
- Genetics
- History
- Literacy and Schooling
- Mathematics
- Mathematics Education
- Microbiology
- Natural Resources and Environmental Studies
- Physics
- Plant Biology
- Psychology
- Sociology
- Zoology

Center for Graduate and Professional Studies at the University of New Hampshire at Manchester

Master of Arts
- Counseling

Master of Arts in Teaching
- Elementary Education
- Secondary Education

Master of Education
- Administration and Supervision
- Counseling
- Elementary Education
- Secondary Education

Master of Business Administration
- Health Management

Master of Public Administration

Master of Public Health
- Ecology
- Nursing
- Policy and Management

Master of Social Work

Certificate of Advanced Graduate Study
- Educational Administration and Supervision

Index

Notes

Notes

Volume XCIII, No. 3, September 2003. The Bulletin of the University of New Hampshire (ISSN 8750-9040) is published four times per year: twice in April, once in September, and once in October, by the Office of University Publications, Schofield House, UNH, 8 Garrison Avenue, Durham, NH 03824-3556. Periodicals postage paid at Durham, NH 03824. Postmaster, send address changes to Bulletin of the University of New Hampshire, Graduate School, Schofield House,UNH, 8 Garrison Avenue, Durham, NH 03824-3556.

This catalog is produced by University Publications for the Graduate School.

Writer/Editors: Carrie Sherman, David Moore

Designer: Bridget Finnegan

Photography: Lisa Nugent, Douglas Prince, Perry Smith, UNH Photo Services

Contributing Writers: Dolores Leonard, Mary Peterson, University Publications; David Sims, EOS; Suki Casanave, Virginia Stuart, UNH Magazine.

Editorial Assistant: Jeanne Willette

The University of New Hampshire is a public institution with a long-standing commitment to equal opportunity for all. It does not discriminate on the basis of race, color, religion, sex, national origin, age, veteran's status, sexual orientation, or disability in admission or access to, or treatment or employment in, its programs or activities. Inquiries regarding discrimination should be directed to Pat Gormley, special assistant to the president for affirmative action, Room 305, Thompson Hall, 105 Main Street, phone (603) 862-2930 (Voice/TDD), fax (603) 862-2936, or to the regional director, Office for Civil Rights, U.S. Department of Education, JW McCormack Post Office and Court House Building, Room 707, 01-0061, Boston, MA 02109-4557.

There are various grievance procedures to provide for the resolution of complaints under this policy. Information may be obtained at the Affirmative Action Office.

The University complies with federal guaranteed student loan regulations and will supply information about the employment of its graduates who have majored in specialized degree programs that normally lead to specific employment fields. This information may be obtained upon request from the University's Career Services, which is available to all students. The University does not guarantee employment to its graduates, but their chances for employment are enhanced if they have begun career planning early in their undergraduate days.

The University provides information pertaining to the Family Educational Rights and Privacy Act of 1974 (the "Buckley Amendment") in the annual student handbook. Information also is available from the Office of the Vice President for Student Affairs and the Office of the Provost and Vice President for Academic Affairs. The annual student publication, Student Rights, Rules, and Responsibilities, also contains University regulations and policies regarding student conduct.

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

All aforementioned publications are available in alternate formats upon request.

Bulletin of the
UNIVERSITY of NEW HAMPSHIRE

Office of University Publications
Schofield House
8 Garrison Ave.
Durham, NH 03824-3556

Periodical Postage Paid
Durham, NH 03824

www.gradschool.unh.edu

Land

Sea

Space