



## Graduate Course Catalog 2011-2012

### Graduate School ▼

» <http://www.gradschool.unh.edu/>

#### Introduction ▼

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. A comprehensive research university, the University of New Hampshire 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 comprises the following academic units: the College of Engineering and Physical Sciences; College of Liberal Arts; College of Life Sciences and Agriculture, which includes the Thompson School of Applied Science; College of Health and Human Services; Whittemore School of Business and Economics; University of New Hampshire at Manchester; University of New Hampshire School of Law in Concord; 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 Granite State College.

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 degree programs of the highest quality to graduate students. Our programs foster a close interdependence between research and classroom teaching. The 600 graduate faculty members and more than 2,300 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 degree 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.

#### Graduate School ▼

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

The Graduate School provides assistance to prospective and current students from the time of 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 (scholarships, fellowships, and travel grants), and availability of University services.

#### Graduate Council ▼

The Graduate Council comprises 12 graduate faculty members and four 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.

## 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 intercollegiate programs that involve faculty and coursework from more than one school or college. Intercollegiate 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.

## UNH Graduate School Manchester Campus ▼

[www.gradschool.unh.edu/manchester](http://www.gradschool.unh.edu/manchester)

The UNH Graduate School Manchester Campus (UNH GSMC) sponsors University programs for working professionals. Our students are an amazing group of motivated, committed individuals that juggle family, career, and community responsibilities, while taking on the rigors of graduate education. The campus is centrally located in Manchester's historic Millyard in the heart of the I-93 corridor.

UNH GSMC offers the expertise of University faculty, modern educational facilities, and a degree from the University of New Hampshire, the state's flagship public university. Our programs are offered in a delivered in a wide variety of evening models including our popular weekend M.S.W. program. Most programs may be completed within two or three years on a part-time basis.

Post-baccalaureate programs for professionals in business administration, counseling, educational administration and supervision, public administration, public health, social work, teacher education, teacher leadership, management of technology, information technology, and software systems engineering.

Our office staff is available to support you in your academic endeavors. We look forward to meeting with you.

## McNair Graduate Opportunity Program ▼

[www.unh.edu/mcnair](http://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 Student Senate ▼

The Graduate Student Senate (GSS) serves to provide a collective voice for the more than 2,400 graduate students who form an integral part of the University community. The GSS 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 Blackboard.

## Communication to Students ▼

**University Communications are sent to students through the following channels:**

### **Webcat**

Students receive billing statements, register, view grades, student accounts, and financial aid awards through Webcat, a part of MyUNH (Blackboard).

### **University E-mail**

Important notifications are sent to students by many departments and offices via a UNH e-mail address that is assigned by the University. Students are responsible for checking this e-mail address on a regular basis.

### **MyUNH (Blackboard)**

Course material and University announcements are available through MyUNH, a student portal system.

### **Mail to permanent address**

Some notifications are sent in the student's name to the permanent mailing address.

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## Graduate Course Catalog 2011-2012

### Graduate School ▼

» <http://www.gradschool.unh.edu/>

#### Master of Arts ▼

[Development Policy and Practice](#)

[Economics](#)

[English](#)

Language and Linguistics

Literature

[Environmental Education](#)

[History](#)

Museum Studies

[Justice Studies](#)

[Music](#)

Music Education

Music Studies

[Political Science](#)

[Sociology](#)

[Spanish](#)

#### Master of Science ▼

[Accounting](#)

[Animal Sciences](#)

[Biochemistry](#)

[Chemical Engineering](#)

[Chemistry](#)

[Civil Engineering](#)

[Communication Sciences and Disorders](#)

Early Childhood Intervention

Language and Literacy Disabilities

[Computer Science](#)

[Earth Sciences](#)

Geology

Ocean Mapping

Oceanography

[Electrical Engineering](#)

[Family Studies](#)

Marriage and Family Therapy

[Genetics](#)

[Hydrology](#)

[Information Technology](#)

[Kinesiology](#)

[Management of Technology](#)

[Materials Science](#)

[Mathematics](#)

Applied Mathematics

Statistics

[Mechanical Engineering](#)

[Microbiology](#)

[Natural Resources](#)

Environmental Conservation

Forestry

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 Liberal Studies ▼

[Liberal Studies](#)

Master of Arts in Teaching ▼

[Elementary Education](#)

[Secondary Education](#)

Master of Business Administration ▼

[Business Administration](#)

Master of Education ▼

[Administration and Supervision](#)

[Counseling](#)

[Early Childhood Education](#)

Special Needs

[Elementary Education](#)

[Reading](#)

[Secondary Education](#)

[Special Education](#)

[Teacher Leadership](#)

Master of Fine Arts ▼

[Painting](#)

[Writing](#)

## Master of Public Administration ▼

[Public Administration](#)

## Master of Public Health ▼

[Public Health](#)

## Master of Science for Teachers ▼

[Chemistry](#)  
[College Teaching](#)  
[English](#)  
[Mathematics](#)

## Master of Social Work ▼

[Social Work](#)

## Education Specialist ▼

[Educational Administration and Supervision](#)

## Doctor of Philosophy ▼

[Animal and Nutritional Sciences](#)  
[Biochemistry](#)  
[Chemical Engineering](#)  
[Chemistry](#)  
Chemistry Education  
[Civil Engineering](#)  
[Computer Science](#)  
[Earth and Environmental Sciences](#)  
[Economics](#)  
[Education](#)  
[Electrical Engineering](#)  
[English](#)  
[Genetics](#)  
[History](#)  
[Materials Science](#)  
[Mathematics](#)  
[Mathematics Education](#)  
[Mechanical Engineering](#)  
[Microbiology](#)  
[Natural Resources and Environmental Studies](#)  
[Ocean Engineering](#)  
[Physics](#)  
[Plant Biology](#)  
[Psychology](#)  
[Sociology](#)  
[Systems Design](#)

[Zoology](#)

## Certificate Programs ▼

[Adapted Physical Education](#)

[Assistive Technology](#)

[Autism Spectrum Disorder](#)

[College Teaching \(Offered Online\)](#)

[Industrial Statistics](#)

[Leadership in Children's Health and Disability](#)

[Mentoring Teachers](#)

[Nursing: Family Practitioner \(Post Masters\)](#)

[Ocean Mapping: Basic and Advanced](#)

[Public Health](#)

[Software Systems Engineering](#)

[Sustainability Politics and Policy](#)

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## Graduate Course Catalog 2011-2012

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» <http://www.gradschool.unh.edu/>

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### Accounting (ACFI) ▼

» <http://www.wsbe.unh.edu/graduate-programs>

» [Click to view course offerings](#)

*This program is offered in Durham.*

#### **Degree Offered: M.S.**

The master of science in accounting offered by the Whittemore School of Business and Economics prepares students to be competitive in a global and rapidly changing business environment. Designed for students with undergraduate degrees in accounting, the graduate program can be completed in one year. Applicants without an undergraduate degree in accounting can still apply but will need additional undergraduate business and accounting courses prior to beginning the graduate program.

Professional accounting associations have consistently stated the need for accountants to hold graduate degrees and most states (including New Hampshire) require (or will soon require) postbaccalaureate coursework as a prerequisite to sitting for the CPA. Upon graduation from the Whittemore School, students are trained and eligible to sit for the CPA exam in any state. The Whittemore School's program strives to ensure that students have range and depth in the field and it emphasizes strong analytical and communication skills as well as fostering awareness of ethical issues. Throughout the program students are required to represent the institution in the corporate community through internships, class projects, field trips, and networking events. The program is designed to allow students to develop the wide range of skills needed to become future leaders in accounting and business.

#### **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 must meet the requirements set by this organization.

Admission to the program is highly selective and limited, so it is in the applicant's best interest to apply early.

#### **Degree Requirements**

Upon admission to the program, applicants are required to complete ten 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.

#### **Prerequisites**

Abbreviation	Course Number	Title
ACFI	621	Intermediate Financial Accounting I
ACFI	622	Intermediate Financial Accounting II
MGT	647	Business Law I
ACFI	723	Advanced Managerial Accounting Concepts and Appl.
ACFI	724	Auditing
ACFI	726	Introduction to Federal Income Taxation

### Fall Semester

Abbreviation	Course Number	Title
ACFI	820	Corporate Taxation
ACFI	844	Topics in Advanced Accounting
ACFI	895	Government and Non-Profit Accounting
ADMN	898	Advanced Topics in Law and Tax
ADMN	898	Fraud Accounting

### Spring Semester

Abbreviation	Course Number	Title
ACFI	890	Accounting Information Systems
ACFI	830	Advanced Auditing
ADMN	898	Business Law II
ACFI	897	Ethics & Professional Practice
ACFI	850	Accounting Theory and Research

### Courses

Abbreviation	Course Number	Title	Credits
ACFI	820	Corporate Taxation	3
ACFI	830	Advanced Auditing	3
ACFI	844	Topics in Advanced Accounting	3
ACFI	850	Accounting Theory and Research	3
ACFI	890	Accounting Information Systems	3
ACFI	895	Governmental and Non-Profit Accounting	3

ACFI	897	Ethics and Professional Practices	3
ACFI	898	Master's Project	3

## Animal and Nutritional Science (ANSC) ▼

» <http://mcbsgrad.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

The Department of Molecular, Cellular, and Biomedical Sciences offers the Ph.D. in animal and nutritional sciences in conjunction with the animal science program in the Department of Biological Sciences.

Information on the Ph.D. program is described below. For information about the master of science programs in nutritional sciences ([www.mcbsgrad.unh.edu](http://www.mcbsgrad.unh.edu)) or animal science ([www.biolsci.unh.edu](http://www.biolsci.unh.edu)), please visit the respective website links.

### Degree Programs Offered: Ph.D.

The Ph.D. degree in animal and nutritional sciences has as its primary research foci the study of biological and nutritional processes that promote animal and human health and disease; and in the case of animal health, its effect on production. Areas of research specialization include human nutrition, mammalian physiology and pathology, nutritional biochemistry and metabolism, and reproduction and endocrinology. 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 Ph.D. program will be expected to present recent (within five years) general Graduate Record Examination (GRE) scores and possess a background in basic sciences appropriate for advanced study in the proposed area of specialization (for example, courses in biology, chemistry, organic chemistry, biochemistry, and physics). 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

#### 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. 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 degree level will design a program of study in conjunction with a faculty guidance committee. The student will advance to candidacy after successful completion of all relevant graduate courses and passing a qualifying examination conducted by the guidance committee, which will contain oral and/or written components at the discretion of the committee members. The "guidance" committee for doctoral students will consist of a minimum of five members, three of whom must be from within Animal and Nutritional Sciences Program and at least one member must be from outside the program. After the student's advancement to candidacy for the Ph.D. degree, a doctoral committee (which can be different from the guidance committee) will be appointed to supervise and approve the dissertation.

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. 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 communication will be developed by presentation of one seminar during each year of enrollment, not including the dissertation defense.

## Courses

## Courses

Abbreviation	Course Number	Title	Credits
ANSC	801	Physiology of Reproduction	4
ANSC	808	Ruminology	2
ANSC	810	Dairy Nutrition	4
ANSC	814	Research Methods in Endocrinology	5
ANSC	815	Physiology of Lactation	4
ANSC	818	Mammalian Physiology	4
ANSC	824	Reproductive Management and Artificial Insemination	4
ANSC	827	Advanced Dairy Management I	4
ANSC	828	Advanced Dairy Management II	4
ANSC	853	Cell Culture	5
ANSC	895	Investigations	1 TO 4
ANSC	899	Master's Thesis	1 TO 6
ANSC	900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1
ANSC	902	Philosophy of Research in the Life Sciences	2
ANSC	909	Contemporary Trends in Reproductive Physiology	4
ANSC	913	Contemporary Topics in Immunobiology	2
ANSC	995	Non-thesis Investigations in Animal Science	1 TO 4
ANSC	999	Doctoral Research	0
BCHM	802	Endocrinology	4
MCBS	901	Introduction to Research in the Life Sciences	2
MCBS	997	Seminar	1
NUTR	825	Metabolic Adaptations to Exercise II	4
NUTR	840	Nutrition for Children with Special Needs	2
NUTR	850	Nutritional Biochemistry	4
NUTR	851	Nutritional Biochemistry of Micronutrients	4
NUTR	855	Treatment of Adult Obesity	4
NUTR	870	Nutrition and Gender-Based Health Concerns	4

NUTR	873	Clinical Nutrition	4
NUTR	880	Critical Issues in Nutrition	4
NUTR	895	Investigations	1 TO 4
NUTR	898	Nutrition Research Experience	4
NUTR	899	Master's Thesis	1 TO 6
NUTR	900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1
NUTR	929	Dietetics: Principles and Practices	4
NUTR	930	Dietetics: Foodservice, Community and Research	4
NUTR	931	Dietetics: Clinical Theory and Practice	4
NUTR	955	Topics in Human Obesity	4
NUTR	995	Non-thesis Investigations	1 TO 4

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^ [back to top](#)

## Animal Science (ANSC) ▼

» <http://www.animalsci.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

The Department of Biological Sciences, [www.biolsci.unh.edu/](http://www.biolsci.unh.edu/), now offers the master of science degree in animal science.

### Degree Programs Offered: M.S.

The graduate program includes the M.S. degree in animal science. Areas of research specialization include dairy cattle nutrition, mammalian physiology and pathology, nutritional biochemistry and metabolism, reproduction and endocrinology. 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. program will be expected to present recent (within five years) general Graduate Record Examination (GRE) scores and possess a background in basic sciences appropriate for advanced study in the proposed area of specialization (for example, courses in biology, chemistry, organic chemistry, biochemistry, and physics).

### Degree Requirements

#### M.S. in Animal Science

Animal science M.S. students must become actively engaged in a research project and gain comprehensive understanding of animal sciences through coursework and research. This degree is for students with a strong background in the basic biology, chemistry, and animal sciences who anticipate a professional career involving research or discovery. This path is appropriate for students who expect to pursue 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 (ANSC 899) are required. No more than 4 credits of investigations (ANSC 995) can apply. 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 consultation with the thesis committee. Candidates will be required to pass an oral examination based on graduate courses and completed thesis.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
ANSC	801	Physiology of Reproduction	4
ANSC	808	Ruminology	2
ANSC	810	Dairy Nutrition	4
ANSC	814	Research Methods in Endocrinology	5
ANSC	815	Physiology of Lactation	4
ANSC	818	Mammalian Physiology	4
ANSC	824	Reproductive Management and Artificial Insemination	4
ANSC	827	Advanced Dairy Management I	4
ANSC	828	Advanced Dairy Management II	4
ANSC	853	Cell Culture	5
ANSC	895	Investigations	1 TO 4
ANSC	899	Master's Thesis	1 TO 6
ANSC	900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1
ANSC	901	Practice of Research in the Life Sciences	2
ANSC	902	Philosophy of Research in the Life Sciences	2
ANSC	909	Contemporary Trends in Reproductive Physiology	4
ANSC	913	Contemporary Topics in Immunobiology	2
ANSC	995	Non-thesis Investigations in Animal Science	1 TO 4
ANSC	999	Doctoral Research	0

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^ [back to top](#)

Biochemistry (BCHM) ▼

» <http://mcbsgrad.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Molecular, Cellular, and Biomedical Sciences offers a five-year BS/MS, a master of science and a doctor of philosophy degrees in biochemistry. Research opportunities are available in the general areas of molecular biology, cellular biology, and biochemistry, with specific research programs in: eukaryotic gene regulation, reproductive physiology, molecular population genetics, macromolecular interactions, cell signaling pathways in cancer and leukemia, evolution of eukaryotic genomes, glycobiology, protein kinases and phosphatases in plant signaling; structure/function relationships in macromolecules, proteomics and epigenomics, DNA repair mechanisms, etiology of vascular disease and sensory transduction. 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. Applicants must submit current scores (within five years) from the general test of the GRE. Applicants from non-English-speaking countries must also provide TOEFL (Test of English as a Foreign Language) scores.

### **Degree Requirements**

#### **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 (6-10 cr.) 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 physical chemistry, and biochemistry will be assessed in the first year. A guidance committee meeting will be held soon after a thesis adviser is identified. 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's degree 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**

The Ph.D. in biochemistry requires the completion of significant, original independent research and preparation of a thesis for submission to the Graduate School. In most cases it is expected that the Ph.D. degree be completed within four to six years of admission to the graduate program.

Credits: Graduate credits are earned for courses numbered 800-999. A minimum of two semesters of Doctoral

Research (BCHM 999) is required. Many Ph.D. candidates enroll in BCHM 851-852 during their first year of study, unless the diagnostic examinations indicate a sufficient undergraduate preparation in general biochemistry.

**Guidance Committee:** During the second semester and after selecting a thesis adviser, and a potential project, the student, in conjunction with the adviser, will choose a Guidance Committee. This committee consists of five faculty members: the adviser (as chairperson), two other members of the biochemistry faculty, and up to two faculty members from outside departments. However, only three members of the Guidance Committee are required for the second-year exam. The committee will meet soon after selection of a thesis project to determine the student's curriculum. Courses required by the Guidance Committee must be taken for credit and completed with a passing grade (at least a B-). Courses recommended by the committee may be audited or taken for credit, but in either case the student is expected to be familiar with the subject matter of these courses. The Guidance Committee will meet each semester thereafter to assess the student's academic and research progress. The Supervisory Committee Nomination Form needs to be completed and submitted to the Graduate School by the end of the first year.

**Doctoral Committee:** The Doctoral Committee is composed of the faculty adviser (as chairperson), two other faculty members in the graduate program in biochemistry, and two faculty members from other departments. In most cases, the Guidance Committee will constitute the Doctoral Committee. The Doctoral Committee evaluates the dissertation and administers the final examination. The Doctoral Committee will meet annually to assess the progress toward completion of the Ph.D. requirements.

**Written Thesis:** The student is required to prepare a written doctoral dissertation for submission to the Doctoral Committee. The dissertation must represent significant and original research written in a clear, comprehensible style. A copy of the complete thesis must be made available to the committee at least two weeks before the date of the final examination. Publication of the dissertation by University Microfilms is required. All costs associated with the preparation and publication of the thesis are the responsibility of the student.

**Final Defense:** An oral examination of the doctoral dissertation consists of two parts: an oral presentation of the research that is open to the public, and an oral defense of the dissertation conducted by the Doctoral Committee. Final approval of the doctoral dissertation will be determined by a majority vote of the Doctoral Committee. The Final Examination must be completed by the date listed in the Graduate School calendar.

### Teaching Requirement

Teaching assignments in the laboratory, in lectures, or in an individual instruction format are an essential part of the graduate 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 Ph.D. student.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
BCHM	802	Endocrinology	4
BCHM	850	Physical Biochemistry	3
BCHM	851	Principles of Biochemistry I	4
BCHM	852	Principles of Biochemistry II	4
BCHM	854	Laboratory in Biochemistry and Molecular Biology of Nucleic Acids	5
BCHM	863	Biochemistry of Cancer	3
BCHM	883	Proteomics for Biological Discoveries	4
BCHM	894	Protein Structure and Function	4

BCHM	895	Investigations	1 TO 4
BCHM	899	Master's Thesis	1 TO 10
BCHM	960	Advanced Topics in Signal Transduction	3
BCHM	999	Doctoral Research	0
MCBS	997	Seminar	1
MCBS	901	Introduction to REsearch in the Life Sciences	2.00
MCBS	905	Contemporary Topics in Molecular, Cellular and Biomedical Sciences	1.00
MCBS	995	Special Topics	1.00 to 4.00
MCBS	996	Special Topics	1.00 to 4.00
BCHM	950	Macromolecular Interactions	3

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## Biological Sciences (BIOL) ▼

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Assistant Professor: Kirk D. Broders, Iago Hale

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## Business Administration (ADMN) ▼

» <http://www.wsbe.unh.edu/graduate-programs>

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This program is offered in Durham and in Manchester through [GSMC](#).

### Degree Offered: M.B.A.

This program is offered in [Durham and Portsmouth](#) as well as [Manchester](#).

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 a weekend curriculum for executive and pre-executive level students. Each format includes a sequence of required courses and opportunities to take electives. Although each program is offered in a unique format, the common purpose is to provide students with a rigorous foundation in business practices through both theoretical and applied learning opportunities. All three M.B.A. models are accredited by the Association to Advance Collegiate Schools of Business (AACSB). In addition, the executive and part-time models are the only AACSB-accredited M.B.A. programs offered in New Hampshire.

### Admission Requirements

The Whittemore School welcomes applicants with an above-average academic 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. Consequently, a portfolio approach to admissions is utilized, in which an applicant's work and military experience along with other indicators of maturity, motivation, and self-discipline are considered in addition to the applicant's test scores and academic record. All applicants to the full-time and part-time programs are required to take the Graduate Management Admission Test (GMAT) unless they hold a prior, relevant graduate level degree (e.g. M.S., M.A., Ph.D., Ed.D, etc.) .

Applicants are expected to have successfully completed one semester of calculus, statistics, or have demonstrated

proficiency in quantitative reasoning. Interested applicants are encouraged to contact Dr. Christine Shea, Associate Dean of Graduate Programs and Research, Whittemore School, 15 Academic Way, Durham, NH 03824-3593.

Each Whittemore School M.B.A. program has a different pricing structure. For current rates and fees, please visit the business services website [www.mba.unh.edu](http://www.mba.unh.edu) (follow the M.B.A. link).

## **Degree Requirements**

### **Full-time M.B.A. Degree Requirements**

The curriculum for the one-year intensive full-time M.B.A. program begins with six weeks of online foundation work during July and August. Students formally begin the classes on campus at the end of August after a three-day orientation program and continue together as a cohort through the academic year. The 48-credit program comprises eleven required courses, a series of three electives, a ten-day international residency; the program culminates with a five-week corporate consulting project. Electives can be taken in such areas as marketing, finance, entrepreneurship, supply chain management, leadership, and general management. Students with less than three years of professional work experience must complete an internship that satisfies one elective course.

### **Part-time M.B.A. Degree Requirements**

Part-time, evening students typically begin the program in the fall term, although a January admission with a reduced course load may be possible. Offered on both the Durham and Manchester campuses, the degree comprise ten required core courses and six electives. Students may petition to waive up to three core courses. A waiver is typically granted if the student possesses a major (five to six courses) in a core area earned within five years of matriculation, e.g., a student with a major in finance may petition to waive the core course in finance. The program is designed to permit students who begin in the fall to complete the degree in two years although a reduced pace is also possible. Specializations are available in the following areas:

#### **Marketing and Supply Chain Management**

This specialization covers such topics as market research and analysis and new product and services development. 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 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 and is 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**

This specialization is designed for the student who 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.

#### **General Management**

Students may elect to take the six electives in fields of their choice. Two of the electives may be completed as independent studies, which allow students to study a unique topic in-depth that is not offered as a traditional course. Additionally, students may petition for approval of two graduate-level courses offered by departments other than the business school and may count them towards the degree.

### **Executive M.B.A. Degree Requirements**

The Executive M.B.A. curriculum is designed to meet the needs of individuals working full-time at the executive or executive level. The curriculum comprises seventeen courses emphasizing general management and provides

broad-based exposure to the functional areas of finance and accounting, human resource, marketing, operations, international business and strategic management. In the second year, all students take a track in International Business and choose between a second track in either Entrepreneurial Venture Creation or Managing Technological Innovation. The Integrative Management Seminar taken each term brings in regional business leaders to discuss current business topics and challenges in a globally networked and competitive world.

The program is offered off site at an executive facility in Portsmouth, New Hampshire, and includes housing and meals to enrich the cohort experience. The nineteen-month program begins in early September with a week in residence spent on orientation activities, team building, networking, and classes. Thereafter, classes are held twice each month in all-day Friday and all-day Saturday sessions. In their second year, students spend two days on Wall Street as part of their required finance course plus ten days in a required "International Residency" that is aligned with the required courses on international business and management. The international business course includes a required ten-day international residence.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
ADMN	823	Topics in Finance	3
ADMN	829	Financial Policy	3
ADMN	830	Investments Analysis	3
ADMN	832	Exploration in Entrepreneurial Management	3
ADMN	834	Private Equity/Venture Capital	3
ADMN	836	Financial Statement Analysis	3
ADMN	840	International Business	3
ADMN	841	International Management	3
ADMN	845	Supply Chain Management	3
ADMN	846	International Financial Management	3
ADMN	848	Law: Use and Application in Business	3
ADMN	852	Marketing Research	3
ADMN	859	Managing Technological Innovations	3
ADMN	865	Total Quality Management	3
ADMN	898	Topics	2 TO 3
ADMN	900	Integrative Management Seminar	0
ADMN	902	MBA Internship	3
ADMN	905	Corporate Consulting Project I	3
ADMN	906	Corporate Consulting Project II	3
ADMN	912	Organizational Behavior	3
ADMN	919	Management Accounting	3
ADMN	920	Financial Accounting	3

ADMN	921	Managerial Accounting	3
ADMN	926	Information Systems and Enterprise Integration	3
ADMN	930	Financial Management	3
ADMN	940	Technology and Operations Management	3
ADMN	950	Managerial Statistics	3
ADMN	952	Organizations, Leadership, and Environments	3
ADMN	953	The Social Power of Leadership in the 21 Century	3
ADMN	955	Quantitative Business Analysis	3
ADMN	956	Managerial Decision Making	3
ADMN	960	Marketing Management	3
ADMN	970	Economics	3
ADMN	982	Strategic Management: Decision Making	3
ADMN	985	Organizational Structure and Environments	3
ADMN	992	Special Projects and Independent Study	1 TO 6

### Registration Policies

M.B.A. courses are primarily intended for matriculated students that have been admitted to the M.B.A. program. Degree-seeking students and MBA alumni may request to register for courses on a space available basis.

Audit - Required M.B.A. core courses cannot accommodate auditors. Degree-seeking students and M.B.A. alumni may request permission from the instructor to audit M.B.A. electives.

### Chemical Engineering (CHE) ▼

» <http://www.unh.edu/chemical-engineering/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Chemical Engineering offers the M.S. degree and the Ph.D. degree in Chemical Engineering. At the M.S. and Ph.D. levels, we offer research opportunities in biofuels, biomedical engineering, biochemical engineering, electrochemical engineering, tissue engineering, advanced materials, reaction engineering, energy, and environmental engineering.

#### M.S. Admission Requirements

An applicant is expected to have completed a baccalaureate degree in chemical engineering. Students with good undergraduate 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. Applicants must submit current scores (within five years) from the general test of the GRE. International students are required to submit TOEFL test scores. IELTS scores are accepted on a case-by-case basis, and students must have a minimum score of 6.5.

### M.S. Degree Requirements

A minimum of 30 credits, which must include Advanced Fluid Mechanics (CHE 913), Heat Transfer (CHE 915), Diffusive Mass Transfer (CHE 916), Advanced Chemical Engineering Thermodynamics (CHE 923), and Advanced Chemical Engineering Kinetics (CHE 932) is required for the master of science in chemical engineering. These five core courses constitute 15 credits. The remaining 9 course credits can be made up of electives offered by the department or by the college. Students take electives after consulting with their adviser. A thesis is required, for which a minimum of 6 credits will be allowed, unless the candidate is specifically exempted by the faculty because of previous research experience.

### Ph.D. Admission Requirements

Students admitted to the Ph.D. program normally have a master's degree in chemical engineering. Exceptional students with a baccalaureate degree in chemical engineering are eligible for admission to the program. To be admitted, students must present evidence that they have a strong foundation in chemical engineering. Applicants must submit current scores (within five years) from the general test of the GRE. International students are required to submit TOEFL test scores. IELTS scores are accepted on a case-by-case basis, and students must have a minimum score of 6.5.

### Ph.D. Degree Requirements

Following entrance into the program, the Ph.D. student's adviser advises the student in outlining his/her program and may specify individual coursework requirements in addition to the required core courses. The core courses are fluid dynamics, mass transfer, heat transfer, thermodynamics, and reaction kinetics. Each doctoral student must complete 39 course credit hours or 11 courses (whichever comes first) beyond the bachelor's degree with five of those courses specified as core at the 900 level. The remaining courses (totaling 24 credits) may be at the 800- or 900-level, and can be 3 or 4 credit courses. Students entering with a master's degree from other universities will be required to take a minimum of 15 credits or five courses at the 800- or 900-level at UNH. These students may be required to take or repeat some or all of the required core courses depending upon their credentials and preparation. This will be determined by the department's Graduate Committee.

The graduate coordinator also conducts an annual in-depth review of the student's progress and, following completion of the student's coursework (the five core courses), administers the written qualifying examination in each of the core courses. All coursework including electives 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.

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. Upon the successful completion of the oral 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.

There is no language requirement.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
CHE	805	Natural and Synthetic Fossil Fuels	4
CHE	809	Fundamentals of Air Pollution and Its Control	4

CHE	812	Introduction to Nuclear Engineering	4
CHE	822	Introduction to Microfluidics	4
CHE	844	Corrosion	4
CHE	852	Process Dynamics and Control	4
CHE	861	Biochemical Engineering	4
CHE	862	Biomedical Engineering	4
CHE	899	Master's Thesis	1 TO 6
CHE	900	Seminar	1
CHE	913	Advanced Fluid Mechanics	3
CHE	915	Heat Transfer	3
CHE	916	Diffusive Mass Transfer	3
CHE	923	Advanced Chemical Engineering Thermodynamics	3
CHE	932	Advanced Chemical Engineering Kinetics	3
CHE	996	Graduate Independent Study	2 TO 4
CHE	999	Doctoral Research	0

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## Chemistry (CHEM) ▼

» <http://www.unh.edu/chemistry/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### 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 a Ph.D. in chemistry option in chemistry education, and the master of science for teachers (M.S.T.).

### 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. International applicants are to submit GRE scores as a part of their admission application. Entering graduate students (except for those desiring the M.S.T. degree) are expected to take proficiency examinations in chemistry to ensure they begin their graduate work at the appropriate level. These examinations will be offered the week prior to the opening of the fall semester during the Department of Chemistry's Graduate Student Orientation week. Applicants for the master of science for teachers program should consult the general regulations of the Graduate School for special admission requirements.

### 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 (6-10 cr.). A minimum of 30 credit hours is required.

### Master of Science for Teachers Degree Requirements

Students wishing to enroll in the master of science for teachers program must meet one of the following admission requirements:

1. education courses sufficient for certification
2. three years' experience in teaching, or
3. current full-time participation in teaching.

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

This 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. Students will also demonstrate to the guidance committee that they have a broad basic knowledge of the field of chemistry: by completing certain fundamental graduate courses; by means of a series of examinations in the major field; and by presenting and defending an original research proposal before the end of the third year. Students who successfully complete these requirements will be advanced to candidacy. The dissertation will be based upon original research. When the dissertation is complete, the candidate will submit it to the student's doctoral committee. A public presentation of the dissertation will be followed by an oral defense of the work by the student's committee.

The Ph.D. degree program now includes an option in chemistry education. Please contact the department for more information.

### 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 degree candidates will obtain some teaching experience during their tenure.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
CHEM	800	Chemistry Teaching Seminar	1

CHEM	808	Spectroscopic Investigations of Organic Molecules	3
CHEM	855	Advanced Organic Chemistry	3
CHEM	862	Instrumental Methods of Chemical Analysis	3
CHEM	874	Inorganic Chemistry	3
CHEM	876	Physical Chemistry III	3
CHEM	895	Special Topics	2 TO 4
CHEM	899	Thesis/Problems	1 TO 10
CHEM	902	Theoretical Organic Chemistry II	3
CHEM	903	Advanced Inorganic Chemistry I	3
CHEM	904	Advanced Inorganic Chemistry II	3
CHEM	905	Advanced Physical Chemistry I	3
CHEM	911	Synthetic Organic Chemistry I	4
CHEM	917	Special Topics in Organic Chemistry	2 TO 4
CHEM	918	Special Topics in Organic Chemistry	2 TO 4
CHEM	926	Physical Chemistry of Solutions	3
CHEM	927	Molecular Reaction Dynamics	3
CHEM	930	Advanced Optical Methods	3
CHEM	933	Chemical Separations	3
CHEM	934	Chemical Equilibria	3
CHEM	935	Electrical Methods of Analysis	3
CHEM	947	Inorganic Biochemistry	3
CHEM	971	Teaching and Learning Chemistry	3 TO 4
CHEM	991	Graduate Presentation Portfolio	1
CHEM	992	Graduate Writing Portfolio	1
CHEM	995	Colloquium	1 TO 4
CHEM	996	Colloquium	1 TO 4
CHEM	997	Seminar	1
CHEM	998	Seminar	1
CHEM	999	Doctoral Research	0

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## Civil Engineering (CIE) ▼

» <http://www.unh.edu/civil-engineering/index.html>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Civil Engineering offers the master's degree in civil engineering and a Ph.D. degree in CIE 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.

## Admission Requirements

An applicant must have completed a baccalaureate science 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. Applicants must submit current scores (within five years) from the general test of the GRE, unless waived by the graduate coordinator (for current UNH undergraduate civil engineering (CIE) or environmental engineering (ENE) majors only).

## Degree Requirements

### M.S. Degree Requirements

All master's degree students must complete a minimum of 31 total credits. 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 28 course credits and a 3-credit project or for structures and geotechnical areas, a minimum of 30 course credits and a 1-credit seminar) option. Up to two senior-level civil engineering courses or 8 credits may be counted toward the master's degree under the dual registration (early admit) program provided the student has been admitted to the Graduate School prior to the course offerings.

**Thesis Option:** A formal oral presentation/thesis defense is required. All thesis option students are eligible for teaching or research assistantships and are required to register for Master's Student Seminar (CIE 900) for one semester, but are required to make two presentations during their programs of study. For graduation, a B average (3.00 GPA) and a successful thesis defense must be achieved.

**Nonthesis Option:** The nonthesis option is designed to facilitate completion of B.S./M.S. civil engineering degrees within five years. A student electing the nonthesis option is required to prepare a research project paper or solve a research problem (for structures and geotechnical areas only) and give a final oral presentation/project or problem defense. Nonthesis option students are not eligible for an assistantship. For graduation, a B average (3.00 GPA) and a successful research project or problem defense must be achieved.

### Ph.D. Degree 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 course credit hours beyond a master's degree.

**Minor Requirements:** An identifiable group of courses (9 credits minimum) in an area outside of the civil engineering department and approved by the guidance committee 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 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. When a student achieves 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. For graduation, a B average (3.00 GPA) and successful dissertation defense must be achieved.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
CIE	821	Pavement Design	3
CIE	822	Properties and Production of Concrete	3
CIE	823	Bituminous Materials and Mixtures	3
CIE	841	Open Channel Flow	3
CIE	842	Solid and Hazardous Waste Engineering	3
CIE	845	Engineering Hydrology	3
CIE	848	Solid and Hazardous Waste Design	4
CIE	849	Water Chemistry	4
CIE	851	Introduction to Sustainable Engineering	3
CIE	854	Transportation Engineering and Planning	3
CIE	855	Design of Pressurized Water Transmission Systems	4
CIE	856	Environmental Engineering Microbiology	4
CIE	857	Coastal Engineering and Processes	3
CIE	858	Stormwater Management Designs	3
CIE	859	Stream Restoration	3
CIE	860	Foundation Design I	4
CIE	861	Foundation Design II	3
CIE	862	Introduction to Geotechnical Earthquake Engineering	3
CIE	863	Geological Engineering	3
CIE	866	Geo-Environmental Engineering	3
CIE	874	Reinforced Concrete Design	4
CIE	876	Structural Design in Masonry	3
CIE	880	Building Information Modeling	3

CIE	882	Timber Design	3
CIE	883	Matrix Structural Analysis and Modeling	3
CIE	887	Dynamics of Structures	3
CIE	888	Master's Project Paper	3
CIE	891	Pre-stressed Concrete	3
CIE	892	LRFD Bridge Design	3
CIE	893	Structural Design in Steel	3
CIE	895	Independent Study	1 TO 4
CIE	896	Special Topics	1 TO 4
CIE	897	Special Topics in Environmental Engineering	1 TO 4
CIE	899	Master's Thesis	1 TO 6
CIE	900	Masters Student Seminar	1
CIE	901	Doctoral Student Seminar	1
CIE	935	Nonlinear Structural Analysis	3
CIE	940	Hydrologic Monitoring	3
CIE	942	River Mechanics	3
CIE	943	Advanced Hazardous Waste and Environmental Sampling and Analysis	4
CIE	944	Advanced Physicochemical Treatment Design	4
CIE	945	Advanced Groundwater Topics	3
CIE	946	Advanced Bioenvironmental Engineering Design	4
CIE	959	Advanced Stream Restoration Topics	3
CIE	960	Advanced Soil Mechanics	4
CIE	961	In Situ Geotechnical Testing	3
CIE	995	Problems	2 TO 4
CIE	999	Doctoral Research	0

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### College Teaching (GRAD) ▼

» [http://www.unh.edu/teaching-excellence/Academic\\_prog\\_in\\_coll\\_teach/index.html](http://www.unh.edu/teaching-excellence/Academic_prog_in_coll_teach/index.html)

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degree Offered: M.S.T., Cognate**

**Note: The Graduate School has suspended admission to the MST in College Teaching as of Spring 2012.**

**Note: The Cognate is still accepting applications from doctoral students at UNH.**

**Certificate Offered: College Teaching (Offered Online)**

## Application Requirements

Test Scores: None

New England Regional: No

Special Application Instructions: This program has been suspended.

The College Teaching Program prepares graduate students for academic teaching positions. Our students are ready to teach in their field or discipline upon completion of program requirements. The transfer and relationship between theory and research and instructional practice is emphasized in all courses.

This is a University-wide program coordinated by the Office of the Dean of the Graduate School and involving the Center for Excellence in Teaching and Learning as well as 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. program as a dual degree or in the cognate program.

## Degree Requirements

### 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 and GRAD 951 Teaching with Writing. 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 institutions, 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. 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. Among the options for completing the field and disciplinary studies requirement are a College Teaching Mentorship (GRAD 952) and the Independent Study in College Teaching (GRAD 995). 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 college teaching programs. In these instances, formal articulation 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.

### **Graduate Certificate in College Teaching (Offered Online)**

The Graduate School, in conjunction with the Center for Teaching Excellence, offers a 12-credit graduate program designed to enhance the effectiveness of college teaching. All classes and courses needed to earn this graduate certificate in college teaching are available electronically. No formal face-to-face classes are required.

Possessing the requisite graduate degree(s), the interest, and the research experience in an academic discipline may no longer be sufficient for success as a college-level professor. Today's faculty members must possess a set of skills and understandings specific to effective teaching in a learner-centered environment: they have to know how students learn, how to design courses to enhance that learning, how to interact effectively with students, and how to assess teaching and learning. This program is designed to help faculty and graduate students learn and sharpen these skills and to broaden their knowledge base in the scholarship of college teaching.

As with UNH's campus-based programs in College Teaching, all courses in the Online Graduate Certificate program are based on the latest research and scholarship in the field of college teaching. The curriculum offers a rich blend of teaching and learning theory, a comprehensive overview of the current best teaching practices in higher education, and practical strategies for applying what is learned.

Two tracks are available--a track for experienced college and university faculty and a track for individuals preparing for an academic career, such as doctoral and postdoctoral students. For more information please visit the [College Teaching website](http://www.unh.edu/teaching-excellence/gradcertif/index.html) (<http://www.unh.edu/teaching-excellence/gradcertif/index.html>) or contact [Michael Lee](#) at (603) 862-0233.

### **Applying**

Please visit the [Graduate School PBACC site](http://www.gradschool.unh.edu/pbacc.html) (<http://www.gradschool.unh.edu/pbacc.html>) for detailed instructions about applying to the certificate program.

### **Certificate Requirements**

A total of 12 graduate credits are required. Five 2-credit courses are used to develop core competencies; all students then complete a capstone experience for an additional 2 credits.

#### **Required Core Courses (10 credits)**

Select one of the following two courses:

GRAD 940 Foundations in College Teaching (2 cr.) or

GRAD 980 Preparing to Teach a Course in Psychology (2 cr.)

Complete all of the following courses:

GRAD 941 Teaching Methods in Higher Education (2 cr.)

GRAD 961 Cognition, Teaching, and Learning (2 cr.)

GRAD 962 Academic Citizenship (2 cr.) *Note:* GRAD 942 The Role of the College Professor can be substituted for GRAD 962.

GRAD 965 Classroom Research and Assessment Methods (2 cr.)

Capstone Experience. Select one of the following options::

**GRAD 945 Advanced Seminar in College Teaching**

Capstone course for experienced faculty. The development and review of a course portfolio that demonstrates the knowledge and use of best teaching practices. Includes a formal examination on the scholarship of teaching. (2 cr.)

**GRAD 990 College Teaching Praxis (for doctoral and post-doctoral students )**

Formal experience in teaching a college-level course. Development of a teaching portfolio. (2 cr.)

Doctoral students in **psychology** should note that UNH has led national efforts in the Preparing Future Faculty (PFF) initiative sponsored by the American Psychological Association. We have developed and field-tested a specific introductory course--Preparing to Teach a Course in Psychology (GRAD 980). This course can be substituted for Foundations in College Teaching (GRAD 940). Psychology doctoral students interested in obtaining the UNH graduate certificate in college teaching complete GRAD 980, GRAD 941, GRAD 942, GRAD 961, and GRAD 965 (for course descriptions click <http://www.unh.edu/teaching-excellence/gradcertif/REOs.htm>). They then complete GRAD 990 as their capstone.

## Courses

## Courses

Abbreviation	Course Number	Title	Credits
GRAD	800	Continuing Enrollment	0
GRAD	885	Graduate Foreign Exchange	1 TO 9
GRAD	890	UNH Law Exchange	1 TO 3
GRAD	900	Master's Continuing Research	0
GRAD	920	Qualitative Institute	2
GRAD	930	Ethics in Research and Scholarship	2 OR 3
GRAD	940	Foundations in College Teaching	2
GRAD	941	Teaching Methods in Higher Education	2
GRAD	945	Advanced Seminar in College Teaching	2
GRAD	950	Issues in College Teaching	2
GRAD	951	Teaching with Writing	2
GRAD	952	College Teaching Mentorship	1 TO 2
GRAD	959	Advanced Issues in College Teaching	1
GRAD	961	Cognition, Teaching, and Learning	2
GRAD	962	Academic Citizenship	2
GRAD	963	College Students and the Undergraduate Culture	2
GRAD	965	Classroom Research and Assessment Methods	2

GRAD	970	Special Topics in College Teaching	2 TO 4
GRAD	971	Teaching and Learning in Science	3 TO 4
GRAD	980	Preparing to Teach a Psychology Course	2
GRAD	990	College Teaching Praxis	3 TO 4
GRAD	995	Independent Study	1 TO 4

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## Communication Sciences and Disorders (COMM) ▼

» <http://www.chhs.unh.edu/csd>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### 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. The program offers a master of science degree program in communications sciences and disorders. Students can elect to self-design their program, choosing from an array of required and elective courses that best suit their career objectives. This is referred to as the "no option" concentration. Two additional options, language/literacy disabilities and early childhood are available to those students seeking particular expertise in one of these areas. Irrespective of which of the three options students select, the program of study will prepare them to treat the full range of communication disabilities across the life span.

Faculty and students are actively engaged in research activities. Their projects include examinations of the efficacy of language intervention for adults with aphasia, management of motor speech deficits, functional outcomes of augmentative and alternative communication, role of communication in fostering inclusive education, relationships between language and literacy, and ways of enhancing the process of clinical supervision.

### Admission Requirements

The Department of Communications Sciences and Disorders offers a 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 524, Clinical Phonetics; COMM 704, Basic Audiology; COMM 777, Speech and Hearing Science; and KIN 706, Neurology. In addition, a course in statistics is required. Students are also required to have accumulated knowledge in typical human development, cultural diversity, and both biological and physical sciences 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 will complete the above prerequisites prior to, or concurrent with, graduate courses. Acceptance to the communications sciences and disorders program is based primarily on grade-point average, GRE scores, and written statement. Applicants must submit current scores (within five years) from the general test of the GRE. Generally, students must have earned a minimum grade-point average of 3.20 to be considered for admission. Letters of recommendation are considered, particularly for the awarding of scholarships, assistantships, and other sources of support.

### Degree Requirements

#### M.S. Degree Requirements

Three options are offered: no option, option in language/literacy disabilities, and option in early childhood (minimum 59 credits). The following core courses are required of all students: COMM 876 , Ethics/Professional Issues in Speech Language Pathology , 2 cr.; COMM 880, Diagnosis of Speech and Language Disorders, 3 cr.; COMM 890, Advanced Audiology for Speech-Language Pathologists; COMM 903, Therapy Process, 2 cr.; COMM 915, Counseling Clients and Families with Communications Disorders, 2 cr.; COMM 910, On-Campus Clinical Practicum, 3 cr.; COMM 911, Off-Campus Clinical Practicum, 6 cr. Students are also required to take a course in research methods approved by the department.

### **No Option**

In addition to the core courses listed above, students enrolling in the master of science degree program (no option) will take the following required courses:

COMM 900 Phonological Disorders in Children 3 cr.  
 COMM 901 Dysphagia 3 cr.  
 COMM 902 Stuttering 3 cr.  
 COMM 905 Motor Speech Disorders 3 cr.  
 COMM 906 Voice Disorders 2 cr.

Students will select 6 of the following courses:

COMM 875 Advanced Language Acquisition 3 cr.  
 COMM 904 Aphasia in Adults 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 912 Language Disorders Birth to Five 3 cr.  
 COMM 913 Cognitive Communication Disorders 3 cr.  
 COMM 914 Augmentative and Alternative Communication 3 cr.  
 COMM 916 Autism Spectrum Disorders 3 cr.

Other approved courses outside the Department

### **Option in Language Literacy Disabilities**

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

COMM 875 Advanced Language Acquisition 3 cr.  
 COMM 900 Phonological Disorders in Children 3 cr.  
 COMM 901 Dysphagia 3 cr.  
 COMM 902 Stuttering 3 cr.  
 COMM 905 Motor Speech Disorders 3 cr.  
 COMM 906 Voice Disorders 2 cr.  
 COMM 908 Disorders of Language and Literacy I 3 cr.  
 COMM 909 Disorders of Language and Literacy II 3 cr.  
 COMM 912 Language Disorders Birth to Five 3 cr.

Students will also take three elective courses from the following:

COMM 904 Aphasia in Adults 3 cr.  
 COMM 907 Advanced Seminar in Aural Rehabilitation 3 cr.  
 EDUC 907 Foundations of Literacy Instruction 4 cr.  
 COMM 913 Cognitive Communication 3 to 4 cr.  
 COMM 914 Augmentative and Alternative Communication 3 to 4 cr.  
 COMM 916 Autism Spectrum Disorders) 3 cr.

Other approved courses outside the Department

### Option in Early Childhood

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

- COMM 900 Articulation and Phonological Disorders in Children 3 cr.
- COMM 901 Dysphagia 3 cr.
- COMM 902 Stuttering 3 cr.
- COMM 905 Motor Speech Disorders 3 cr.
- COMM 906 Voice Disorders 2 cr.
- COMM 908 Language/Literacy Disorders I 3 cr.
- COMM 912 Language Disorders in Early Childhood 0-5 yr. 3 cr.
- COMM 916 Autism Spectrum Disorders) 3 cr.
- EDUC 949 Supporting Families of Students with Special Needs 4 cr.

Students will take two of the following courses:

- COMM 904 Aphasia in Adults 3 cr.
- COMM 907 Advanced Seminar in Aural Rehabilitation 3 cr.
- COMM 909 Language/Literacy Disorders II 3 cr.
- COMM 913 Cognitive Communication Disorders 3 cr.
- COMM 914 Augmentative/Alternative Communication 3 cr.
- COMM 941 Diversity and Child Development 4 cr.
- HHS 898 Neurodevelopmental and Related Disorders 1 to 8 cr.

Other approved courses outside the Department

### Clinical Practicum

Students will select clinical practicum experiences according to the desired option to develop practical skills in that area of interest. The number of hours needed by students may vary depending on previous undergraduate experiences. All students are required to complete two on-campus (total of 3 credits) and two off-campus (total of 6 credits) clinical practicum rotations.

Clinical practicum experiences are scheduled only in sites that are approved by the department. Students are responsible for meeting the health and criminal record clearances established by their practicum sites. In addition, students are responsible for transportation to off-campus clinical practicum sites and other community learning experiences and must purchase liability insurance. Practicum sites may require proof of immunization such as poliomyelitis, rubella, and hepatitis; and a physical examination, including tuberculin test as well as health insurance.

### Concluding Experience

Students must elect a comprehensive examination or thesis as a concluding experience.

**Comprehensive Examination (non-thesis):** All students except those writing a thesis must pass a written comprehensive examination designed to assess their mastery of the professional concepts of communication sciences and disorders in the area of normative processes, pathologies, and remediation. Performance is evaluated by all graduate faculty.

**Thesis:** Students may choose to conduct thesis research. Upon completion of the thesis, students must defend the project 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 COMM 899.

### Courses

Abbreviation	Course Number	Title	Credits
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COMM	825	Cued Speech	3
COMM	875	Advanced Language Acquisition	3
COMM	876	Ethical and Professional Issues in Communication Sciences and Disorders I	2
COMM	880	Diagnosis of Speech and Language Disorders	3
COMM	890	Advanced Audiology for Speech-Language Pathologists	3
COMM	895	Special Topics	1 TO 3
COMM	899	Master's Thesis	1 TO 6
COMM	900	Articulatory and Phonological Disorders in Children	3
COMM	901	Dysphagia	3
COMM	902	Stuttering	3
COMM	903	Therapy Process	2
COMM	904	Aphasia in Adults	3
COMM	905	Motor Speech Disorders	3
COMM	906	Voice Disorders	2
COMM	907	Advanced Seminar in Aural Rehabilitation	3
COMM	908	Disorders of Language and Literacy I	3
COMM	909	Disorders of Language and Literacy II	3
COMM	910	On-Campus Clinical Practicum	1 TO 3
COMM	911	Off-Campus Clinical Practicum	1 TO 4
COMM	912	Language Disorders Birth to Five	3
COMM	913	Cognitive Communication Disorders	3
COMM	914	Augmentative and Alternative Communication	3 TO 4
COMM	915	Counseling Clients and Families with Communication Disorders	2
COMM	916	Autism Spectrum Disorders	3
COMM	917	Research Mthds Comm Sci Dis	3
COMM	920	Graduate Seminar	1 TO 6

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## Computer Science (CS) ▼

» <http://www.cs.unh.edu>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Computer Science offers both the M.S. and the Ph.D. in computer science. A major emphasis of our graduate program 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.

### **Certificate Offered: Software Systems Engineering**

The department also offers a graduate certificate in software systems engineering. This four-course program is designed to help software engineers transition to the position of software systems engineer.

Software systems engineers, also known as software architects, chief engineers, or technical directors, are the people who must make the tough decisions for their companies concerning architecture, performance, availability, security, and safety. The certificate program consists of CS 818 and three elective courses. For more information about the program, see <http://www.cs.unh.edu/certificate.htm>.

### **Admission Requirements**

The computer science graduate program is geared toward students with a B.S. degree in computer science. Students with undergraduate degrees in other fields are invited to apply, but if accepted into the program, they will be required to satisfy courses equivalent to those listed below. If a student is only missing a small number of the prerequisites, it may be possible to be accepted into the graduate program on the condition that the remaining prerequisites are completed at UNH. Applicants must submit current scores (within five years) from the general test of the GRE.

For students without a B.S. degree in computer science, the minimal formal coursework includes an introduction to computer science, object-oriented programming, data structures, operating systems, and computer science theory.

These prerequisites can be satisfied at UNH by the following undergraduate courses:

- CS 415 Introduction to Computer Science I
- CS 416 Introduction to Computer Science II
- CS 515 Data Structures
- CS 520 Assembly Language Programming and Machine Organization
- CS 620 Operating System Fundamentals
- CS 659 Introduction to the Theory of Computation

Some students may need to take additional mathematics classes.

Although the master's program is normally a two-year program, someone admitted with just this minimal background should anticipate taking two-and-a-half to three years to complete the degree. Students without a B.S. or M.S. in computer science are not normally admitted directly into the Ph.D. program, but it is possible to transfer from the M.S. program to the Ph.D. program.

### **Degree Requirements**

#### **M.S. Degree Requirements**

The M.S. program has three options: thesis, project, and exam.

#### **M.S. Thesis Option**

1. CS 900, Computer Science Seminar.

2. Eight CS graduate courses of at least 3 credits each.
  - a. Two must be implementation intensive (see list below).
  - b. Three courses must be chosen from three different breadth groups (see list below).
  - c. At least two courses must be above 900.
3. Thesis (6 credits). The student must complete a thesis under the supervision of a thesis adviser and a thesis committee of at least three members.

### **M.S. Project Option**

1. CS 900, Computer Science Seminar.
2. Ten CS graduate courses of at least 3 credits each.
  - a. Two must be implementation intensive (see list below).
  - b. Four courses must be chosen from four different breadth groups (see list below).
  - c. At least three courses must be above 900; one of these must be related to the project area.
3. Project (3 credits). The student must complete a project under the supervision of a faculty adviser.

### **M.S. Exam Option**

1. CS 900, Computer Science Seminar.
2. Ten CS graduate courses of at least 3 credits each.
  - a. Two must be implementation intensive (see list below).
  - b. Four courses must be chosen from four different breadth groups (see list below).
  - c. At least three courses must be above 900.
3. Comprehensive exam that includes four different examination topics (see list below).

One topic must be selected from one of the topics in the Theory breadth group (see list below); the other three topics must be selected from three different breadth groups (which can include a second theory topic).

### **Ph.D. Degree Requirements**

1. CS 900, Computer Science Seminar.
2. Seven CS graduate courses (3 credits or more) beyond the M.S. or fifteen CS graduate courses beyond the B.S.
  - a. Two must be implementation intensive (see list below).
  - b. A minimum of four courses must be chosen from four different course breadth groups (see list below).
3. Breadth examination that includes four different examination topics (see list below): one topic must be selected from the theory group; the other three topics must be selected from three different groups.
4. Research tool. A research tool represents knowledge and skills in another discipline that can help the student carry out his or her research plan. This is typically satisfied by taking a noncomputer science graduate level course.
5. Depth requirement. Under the direction of a depth adviser and a depth committee, the student carries out some preliminary research that is likely to lead to a dissertation topic. The student must produce two written reports (a literature survey and a research report) and make a presentation as part of an oral examination on the material.
6. Dissertation. The student must complete original research and present and defend a dissertation describing that research. The research is carried out under the supervision of a faculty member dissertation adviser and a dissertation committee of at least five members, including one from outside the department.

### **Implementation Intensive Courses**

Implementation intensive courses include: CS 812, 820, 830, 835, and 870.

### Examination Topic Groups

The list below identifies the six topic groups used for both the M.S. comprehensive exam and the Ph.D. breadth exam.

#### Group: Exam Topics

1. Theory: Formal Specification and Verification
2. Systems: Operating Systems, Computer Networks
3. Compiler and Language: Compilers
4. Database: Database
5. Artificial Intelligence: Artificial Intelligence
6. Interactive Systems: Graphics

#### Breadth Course Groups\*

The list below identifies the seven breadth course groups and introductory (800-level) graduate courses in each group. It is also acceptable to satisfy a group requirement by taking an advanced course (900-level) in the specified area. (Note that there are courses in the curriculum that are not in any of the identified groups.)

\*Not all breadth courses form the basis for exam topics. There are no exams in the following courses: CS 818, 819, 820, 821, 823, 851, 852, 853, 858, 860, 867 and 871.

#### Group: Introductory Course

1. Theory: CS 845, 858
2. Systems: CS 820, 821, 823, 825
3. Compiler and Language: CS 812, 835, 871
4. Database: CS 875
5. Artificial Intelligence: CS 830
6. Interactive Systems: CS 860, 867, 870
7. Software Engineering: CS 818, 819, 851, 852, 853

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
CS	800	Internship	1
CS	812	Compiler Design	3
CS	818	Software Systems Engineering Process	3
CS	819	Object-Oriented Design	3
CS	820	Operating System Programming	3

CS	821	Operating System Kernel Design	3
CS	823	Performance Evaluation of Computer Systems	3
CS	825	Computer Networks	3
CS	830	Introduction to Artificial Intelligence	3
CS	835	Introduction to Parallel and Distributed Programming	3
CS	845	Formal Specification and Verification of Software Systems	3
CS	851	System Requirements Engineering	3
CS	852	Software Architecture Concepts	3
CS	853	Software Project Management	3
CS	858	Algorithms	3
CS	859	Theory of Computation	3
CS	860	Introduction to Human-Computer Interaction	3
CS	867	Interactive Data Visualization	3
CS	870	Computer Graphics	3
CS	871	Web Programming Paradigms	3
CS	875	Database Systems	3
CS	880	Topics	1 TO 4
CS	898	Master's Project	3
CS	899	Master's Thesis	1 TO 6
CS	900	Graduate Seminar	1
CS	920	Advanced Operating Systems	3
CS	925	Advanced Computer Networks	3
CS	931	Combinatorial Search and Heuristic Optimization	3
CS	975	Object-Oriented Database Systems	3
CS	980	Advanced Topics	3
CS	981	Advanced Topics in Database Systems	3
CS	986	Advanced Topics in Formal Specification and Verification	3
CS	988	Advanced Topics in Computer Graphics	3
CS	989	Advanced Topics in Algorithms	3
CS	998	Independent Study	1 TO 6
CS	999	Doctoral Research	0

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Development Policy and Practice (DPP) ▼

» <http://www.unh.edu/madpp/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **Degree Offered: M.A.**

The master of arts in development policy and practice (MADPP) is a 14-month program that prepares individuals for advanced policy- and practice-oriented work in sustainable development by offering an integrated conceptual framework guiding the coursework, high-level tools, and the best thinking in the field. Students are early- and mid-career adults working in a variety of development fields and, in particular, those from public agencies and international and domestic nongovernmental organizations (NGOs). Applicants to the program come from both international and domestic organizations and work in areas ranging from public policy, planning, economic development, and sustainable development to environmental policy, public health, education, microenterprise, and more.

A unique feature of this program is that students can continue working while earning their degree. The four-term program includes two intensive summer sessions and two semesters of online work. This meets the practical needs of both students and their employers, enabling participants to join an exciting advanced degree program that will enhance their performance and their commitment to work. Students will gain an array of skills that will help them more effectively meet the challenges in their development sectors. They will also develop a network of peers and advisers to continue to inform and inspire them.

### **Admission Requirements**

Students are expected to have completed an undergraduate degree (B.A., B.S., or equivalent) from an accredited university before applying.

TOEFL scores are required if English is not your first language. GRE are accepted but not required.

All applicants must submit the following materials to be considered for admission: application form, letters of recommendation, resume, personal statement, and official transcripts. More specific information can be found on the [MADPP](#) website.

All application materials must be submitted electronically to the UNH Graduate School. Application materials as well as more specific details regarding the application process, including deadlines, are available at the [UNH Graduate School](#) website. Please note that the program has only one start date each year and that is in May.

### **Degree Requirements**

Students must complete 39 credits, including the four-term project requirement with a GPA of 3.0 or higher.

### **Course of Study**

The curriculum is a series of courses designed to help students develop and strengthen interdisciplinary breadth and communication and to build program identity and a sense of community. Please note that courses offered in semesters 1 and 4 are offered in person on the UNH campus in Durham, N.H., during two consecutive summers. Courses offered in semesters 2 and 3 (when students are in their home communities) are offered online.

**Term 1: 12-15 credits** (May 23 – July 1, 2011, on campus in Durham, N.H.)

MADPP Program Orientation

901, Integrative Approaches to Development Policy and Practice (3 credits)

980, Project Design (3 credits)

902, Economics Analysis for Development (3 credits)

903, Global Health (3 credits)

Elective (3 credits) (includes opportunity to take Sustainable Microenterprise and Development Program for credit)

**Term 2: 6 credits** (September – December 2011, online in home community)

- 981, Project Implementation (3 credits )
- 904, Environmental Sustainability and Development (3 credits)

**Term 3: 6 credits** (January – April 2011, online in home community)

- 982, Project Management (3 credits )
- 905, Fiscal Management for Development Organizations (3 credits)

**Term 4: 12-15 credits** (May 21 – June 29, 2012, on campus in Durham, N.H.)

- 983, Project Monitoring and Evaluation (3 credits)
- 906, Leadership, Collaboration, and Communication (3 credits)
- 907, Sustainable Engineering for Development Practice (3 credits)
- 908, Policy Seminar (3 credits)
- Elective (3 credits) (This includes opportunity to take Sustainable Microenterprise and Development Program for credit.)

**Total credits required for graduation: 39 credits**

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## Earth Sciences (ESCI) ▼

» <http://www.unh.edu/esci/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **Degree Offered: M.S.**

The Department of Earth Sciences offers the master of science degree 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.

**The geology option** is intended for students with interests in petrology, mineralogy, structural geology, tectonics, geophysics, sedimentation, glacial geology, paleoclimates, glaciology, hydrogeology, stratigraphy, paleontology, low- or high-temperature geochemistry, and isotope geochemistry.

**The oceanography option** is intended for students with interests in chemical, geological, or physical oceanography, including paleoceanography.

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

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

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

**Note:** The Ph.D. in Earth and environmental science is offered as part of the interdisciplinary and intercollege Natural Resources and Earth Systems Science (NRESS) program. Earth sciences faculty at UNH are active participants in this program. All Earth sciences emphases available in the Department of Earth Sciences Masters Program (see above) are also available in the NRESS Ph.D. program. Please see the program information under the NRESS program for further details.

### **Admission Requirements**

An applicant to the M.S. program is expected to have completed one year of calculus and at least four semesters of college chemistry, physics, and/or biology; and to have an undergraduate degree or equivalent in geology, chemistry,

physics, mathematics, engineering, or the biological sciences. Applicants must submit current scores (within five years) from the general test of the GRE. 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 a student wishes to follow and the student's undergraduate major determine 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.

### 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 include 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 at least three courses from 825, Igneous Petrology; 826, Metamorphic Petrology; 834, Applied Geophysics; 841, Geochemistry; 845, Isotope Geochemistry; 854, Sedimentology; 859, Geological Oceanography; and 862, Glacial Geology. Students are also required to take 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 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, Fundamentals of Ocean Mapping; 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, Data Analysis in Earth System Science; EOS/NR 844, Biogeochemistry; ESCI/EOS 815, Global Atmospheric Chemistry; ESCI 845, Isotope Geochemistry; 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 options listed 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 (e.g., natural resources, civil engineering, chemistry, zoology). More detailed information is available from the department.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
ESCI	805	Principles of Hydrology	4
ESCI	810	Groundwater Hydrology	4

ESCI	815	Global Atmospheric Chemistry	3
ESCI	817	Macro-scale Hydrology I	3
ESCI	818	Macro-scale Hydrology II	3
ESCI	826	Metamorphic Petrology	4
ESCI	834	Geophysics	4
ESCI	841	Geochemistry	4
ESCI	845	Isotope Geochemistry	4
ESCI	847	Aqueous Geochemistry	4
ESCI	850	Biological Oceanography	4
ESCI	852	Chemical Oceanography	3
ESCI	854	Sedimentology	4
ESCI	856	Geotectonics	3
ESCI	858	Introduction to Physical Oceanography	3
ESCI	859	Geological Oceanography	4
ESCI	862	Glacial Geology	4
ESCI	864	Data Analysis in Earth System Science	4
ESCI	865	Paleoclimatology	3
ESCI	866	Volcanology	4
ESCI	870	Fundamentals of Ocean Mapping	4
ESCI	871	Geodesy and Positioning for Ocean Mapping	4
ESCI	895	Topics	1 TO 4
ESCI	896	Topics	1 TO 4
ESCI	897	Colloquium	0
ESCI	898	Directed Research	2
ESCI	899	Master's Thesis	1 TO 6
ESCI	903	Groundwater Modeling	3
ESCI	972	Hydrographic Field Course	4
ESCI	973	Seafloor Characterization	3
ESCI	993	Advanced Seminar	1
ESCI	994	Advanced Seminar	1
ESCI	995	Advanced Topics	1 TO 4
ESCI	996	Advanced Topics	1 TO 4
ESCI	997	Seminar in Earth Sciences	1
ESCI	998	Proposal Development	1
ESCI	999	Doctoral Research	0

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## Earth, Oceans, and Space (EOS) ▼

» <http://www.eos.sr.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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. programs in Earth sciences, the specialization in space physics and astrophysics (M.S. and Ph.D.), and 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 and 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

### Courses

Abbreviation	Course Number	Title	Credits
EOS	812	Introduction to Space Plasma Physics	4
EOS	815	Global Atmospheric Chemistry	3
EOS	817	Macro-Scale Hydrology I	3
EOS	818	Macro-Scale Hydrology II	3
EOS	844	Biogeochemistry	4
EOS	850	Biological Oceanography	4
EOS	864	Data Analysis in Earth System Science	4
EOS	867	Earth System Science	4
EOS	895	Topics	1 TO 4
EOS	896	Topics	1 TO 4
EOS	901	Seminar	1
EOS	954	Heliospheric Physics	3
EOS	988	High Energy Astrophysics	3
EOS	995	Special Topics	1 TO 4
EOS	996	Special Topics	3 TO 4

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^ [back to top](#)

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## Economics (ECON) ▼

» <http://www.wsbe.unh.edu/graduate-programs>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

Programs are offered through the Whittemore School of Business and Economics.

Students seek graduate training in economics for several reasons. Some pursue the M.A. as a terminal degree and become professional economists employed in a variety of business and government settings, including banking, investment, insurance, consulting, the Federal Reserve, and international organizations such as the World Bank and the World Health Organization. Other students may wish to become professional economists who advance to the very highest levels of management in business, government, or academia. Students with these career goals continue their graduate studies by earning the Ph.D. degree.

The graduate programs in economics at UNH are some of the most distinctive in the country. The M.A. program is based on a fast-track, ten-month calendar that provides rigorous training in economic theory and applied statistics. It also allows students to pursue applied coursework in international finance, environmental and resource economics, health economics, data analysis and information management, and international business. The doctoral program at UNH is one of only a few with a dual emphasis on training first-rate economists and outstanding college teachers. Students learn economic theory and econometrics at the highest level and can pursue coursework and receive supervised training in the teaching of economics. Beyond its strengths in the fields of international economics, health economics, and environmental economics, the department is known for its emphasis on the history of economic thought and methodology. The Department of Economics maintains an active and high-quality weekly research seminar, which attracts leading economists and researchers from around the country.

### **Admission Requirements**

In addition to requirements established by the Graduate School, applicants must submit current scores (within five years) from the general test of the Graduate Record Exam (GRE). The graduate programs seek students whose undergraduate experiences provide evidence of superior ability and that indicate the promise of independent scholarship. At a minimum, undergraduate preparation should include courses in economics at the intermediate level, as well as courses in calculus and statistics. Because the first year of the M.A. and Ph.D. programs overlap to a large extent, students who wish to pursue a Ph.D. degree are usually considered initially for admissions into the M.A. program. The doctoral program requires a master's degree in economics.

### **Master of Arts in Economics**

The M.A. program in economics builds on the core economic theory and econometrics classes from the Ph.D. program. Many other schools offer stand-alone M.A. programs whose core consists of little more than advanced undergraduate classes. At UNH, graduate economics is taught on an entirely different level. Consequently, our master's students are exceptionally well trained.

The fast-track, ten-month program is based on four terms, one five-week term (Term 1) and three ten-week terms (Terms 2-4), running from the end of August through the end of May. It consists of three components; the foundation (in Term 1), the core (in Term 2), and concentrations (in Term 3 and 4). As part of the requirements, students participate in weekly research seminars where they are exposed to cutting-edge research presented by UNH faculty and by scholars from around the country. The culminating experience for the program is a master's paper written during Term 4, which affords students the opportunity to work closely with faculty members in conducting original research in their chosen concentration.

### **Requirements**

Students must earn 36 credits to graduate, usually consisting of ten, 3-credit courses, plus 6 hours of graduate economics seminar.

#### **I. The Foundation (3 credits)**

ECON 825, Mathematical Economics

The course is typically offered in the five-week Term 1. Class meets four days a week and students earn 3 credits, the same as in the other terms.

## **II. The Core (9 credits)**

ECON 976, Microeconomics I  
ECON 972, Macroeconomics I  
ECON 926, Econometrics I

These courses enable students to advance to specialized areas in the third and fourth terms with a strong background in theory and econometrics.

## **III. Electives (15 credits)**

ECON 927, Econometrics II or an approved skills course  
Field/elective courses

Students may take a variety of economic electives or choose to specialize in an area such as international finance, environmental and resource economics, health economics, data analysis and information management, and international business. Up to two electives-as substitutes for economics electives-may be taken in courses offered outside of the department, subject to approval by the department. All elective courses must be at the 800 level or higher.

## **IV. Graduate Economics Seminar (6 credits)**

Students are required to register and participate in the Graduate Economics Seminar (ECON 988) in Terms 2, 3, and 4. No more than 6 credits can be counted towards the degree.

## **V. Master's Paper (3 credits)**

Students are required to take the Research Skills course (ECON 979) in preparation to write a master's research paper. The master's research paper is the capstone experience of the master of arts in economics. Students do research under the direct supervision of a faculty member and present their work at the end of Term 4.

## **Ph.D. in Economics**

Students demonstrating exceptional promise in economics (usually after completing the master's program) and who are interested in teaching and research find the doctoral program a unique challenge. The doctoral program in economics has four key elements: (1) a broad education in economics; (2) an integrative research experience; (3) a dual emphasis on training first-rate economists and outstanding college teachers and (4) specialized training in environmental economics, health economics, and international economics.

Nationally, doctoral study in economics has increasingly involved quantitative rigor. UNH's program has responded to this trend, but not at the expense of providing a broad background in economics. Beyond the core theory and econometrics classes, students study methodology and the history of economic thought.

The doctoral program encourages students to develop their research skills early on through an integrative research experience. The cornerstone of this experience is the department's weekly research seminar. Students participate in the seminar by writing critical reviews and referee reports of the papers presented, acting as discussants, and presenting their own research.

A distinctive feature of UNH's doctoral program is its dual emphasis on training economists and college teachers. The department of economics, in conjunction with the Teaching Excellence Program in the Graduate School, has developed a nationally known program that provides training in pedagogy for students whose career goals include teaching at the college level. This program, called the Cognate in College Teaching, is an option that Ph.D. students may pursue in addition to the requirements of the Ph.D. degree.

## **Requirements**

The degree requirements include: nine core courses, comprehensive exams, two fields of concentration (a major field and a minor field), field and research workshops, a major field exam, doctoral dissertation proposal defense and final defense, and proficiency in one foreign language if deemed necessary by the student's dissertation chair.

## **I. Core courses**

ECON 976, 977, Microeconomics I and II  
ECON 972, 973, Macroeconomics I and II  
ECON 970, Advanced Economic Theory  
ECON 926, 927, Econometrics I and II  
ECON 957, History of Economic Thought  
ECON 958, Topics in Economic Thought and Methodology

## **II. Comprehensive Examinations in Microeconomics and Macroeconomics**

### **III. Fields of Concentration**

Students must complete the requirements for one major field and one minor field.

#### **Environmental Economics**

##### Requirements for a Major Field

1. ECON 908, Environmental Economics: Theory and Policy
2. ECON 909, Environmental Valuation
3. RECO 911, Natural & Environmental Resource Management or other approved course.
4. ECON 992, Field Workshop

##### Requirements for a Minor Field

1. Two approved courses, at least one of which must be ECON 908 or ECON 909.

#### **Health Economics**

##### Requirements for a Major Field

1. ECON 941, Survey of Health Economics
2. ECON 942, Selected Topics in Health Economics
3. One of the following: PHP 901 Epidemiology; PHP 907, Public Health Policy; PHP 922, Public Health Economics; or other approved course
4. ECON 992, Field Workshop

##### Requirements for a Minor Field

1. ECON 941 and ECON 942

#### **International Economics**

##### Requirements for Major Field

1. ECON 945, International Trade
2. ECON 946, International Finance
3. One of the following: ADMN 846, International Financial Management; ECON 846, Multinational Enterprises; ECON 807, Economics of Sustainable Development; ECON 868, Seminar in Economic Development; ADMN 841, International Management; or other approved course
4. ECON 992, Field Workshop

##### Requirements for a Minor Field

1. ECON 945 and ECON 946

## **IV. Examination in Major Field**

### **V. Elective Course**

Beyond the core theory courses and field requirements, students must take one additional graduate course from the department or an approved 800-level class from another department.

## **VI. Graduate Economics Seminar**

The doctoral program entails an integrative research experience that encourages students to develop research skills early on. The cornerstone of this experience is the department's weekly research seminar, which brings scholars from around the country to present cutting-edge research. In their first two years of study, students are required to sign up for the Graduate Economics Seminar (ECON 988) in Terms 2, 3, and 4, and write critical reviews of papers presented.

## VII. Research Workshop

Beyond their second year of study, students continue to participate in the department's weekly seminar by enrolling in two terms of Research Workshop (ECON 996). Research Workshop students present their own research in the research seminar series. They may also serve as discussants for outside speakers and write referee reports for the papers presented. Students must secure a dissertation adviser prior to signing up for their first term of Research Workshop. The research-workshop requirement should be completed by the end of the fourth year of study.

## VIII. Foreign Language Requirement

Students may need to demonstrate reading knowledge of one foreign language if it is determined to be essential to the student's area of research by his or her dissertation chair.

## IX. Dissertation Proposal Defense

Prior to defending his/her proposal, a student must find a dissertation chair and form a dissertation committee. The dissertation proposal may be defended as part of the Research Workshop or separately from the Workshop.

## X. Final Dissertation Defense

### Cognate in College Teaching

The Ph.D. degree in economics from UNH is a research degree that provides students with a deep understanding of economic theory, institutions, and empirical analysis. Most graduates of the program move into faculty positions at other institutions of higher learning where teaching is an important component of their responsibilities.

In conjunction with the Teaching Excellence Program in the Graduate School, the department has developed a track in its doctoral program that provides formal training in pedagogy for students whose career goals include teaching at the college level. This track, called the Cognate in College Teaching, is an option that Ph.D. students may select in addition to the requirements of the doctoral degree (discussed above). The Cognate is a 12-credit program and is awarded, upon satisfaction of all requirements, with the Ph.D. The Cognate can only be awarded in conjunction with the Ph.D. and none of the course requirements of the Cognate can substituted for those of the Ph.D.

To enter the program, a student must formally apply 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 the teaching excellence program director.

### Requirements of the Cognate

#### Courses (12 credits)

GRAD 950, Issues in College Teaching (2 credits)  
GRAD 951, Teaching with Writing (2 credits)  
ECON 898, Teaching Economics (4 credits) [or GRAD 978]  
GRAD 990, College Teaching Praxis (4 credits)

\* Teaching Economics is offered as an 898 topics course until it is given its own course number.

#### Teaching Portfolio

A student must submit an approved teaching portfolio. The teaching portfolio is a relatively short collection of materials selected to document, summarize, and highlight one's growth, experiences, and strengths as a teacher. For those new to the academic job market, it can help set them apart from other candidates.

Upon completion of these requirements, the Cognate in College teaching is awarded and noted on the graduate transcript. For more information see <http://www.unh.edu/teaching-excellence/resources/Programs.html>.

### Courses

## Courses

Abbreviation	Course Number	Title	Credits
ECON	825	Mathematical Economics	3
ECON	847	Multinational Enterprises	3
ECON	868	Seminar in Economic Development	3
ECON	898	Economic Problems	1 TO 3
ECON	908	Environmental Economics: Theory and Policy	3
ECON	909	Environmental Valuation	3
ECON	926	Econometrics I	3
ECON	927	Econometrics II	3
ECON	928	Econometrics III	3
ECON	941	Survey of Health Economics	3
ECON	942	Selected Topics in Health Economics	3
ECON	945	International Trade	3
ECON	946	International Finance	3
ECON	957	History of Economic Thought	3
ECON	958	Topics in Economic Thought and Methodology	3
ECON	970	Advanced Economic Theory	3
ECON	972	Macroeconomics I	3
ECON	973	Macroeconomics II	3
ECON	976	Microeconomics I	3
ECON	977	Microeconomics II	3
ECON	978	Teaching Economics	4
ECON	979	Research Skills	3
ECON	988	Graduate Economics Seminar	2 TO 12
ECON	992	Field Workshop	3
ECON	995	Independent Study	1 TO 6
ECON	996	Research Workshop	2
ECON	999	Doctoral Research	0

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## Education (EDUC) ▼

» <http://www.unh.edu/education/>

» [Click to view course offerings](#)

*This program is offered in Durham and in Manchester through [GSMC](#).*

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

**Certificates Offered: Autism Spectrum Disorder, Mentoring Teachers**

**Note: The Department of Education has suspended admission, effective Spring 2012, to the Master of Education degree in Administration and Master of Education degree in Reading.**

The Department of Education offers a variety of programs leading to the master's degree, the doctor of philosophy degree, and the education specialist degree. The department also offers graduate certificate programs in autism spectrum disorder and mentoring teachers.

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

The education specialist degree is offered in educational administration and supervision. The doctor of philosophy is offered in 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 (within five years) 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. Applicants to this program must refer to the online Programs of Study listing for additional application instructions. This can be done by referring to the Graduate School's Admissions web page and then Application Requirements. The additional application instructions can be found under Requirements and Supplemental Documents.

### **Doctor of Philosophy**

***Program information: Please contact education department***

The Department of Education offers a Ph.D. in education with specialization in fields related to the areas of teacher education, educational leadership and policy studies, curriculum and instruction, literacy and schooling, and 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 other educational settings. The program enrolls full- 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, a number of selected electives from across areas of inquiry, and required research preparation. Students must meet specific University, department, and program requirements. Within this framework, individual programs can vary widely from student to student depending upon the student's own interests and goals.

The Ph.D. in education provides students with preparation for research, teaching, and leadership in a variety of settings. Graduates hold positions at all levels of schooling, from colleges and universities to K-12 schools. Former students are also involved in work as policy makers, community agency directors, consultants, and research analysts.

## Admission

Students admitted to the program must have completed a master's degree in education or a related field and will normally have worked full time as an educator at the elementary, secondary, or college level. Entering students are expected to have completed some 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 of 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.

In addition to the personal statement required on the Graduate School application, candidates must submit an essay on an educational issue. This essay should discuss one issue in the field of education that is of interest to the candidate. It should explore the opportunities and challenges this issue poses and explain why the applicant finds it personally compelling (1,000 to 1,500 words in length).

Prior to completing and submitting the application, it is highly recommended that the candidate arrange for an on-campus interview with the director of doctoral studies or with an appropriate department faculty member. Applicants from distant locations may interview by phone. Contact the Department of Education by phone: (603) 862-2310 or e-mail: [education.department@unh.edu](mailto:education.department@unh.edu).

## Degree Requirements

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

## Program of Studies

Upon acceptance to the program, students are assigned an adviser. 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: common core courses, specialization specific to the student's scholarly interests, a number of selected electives from across areas of inquiry, and research preparation, including specific advanced research modules. At least five common core courses are required of all students: Proseminar in Doctoral Studies, Critical Inquiry in Education, Normative Inquiry in Education, Qualitative Inquiry in Education, Introduction to Statistics: Inquiry, Analysis, and Decision Making; Applied Regression Analysis for Educational Research, and Quantitative Inquiry: Methods and Techniques of Educational Research. Typically students complete 52 to 64 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 satisfactorily 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 is used to evaluate the student's general knowledge in relevant areas of inquiry, and his or her 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

**Note:** The Literacy and Schooling program (Ph.D.) is no longer accepting applications to their program effective 5/27/2005. This program is now an area of inquiry option in the Ph.D. in education program.

## Administration and Supervision

**Program information:** *Todd DeMitchell, Virginia Garland*

The Department of Education offers the degrees of master of education and education specialist in Educational Administration and Supervision.

## Master of Education

**Note: The Department of Education has suspended admission, effective Spring 2012, to the Master of Education degree in Administration.**

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. - 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, School Law; 969, Practicum in Educational Administration; and 972, Educational Program Evaluation.

**Electives (8 credits):** Electives are elected in consultation with the program adviser.

**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.

## Education Specialist (Ed.S.)

This program, formerly the C.A.G.S. degree program, is designed for those who possess a master's degree in school administration or a master's degree in a related educational field 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, 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):** Ed.S. students will take the following five core courses: 964, Human Resources in Education; 968, Collective Bargaining in Public Education; 971, School Facilities Management; 973, Policy, Politics, and planning in Education; 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.

## Counseling Program

**Program information:** *Janet Elizabeth Falvey, David Hebert, Loan Phan, Janet Thompson*

The Graduate Program in Counseling prepares counselors to function in a variety of institutions, agencies, and schools dedicated to the educational, social, vocational, and psychological development of the person. Graduates are typically

involved in team delivery of services and work in collaboration with other human services professionals. Students are encouraged to develop a fundamental psychotherapeutic approach that can be applied to diverse client populations. Students may also individualize their program of study to serve the needs of a particular clientele. This can be accomplished through selected readings and projects in required courses, the internship experiences, elective courses, and independent study or research projects. The program meets educational requirements for certification in school counseling (M.Ed.)

### **Master of Education (48 credit hours)**

**Core requirements (44 credits):** 919, Counseling Practicum: Professional and Ethical Orientation; 920, Counseling Theory and Practice; 921, Psychology of Career and Personal Development; 922, Assessment in Counseling; 923, Group Counseling; 924, Psychological Disorders: Variations in Human Development; 925, Counseling Internship I; 926, Counseling Internship; 932, Society and Culture: Contemporary Issues in Counseling; 933, Developmental Models of Comprehensive School Guidance; 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: Leslie Couse***

The Department of Education offers the master of education degree in early childhood education and an option in special needs. When completed in conjunction with a degree, certification is available as an early childhood teacher (PreK- 3rd). Certification requirements are additional to the master's degree. 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 (26 credits):** 941, Diversity and Child Development; 942, Sociocultural Perspectives on Teaching and Learning; 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 856,860, 947, 951, ); and two semesters (6 credits) of internship in EDUC 900B and 901B.

**Electives (10 credits):** Selected in consultation with the program adviser.

**Concluding experience:** Degree requirements 36 credits All degree candidate must successfully complete two concluding experiences: (1) one of the following--comprehensive written and oral examination, or a research thesis, (2) and a graduation portfolio.

### **Special Needs Option**

#### ***Program information: Leslie Couse***

The Department of Education offers the master of education degree in early childhood education with an option in special needs. When completed in conjunction with a degree, certification is available as an early childhood special education teacher (birth-8 yr.). Certification requirements are additional to the master's degree.

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.

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 (34 credits):** The core requirements of early childhood program with the addition of three courses.

EC core requirements: 941, Diversity and Child Development; 942, Sociocultural Perspectives on Teaching and Learning; 944, Inclusive Curriculum for Young Children; 948, Leadership and Advocacy in Early Childhood Education; and two semesters (6 credits) of internship in EDUC 900B and 901B.

Additional Special Needs core requirements: 860, Introduction to Young Children with Special Needs; 947, Curriculum for Young Children with Special Needs: Evaluation and Program Design; and -856, Supporting Parents of Students with Special Needs.

**Electives (8 credits):** selected in consultation with the program adviser.

**Concluding experience:** Degree requirements 42 credits. A degree candidate must successfully complete two concluding experiences; (1) one of the following: a comprehensive written and oral examination, or a research thesis; (2) and a graduation portfolio.

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

## Reading

**Note: The Department of Education has suspended admission, effective Spring 2012, to the Master of Education degree in Reading.**

**Program information: Paula Salvio, Ruth Wharton-McDonald**

The graduate program in reading prepares literacy specialists and teachers to provide leadership and instruction 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 in Reading; 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: Vincent Connelly, Georgia Kerns, William Wansart**

The special education program prepares highly qualified educators who possess the knowledge, disposition, 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 in General Special Education, Learning Disabilities, Mental Retardation, and Special Education Administration.

### **Degree Requirements**

#### **Prerequisites for General Special Education Certification:**

1. All candidates are required to complete a course in mathematics teaching methods and a course in reading teaching methods. At UNH, courses that meet the reading requirement are EDUC 806, Introduction to Reading Instruction and EDUC 907, Foundations of Reading Instruction. Courses which meet the mathematics requirement are MATH 701, Exploring Math for Teachers I and MATH 702, Exploring Math for Teachers II. Equivalent courses taken at another college or university may be substituted.
2. All students are required to complete EDUC 850, Introduction to Exceptionality and EDUC 851, Educating Exceptional Learners. Equivalent courses taken at another college or university may be substituted.
3. Credits for prerequisite courses will not count toward those needed for the M.Ed. degree.

#### **Core Courses (32 credit hours)**

##### **Required courses for all students:**

EDUC 756/856, Supporting Families of Individuals with Exceptionalities 4 cr.  
 EDUC 900C, Internship and Seminar in Special Education 6 cr.  
 EDUC 901C, Internship and Seminar in Special Education 6 cr.  
 EDUC 938, Advanced Seminar in Special Education 4 cr.  
 EDUC 939, Assessment of Children with Learning Difficulties 4 cr.  
 EDUC 940, Teaching Children with Learning Difficulties 4 cr.  
 EDUC 981, Methods and Techniques of Educational Research 4 cr.

##### **Elective Courses (12 credit hours minimum)**

EDUC 852, Contemporary Issues in Learning Difficulties 4 cr.  
 EDUC 853, Contemporary Issues in Behavior Disorders 4 cr.  
 EDUC 854, Contemporary Issues in Developmental Disabilities 4 cr.  
 EDUC 855, Fostering Social Relationships for Students Who Experience Severe Disabilities 2 cr.  
 EDUC 860, Introduction to Young Children with Special Needs 4 cr.  
 EDUC 876, Reading for Children with Special Needs 4 cr.  
 EDUC 908/909, Diagnosis and Remediation of Reading Difficulties 4 cr.  
 EDUC 947, Curriculum for Young Children with Special Needs: Evaluation and Program Design 4 cr. EDUC 951, Laws and Regulations Affecting the Education of Individuals with Disabilities 4 cr.

Students will select elective courses in consultation with their adviser. At most, 4 credit hours of EDUC 899, Thesis may count as elective work.

Other courses may be included on recommendation from the adviser.

#### **Core Courses for certification in Learning Disabilities in addition to those necessary for certification in General Special Education:**

EDUC 852, Contemporary Issues in Learning Disabilities 4 cr.  
 EDUC 908/909, Diagnosis and Remediation of Reading Disabilities 4 cr./4 cr.  
 EDUC 910, Reading and Writing Methods in the Middle/Secondary School 4 cr.

#### **Core Courses for certification in Mental Retardation (Inclusion Facilitator) in addition to those necessary for certification in General Special Education:**

EDUC 854, Contemporary Issues in Developmental Disabilities 4 cr.  
 EDUC 855, Fostering Social Relationships for Students who Experience Severe Disabilities 2 cr.  
 EDUC 876, Reading for Children with Special Needs 4 cr.  
 EDUC 952, Inclusive Assessment, Curriculum, Instruction and Communication Supports 4 cr.  
 EDUC 954, Leadership and Systems Change in Inclusive Education 4 cr.  
 EDUC 956, Positive Behavioral Supports 4 cr.  
 COMM 914, Seminar in Alternative and Augmentative Communication 3 cr.

### **Core Courses for Special Education Administration in addition to those necessary for certification in General Special Education:**

EDUC 951, Laws and Regulations in Special Education 4 cr.  
EDUC 956, Learning to Listen: Positive Behavioral Supports 4 cr.  
EDUC 961, Public School Administration 4 cr.  
EDUC 962, Educational Finance and Business Management 4 cr.  
EDUC 964, Human Resources in Education 4 cr.  
EDUC 974, Administrative Internship 6 cr.

### **Concluding Experiences**

**All students will have the option of one of two concluding experiences:**

1. Research project with a defense, or
2. A research thesis that meets the requirements of the Graduate School and the Education department (6-10 credits).

Requirements for the thesis are explained in the Graduate School publication entitled *Thesis and Dissertation Manual*. Requirements for the project may be obtained from the adviser or on the program Web site [www.gradschool.unh.edu](http://www.gradschool.unh.edu).

### **Grades and Credit Hours**

The M.Ed. degree requires a minimum of 44 hours of graduate-level credits. The exact number of credit hours will depend on the student's background, competencies, and professional goals, and will be determined by the adviser.

### **Teacher Education Program**

**Program information: Tom Schram, Cindy Glidden**

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 and school communities.

The Department of Education offers the master of arts in teaching degree in 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, personal statement, 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: motives to teach that include a strong social commitment to contribute to society through education; a disposition to care for their students; an ability to interact positively with children and adults; a capacity to win the respect of their peers and be effective in group interaction, showing openness to the needs and views of others; 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; perceptiveness or the ability to identify and process the relevant details in their environment, especially in the context of a classroom; the ability to make reasonable judgments in a context of complex situations that change from moment to moment; the capacity for clear thinking and an ability to translate their thoughts into simple and clear explanations; 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; 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: UNH undergraduates who anticipate completing the Five-Year

Teacher Preparation Program at UNH, and students 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 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: 500/935, 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, must be taken as part of the program).

Elementary teacher licensure requirements include two additional courses: 806, Introduction to Reading Instruction in the Elementary Schools; and a mathematics course: EDUC 741/841, 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).

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 (Secondary)**

Students complete an Internship (12 credits) and an additional 20 credits. Of the 20 additional credits at the graduate level, three courses totaling 9 to 12 credits must be taken from a subject field outside education. The remaining 8-11 credits can be in education or in another department.

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

**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)**

Students complete an Internship (12 credits) and an additional 20 credits. Of the 20 additional credits at the graduate level, 10 must be in education and 10 can be in either education or in another department.

**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 32 credits, 12 of which 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; and one of the following: 981, Quantitative Inquiry: Methods and Techniques of Educational Research; 984, Teacher as Researcher; or 980, Research in the Teaching of Writing.

**Concentration:** A set of courses (three or more), which reflect a personal interest, need, or goal, is chosen by the student in consultation with his or her adviser. 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:** A degree candidate must complete an inquiry project, which 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 also develop a portfolio with a reflective essay (including portfolios developed for the National Board of Professional Teaching Standards). Students may choose to do a research thesis. Students choosing the research thesis must complete 6 credits, 4 of which will count toward their concentration.

### **Graduate Certificate in Autism Spectrum Disorder**

This program will serve the professional development needs of a wide variety of individuals, including: (1) parents of children with ASD; (2) special and general education teachers and administrators; speech-language pathologists, occupational therapists, behavioral consultants, recreation therapists; and (3) graduate students in other University majors such as sociology or psychology. For more information please visit the [Autism Spectrum Disorder](#) website or contact [Dr. Georgia Kerns](#) at (603) 862-3446 or [Dr. Cheryl Jorgensen](#) at (603) 862-4678.

### **Applying**

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the certificate program.

### **Certificate Requirements**

The coursework for the graduate certificate consists of 19-23 credits from the following required and elective course offerings. Highly qualified individuals may petition for permission to waive a required course. Applicants are urged to schedule an appointment with the program coordinators to develop their individualized course of study. Applications for graduate certificates are available through the [Graduate School website](#).

#### **Required Courses**

EDUC 757/857A, Contemporary Issues in ASD

COMM 920A, Seminar in ASD

#### **Elective Courses (two from among the following choices based on individual advising (other electives may be added in the future))**

EDUC 757/857C, Contemporary Issues in ASD

EDUC 755/855, Social Relationships and Students with Disabilities

EDUC 952, Assessment, Curriculum, Instruction, and Supports for Students with Disabilities

EDUC 956, Positive Behavior Supports

OT courses in Assistive Technology

## COMM 914, Augmentative and Alternative Communication

**Graduate Certificate in Mentoring Teachers**

The Teacher Education Program works with approximately 150 “cooperating teachers” and more than 25 supervisors each year in its full-year internship program. Mentoring is a crucial element in the preparation of effective teachers, as well as in the transition from teacher preparation programs to the first years of teaching. The N.H. Department of Education has also recognized the need for mentoring early-career public school teachers in its “Induction Through Mentoring Projects.” The UNH Department of Education proposes to offer a graduate certificate program in mentoring teachers to help advance the preparation of professionals in the field. For more information please visit the [Mentoring Teachers website](#) or contact [Cindy Glidden](#) at (603) 862-2371.

This certificate is designed to serve:

- Experienced teachers interesting in mentoring and the professional development of new teachers.
- Experienced teachers interested in preparing for leadership positions that require mentoring skills.
- Experience teachers interested in exploring a graduate program in education by first earning a graduate certificate

**Applying**

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the certificate program.

**Certificate Requirements**

The program of study required for the certificate consists of four required courses and a total of 16 credit hours. The program focuses on the development of mentoring skills that draw upon: (1) models of adult development; (2) approaches to effective teaching; (3) an understanding of teacher supervision and assessment; and (4) strategies for problem solving, conflict resolution, and communication.

EDUC 957, Collaborative Supervision (4 cr.) OR EDUC 965 Educational Supervision (4 cr.)

EDUC 958, Analysis of Teaching (4 cr.)

EDUC 990, Developmental Perspectives on Adulthood (4 cr.)

EDUC 897, Teacher as Researcher [note: course number will change in 05-06]

(Under special circumstances and with the approval of their advisor, students may substitute an elective for EDUC 897)

**Courses****Courses**

Abbreviation	Course Number	Title	Credits
EDUC	800	Educational Structure and Change	2 OR 4
EDUC	801	Human Development and Learning: Educational Psychology	2 OR 4
EDUC	803	Alternative Teaching Models	2 OR 4
EDUC	805	Alternative Teaching Perspectives on the Nature of Education	2 OR 4
EDUC	806	Introduction to Reading in the Elementary School	4
EDUC	807	Teaching Reading through the Content Areas	2

EDUC	812	Teaching Multilingual Learners	4
EDUC	817	Growing up Male in America	4
EDUC	820	Integrating Technology into the Classroom	4
EDUC	833	Introduction to the Teaching of Writing	4
EDUC	834	Children's Literature	4
EDUC	835	Young Adult Literature	4
EDUC	841	Exploring Mathematics with Young Children	4
EDUC	845	Math with Technology in Early Education	2
EDUC	850	Introduction to Exceptionality	4
EDUC	852	Contemporary Issues in Learning Disabilities	4
EDUC	853	Contemporary Issues in Behavioral Disabilities	4
EDUC	854	Contemporary Issues of Developmental Disabilities	4
EDUC	855	Facilitating Social Understanding and Relationships for Students with Disabilities	2
EDUC	856	Supporting Families of Individuals with Exceptionalities	4
EDUC	857	Contemporary Issues in Autism Spectrum Disorders	4
EDUC	860	Introduction to Young Children with Special Needs	4
EDUC	876	Reading for Learners with Special Needs	4
EDUC	880	Belize/New Hampshire Teacher Program	4
EDUC	881	Introduction to Statistics: Inquiry, Analysis, and Decision Making	4
EDUC	885	Educational Assessment	4
EDUC	891	Methods of Teaching Secondary Science	4
EDUC	894	Pro-seminar in Teacher Leadership	2
EDUC	897	Seminar in Contemporary Educational Problems	1 TO 4
EDUC	899	Master's Thesis	1 TO 10
EDUC	902	Doctoral Pro-seminar	4
EDUC	903	Normative Inquiry in Education	4
EDUC	904	Qualitative Inquiry in Education	4
EDUC	905	Critical Inquiry in Education	4
EDUC	907	Foundations of Literacy Instruction	4
EDUC	908	Clinical Diagnosis and Remediation of Reading Difficulties and Disabilities	4
EDUC	909	Clinical Diagnosis and Remediation of Reading Difficulties and Disabilities	4
EDUC	910	Reading and Writing Methods in the Middle/Secondary School	4
EDUC	913	Field Practicum in Reading	4

EDUC	914	Seminar in Reading Research	4
EDUC	919	Counseling Practicum: Professional and Ethical Orientation	4
EDUC	920	Counseling Theory and Practice	4
EDUC	921	Psychology of Career and Personal Development	4
EDUC	922	Assessment in Counseling	4
EDUC	923	Group Counseling	4
EDUC	924	Psychological Disorders and Variations in Human Development	4
EDUC	925	Counseling Internship I	4
EDUC	926	Counseling Internship II	4
EDUC	927	Human Growth & Development: Personality Theory	4
EDUC	929	Advanced Counseling Internship	4
EDUC	930	Research in Counseling	4
EDUC	931	Clinical Diagnosis and Treatment Planning in Counseling	4
EDUC	932	Society and Culture: Contemporary Issues in Counseling	4
EDUC	933	Developmental Models of Comprehensive School Guidance	4
EDUC	938	Advanced Seminar in Special Education	4
EDUC	939	Assessment and Teaching of Children with Learning Difficulties	4
EDUC	940	Assessment and Teaching of Children with Learning Difficulties	4
EDUC	941	Diversity and Child Development	4
EDUC	942	Socio-cultural Perspectives on Teaching and Learning	4
EDUC	943	Changing Contexts in Early Education	4
EDUC	944	Inclusive Curriculum for Young Children	4
EDUC	947	Curriculum for Young Children with Special Needs: Evaluation and Program Design	4
EDUC	948	Leadership and Advocacy in Early Childhood Education	4
EDUC	950	Research in Culture, Behavior, and Development	4
EDUC	951	Laws and Regulations Affecting the Education of Students with Disabilities	4
EDUC	952	Inclusive Assessment, Curriculum, Instruction, and Communication Supports	4
EDUC	953	Seminar in Curriculum Study	4
EDUC	954	Leadership and Systems Change in Inclusive Education	2
EDUC	956	Learning to Listen: Developing Positive Behavior Supports for Students with Challenging Behaviors	4
EDUC	957	Collaborative Models of Teaching, Learning, and Leading	4
EDUC	958	Analysis of Teaching	4
EDUC	961	Public School Administration	4

EDUC	962	Educational Finance and Business Management	4
EDUC	964	Human Resources in Education	4
EDUC	965	Educational Supervision and Evaluation	4
EDUC	967	School Law	4
EDUC	968	Collective Bargaining in Public Education	4
EDUC	969	Practicum in Educational Administration	4
EDUC	970	Foundations for Leadership in Higher Education	4
EDUC	971	School Facilities Management	4
EDUC	972	Educational Program Evaluation	4
EDUC	973	Policy, Politics, and Planning in Education	4
EDUC	974	Administrative Internship and Field Project	6
EDUC	975	Administrative Internship and Field Project	6
EDUC	976	Policy and Governance in Higher Education	4
EDUC	977	Leadership: The District Level Administrator	4
EDUC	978	Applied Regression Analysis in Educational Research	4
EDUC	979	Applied Multilevel Modeling	4
EDUC	980	Research in the Teaching of Writing	4
EDUC	981	Quantitative Inquiry: Methods and Techniques of Educational Research	4
EDUC	982	Issues and Methods in Ethnographic Research in Education	4
EDUC	983	Advanced Psychology of Human Learning	4
EDUC	984	Teacher as Researcher	4
EDUC	985	Contemporary Issues and Theories in Human Learning and Development	4
EDUC	986	Philosophy of Education	4
EDUC	990	Developmental Perspectives on Adulthood	4
EDUC	993	Epistemology and Education	4
EDUC	995	Independent Study	1 TO 4
EDUC	998	Special Topics	1 TO 4
EDUC	999	Doctoral Research	0
EDUC	810A	Concepts of Adult and Occupational Education	4
EDUC	810C	Youth Organizations	4
EDUC	810F	Investigations	1 TO 4
EDUC	810G	Seminar in Adult and Occupational Education	1 TO 2
EDUC	851A	Educating Exceptional Learners: Elementary	4
EDUC	851B	Educating Exceptional Learners: Secondary	4
EDUC	851C	Educating Exceptional Learners: Related Services	4

EDUC	900A	Internship and Seminar in Teaching	3 OR 6
EDUC	900B	Internship and Seminar in Early Childhood Education	3
EDUC	900C	Internship and Seminar in Special Education	3 OR 6
EDUC	900D	Internship and Seminar in Adult and Occupational Education	3 TO 6
EDUC	901A	Internship and Seminar in Teaching	3 OR 6
EDUC	901B	Internship and Seminar in Early Childhood Education	3
EDUC	901C	Internship and Seminar in Special Education	3 OR 6
EDUC	918A	Seminar on Research in Literacy Instruction	2
EDUC	918B	Seminar on Research in Literacy Instruction	2
EDUC	918C	Seminar on Research in Literacy Instruction	2
EDUC	918D	Seminar on Research in Literacy Instruction	2
EDUC	935A	Seminar and Practicum in Teaching	4
EDUC	935B	Seminar and Practicum in Teaching	4

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## Electrical Engineering (ECE) ▼

» <http://www.ece.unh.edu>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Electrical and Computer Engineering offers both a thesis and non-thesis option master of science degree with a major in electrical engineering. The fundamental difference between the two options is that the non-thesis option substitutes additional coursework in place of the research and writing associated with completing a thesis. While the non-thesis option does not require a formal thesis, students choosing that option will be required to give two technical presentations and to submit a technical paper.

In addition to the master of science, a Ph.D. program is also offered in electrical engineering.

### 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; ocean engineering; and instrumentation.

### Admission Requirements

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

## Degree Requirements

### M.S. Degree Requirements

Master of science in electrical engineering (M.S.E.E.) degree students must take a minimum of 34 graduate credits including:

#### Thesis Option:

- 24 credit hours of graduate coursework, with at least 12 of those credit hours earned in 900-level courses
- 4 credits of ECE 900 Seminars
- 6 credits of thesis work

#### Non-Thesis Option:

- 30 credit hours of graduate coursework, with at least 18 of those credit hours earned in 900-level courses
- 4 credits of ECE 900 Seminars

Up to 12 credits earned in non-ECE courses numbered 700-799 may be taken for graduate credit by ECE M.S. degree students provided the courses are petitioned and approved by the dean of the Graduate School. A student may petition that a maximum of 12 graduate credits taken prior to admission in the UNH ECE master of science degree program be applied to fulfill the degree requirements.

Under certain circumstances it may be desirable to take courses outside the ECE department to attain the goals outlined in the student's program of study. In these cases, up to two non-ECE 900-level courses are allowed without petition, provided that they are approved by the student's academic adviser and that the student take at least two 900-level courses (neither of which may be independent studies) within the department. A student wishing to take more than two courses (either 800 or 900 level) outside the department must petition the ECE Graduate Committee.

### Declaration of Thesis or Non-Thesis M.S. Degree

M.S. degree students must declare in writing whether or not they are choosing the thesis option or the non-thesis option by the end of their second semester of graduate study. A form for such declaration is available on the [ECE Graduate Student website](#). When choosing the thesis option, the student is responsible to seek out a qualified faculty adviser. The faculty adviser must agree to being the thesis adviser prior to submitting the declaration form. The selection form must be signed by both the faculty adviser and the student and is then to be submitted to the ECE graduate coordinator. When choosing the non-thesis option the form must be signed by the student and the student's assigned academic adviser and then is to be submitted to the ECE graduate coordinator. If a student fails to submit a signed form by the end of their second semester of study they may be in jeopardy of being dismissed from the M.S. degree program. Once a choice for the M.S. thesis option has been made the student cannot revert to the non-thesis option without petitioning the ECE Graduate Committee.

### Technical Presentation and Paper Requirement for the Non-Thesis Option

Students in the non-thesis option are required to submit a technical paper and to deliver two technical presentations as part of their program. Many of the courses in the ECE graduate program require technical reports and presentations, and some of these may be appropriate for satisfying the technical requirement for students in the non-thesis option. However, there are other approaches for satisfying this requirement as indicated below.

The objective in requiring a technical paper is to ensure that the student has some facility in documenting technical information. The evaluation of that paper is to be performed by the ECE Graduate Committee, and the evaluation will result in either acceptance or rejection of the work submitted. The criterion for technical papers to be considered acceptable is that they describe a contemporary technical concept or development with a degree of depth and clarity evident in conference papers. The student must be the sole author on the technical paper, and it is to be submitted to the chair of the ECE Graduate Committee electronically before the last day of classes. As noted above, technical papers associated with regular ECE graduate courses or independent studies may be used to satisfy the requirement, as are papers prepared for technical conferences or publications. Papers accepted for presentation at refereed conferences or for publication in refereed journals will automatically satisfy the technical paper requirement.

The objective in requiring the two technical presentations is primarily to ensure that students have the opportunity to present in front of a group. Presentations that fulfill one of the criteria below will be considered acceptable for this requirement:

1. Presentation of a technical lecture (20 minutes or longer) as part of the requirements for a course in which the student is enrolled.
2. Presentation of a technical lecture in a course as a "stand in" for the faculty member in charge.
3. Presentation of a technical seminar at UNH (for example, presenting a seminar for ECE 900) or to a public group or industry.
4. Presentation of a technical paper as part of a professional job function.
5. Presentation of a paper at a professional technical conference.

It is the responsibility of the student to satisfy this requirement before graduation. Students must get approval from their adviser for any activity that is intended to be used as a technical presentation experience. The two presentations required must be different; giving the same seminar twice does not count as two presentations. If the activity does not fall into one of the five categories listed, prior approval of the ECE Graduate Committee must also be obtained. The student should write a brief letter for each of the two required experiences, stating the nature of the experience and the date on which it was satisfied. This letter is to be signed by the student, signed and approved by the student's advisor, and, if applicable, by the faculty member in charge of the related course. This letter should be placed in the student's departmental file.

### Ph.D. Degree Requirements

The degree of doctor of philosophy (Ph.D.) in electrical and computer engineering is conferred on qualified candidates who have passed written and oral examinations 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 Ph.D. is essentially a research degree. It is not given merely for the completion of course credits. Detailed information can be found on the ECE departmental website.

### Courses

### Courses

Abbreviation	Course Number	Title	Credits
ECE	804	Electromagnetic Fields and Waves II	4
ECE	811	Digital Systems	4
ECE	814	Introduction to Digital Signal Processing	4
ECE	815	Introduction to VLSI	4
ECE	817	Introduction to Digital Image Processing	4
ECE	834	Network Data Communications	4
ECE	857	Fundamentals of Communication Systems	4
ECE	858	Communication System Design	4
ECE	860	Introduction to Fiber Optics	4
ECE	872	Control Systems	4
ECE	874	Introduction to Neural Networks	4
ECE	875	Applications of Integrated Circuits	4
ECE	881	Physical Instrumentation	4
ECE	884	Biomedical Instrumentation	4

ECE	896	Special Topics in Electrical or Computer Engineering	1 TO 4
ECE	899	Master's Thesis	1 TO 6
ECE	900	Seminar	2
ECE	901	Electromagnetic Wave Theory I	3
ECE	902	Electromagnetic Wave Theory II	3
ECE	915	Advanced Active Circuits	3
ECE	939	Statistical Theory of Communications	3
ECE	940	Information Theory	3
ECE	941	Digital Signal Processing	3
ECE	944	Nonlinear Control Systems	4
ECE	951	Advanced Control Systems I	3
ECE	952	Advanced Control Systems II	3
ECE	955	Estimation and Filtering	3
ECE	960	Computer Architecture	3
ECE	965	Introduction to Pattern Recognition	3
ECE	970	Introduction to Optical Signal Processing	3
ECE	992	Advanced Topics in Electrical Engineering	1 TO 3
ECE	993	Advanced Topics in Computer Engineering	1 TO 3
ECE	994	Advanced Topics in Systems Engineering	1 TO 3
ECE	998	Independent Study	1 TO 3
ECE	999	Doctoral Research	0

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## English (ENGL) ▼

» <http://www.unh.edu/english>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of English offers four advanced degrees: master of arts with options in literature or English language and linguistics; master of science for teachers; master of fine arts in writing; 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 for the M.F.A. and M.S.T.) must submit current scores (within five years) from the general test of the GRE. 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 or from their website listed above or from the graduate school forms page (see the Graduate Aid section).

## **Degree Requirements**

### **M.A. Degree Requirements**

#### ***Literature Option***

An M.A. candidate must complete 36 credit hours at the 800 or 900 level, including three seminar courses and a fourth seminar in literature or ENGL 998, Master's Paper. At least six courses must be literature courses offered by the English department (as distinct from courses in critical theory, linguistics, writing, or teaching methods); there are additional distribution requirements. If a student chooses the Master's Paper option, the six-course requirement is reduced to five 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, but two courses may be taken in other departments with approval. No more than two literature courses should be taken in a combined 700/800 (split) level course.

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.

#### ***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 levels, 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**

#### **Master of Fine Arts in Writing**

In the fall of 2007, UNH launched a master of fine arts in writing, creating a three-year, 48-credit program that aims to provide students with the intensive training in their craft that they'll need to start their lives as professional writers. Students concentrate in fiction, nonfiction, or poetry and are taught by a faculty of nine working writers, each of whom specializes in one of these fields. Students learn in small workshops and in individual conferences with their teachers. Conference teaching is a cornerstone of the UNH graduate writing program.

Students are required to take four workshops in their major genre. In addition, students take one form and theory course in their major genre, five elective courses that may include additional writing courses or courses from the English department's offerings in other fields (such as literature, linguistics, or composition studies), and 8 credit hours of the M.F.A. thesis. Teaching assistants are required to take English 910, Practicum in Teaching College Composition, as one of their electives. There is no foreign language requirement.

The M.F.A. thesis is a book-length, publishable manuscript. For fiction writers, the thesis could be a collection of short stories, a story cycle (linked stories), or a novel. For nonfiction writers, the thesis could be a collection of themed

essays and/or magazine articles or a book of creative nonfiction. For poets, the thesis would be a book-length collection of poems. The minimum length of the thesis is 150 pages for fiction and nonfiction writers and 45 pages for poets. Students will work closely with a thesis adviser as they write and pass an oral defense of the thesis, a defense conducted by a three-member thesis committee of writing faculty. Students will also conduct a public reading of their thesis in an event organized by the writing faculty.

In addition, the M.F.A. program offers students opportunities to publish in an online journal called *Barnstorm*, as well as intern at publishing houses and magazines and teach in the community at prisons, senior centers, and schools. A select number of students are chosen to teach UNH undergraduate writing courses and to work in the University's Writing Center.

The program admits an average of 15 new students a year, which creates a writing community of 45 student writers.

### 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 is demonstrated 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 nine graduate courses of which four must be seminars. The other courses must be at the 800 or 900 levels 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 Dissertation and Profession (ENGL 924). In addition, students must 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 levels and 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

### Courses

Abbreviation	Course Number	Title	Credits
ENGL	800	Studies in Literature	4
ENGL	803	Advanced Nonfiction Writing	4
ENGL	804	Advanced Nonfiction Writing	4
ENGL	805	Advanced Poetry Workshop	4
ENGL	806	The Art of Research for Creative Writers	4
ENGL	807	Fiction: Form and Technique	4
ENGL	808	Nonfiction: Form and Technique	4
ENGL	809	Poetry: Form and Technique	4

ENGL	810	Teaching Writing	1 TO 6
ENGL	811	Editing	4
ENGL	812	Writing the Creative Nonfiction Book	4
ENGL	814	Literary Theory	4
ENGL	815	Teaching English as a Second Language: Theory and Methods	4
ENGL	816	Curriculum, Materials and Assessment in English as a Second Language	4
ENGL	819	Sociolinguistics Survey	4
ENGL	827	Issues in Second Language Writing	4
ENGL	829	Spec Top/Composition Studies	4
ENGL	830	Practicum in Teaching English and the Language Arts	1 TO 6
ENGL	838	Topics in Asian American Studies	4
ENGL	845	Contemporary American Literature	4
ENGL	846	Studies in American Drama	4
ENGL	847	Studies in American Poetry	4
ENGL	848	Studies in American Fiction	4
ENGL	850	Special Studies in American Literature	4
ENGL	851	Medieval Epic and Romance	4
ENGL	852	History of the English Language	4
ENGL	853	Old English	4
ENGL	858	Shakespeare	4
ENGL	869	English Romantic Period	4
ENGL	873	British Literature of the 20th Century	4
ENGL	879	Linguistic Field Methods	4
ENGL	881	English Drama from 1660 to 1800	4
ENGL	883	English Novel of the 18th Century	4
ENGL	890	Special Topics in Linguistics	4
ENGL	891	English Grammar	4
ENGL	892	Teaching Secondary School English	4
ENGL	893	Phonetics and Phonology	4
ENGL	894	Syntax and Semantic Theory	4
ENGL	897	Special Studies in Literature	2 TO 6
ENGL	898	Special Studies in Creative Writing	2 TO 6

ENGL	899	Master of Fine Arts in Writing Thesis	1 TO 8
ENGL	901	Advanced Writing of Fiction	4
ENGL	902	Master Fiction Workshop	4
ENGL	903	Advanced Memoir Writing	4
ENGL	910	Practicum in Teaching College Composition	4
ENGL	911	Writing for Teachers	4
ENGL	912	Historical and Theoretical Studies in Rhetoric	4
ENGL	913	Theory and Practice of Composition	4
ENGL	914	Special Topics in Composition and Rhetoric	2 TO 6
ENGL	916	History of Composition	4
ENGL	918	Research Methods in Composition	4
ENGL	919	Teaching the Writing Process	1 TO 6
ENGL	920	Issues in Teaching English and the Language Arts	1 TO 6
ENGL	921	Practicum in Teaching English and the Language Arts	1 TO 6
ENGL	922	Advanced Topics in Literacy Instruction	1 TO 6
ENGL	923	Advanced Essay Writing	4
ENGL	924	Professional Preparation	2
ENGL	925	Graduate Study of Literature	4
ENGL	926	Seminar: Literary Theory	4
ENGL	927	Seminar: Feminist Criticism Theory and Practice	4
ENGL	932	Seminar: Folklore and Folklife	4
ENGL	935	Seminar: Studies in American Literature	4
ENGL	936	Seminar: Literature of Early America	4
ENGL	937	Seminar: Studies in 19th Century American Literature	4
ENGL	938	Seminar: Studies in 20th Century American Literature	4
ENGL	953	Seminar: Studies in Old English	4
ENGL	956	Seminar: Studies in Medieval Literature	4
ENGL	958	Seminar: Studies in Shakespeare	4
ENGL	959	Seminar: Studies in Milton	4
ENGL	960	Seminar: Studies in English Drama	4
ENGL	964	Seminar: Studies in 16th Century Literature	4
ENGL	965	Seminar: Studies in Early 17th Century Literature	4

ENGL	968	Seminar: Studies in 18th Century Literature	4
ENGL	970	Seminar: Studies in the Romantic Period	4
ENGL	971	Seminar: Studies in the Victorian Period	4
ENGL	974	Seminar: Studies in 20th Century British Literature	4
ENGL	981	Seminar: Studies in Post-Colonial Literatures in English	4
ENGL	990	Seminar in Linguistics	4
ENGL	994	Practicum in Teaching English to Speakers of Other Languages	2 TO 6
ENGL	995	Independent Study	1 TO 8
ENGL	996	Reading and Research	2 TO 8
ENGL	998	Master's Paper	4
ENGL	999	Doctoral Research	0

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## Environmental Education (ENED) ▼

» <http://www.unh.edu/education/index.cfm>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: M.A.

The part- or full-time program offers a master of arts degree with a major in environmental education. 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 effectively promote awareness, knowledge, and constructive participation in deliberation over the important environmental questions that we face. The program 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. Students apply during the fall or spring terms and begin the program with an intensive four-week Summer Institute. The program also includes a field-based Practicum where students are given the opportunity to implement their educational ideas through a mentoring program at one of a variety of local environmental and educational organizations.

### Admission Requirements

Applicants to the M.A. program in environmental education must possess a baccalaureate degree from an approved institution with a GPA of 2.7 or higher and 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.

### Degree Requirements

A total of 32 credits is required to complete the degree. The program includes:

- Summer Institute (8 credits)
- Course electives (20 credits)
- Practicum (4 credits)

Students will also produce a Program Portfolio.

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:

**1. Environmental Science:** understanding the physical and biological processes and relationships that constitute ecosystems.

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

**3. Environmental Values, Policy, and Planning:** an understanding of the social (e.g., economic, political, and 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 include at least one graduate-level course in each area and integrate the courses. 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.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
ENED	890	Environmental Education Summer Institute: Field Ecology, Human Communities, and Curriculum	8
ENED	900	Seminar and Practicum in Environmental Education	4

## Family Studies (FS) ▼

» <http://www.chhs.unh.edu/fs/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degree Offered: M.S.****Certificates Offered:** Adolescent Development, Child Advocacy and Family Policy

The Department of Family Studies offers two programs of study leading to a master of science degree in family studies: the Core Areas of Study Program and the Marriage and Family Therapy Program.

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 community or corporate settings. The Core Areas of Study program has three foci: Adolescent Development; Child Advocacy and Family Policy; and Child Development. Students may elect a thesis or comprehensive exam. The Marriage and Family Therapy Program is accredited by the American Association for Marriage and Family Therapy and requires a minimum of two years of full-time study, including two summers.

The Department of Family Studies also offers a one-year, 14 to 15-credit, multidisciplinary program of study leading to a graduate certificate in Adolescent Development or Child Advocacy and Family Policy (CAFP). The certificate program is intended for individuals who are working in the field but who lack specific knowledge about adolescence or child advocacy and family policy, as well as those who are changing careers or who are already working in related fields and need to meet continuing education requirements or desire additional academic preparation.

**Admission Requirements**

Students in good standing with undergraduate degrees in any field and a specific interest in working with individuals and families are encouraged to apply.

Candidates for the master's degree program must have completed an introductory statistics course or the equivalent as part of their undergraduate program. If their undergraduate program did not include such a course, students who are accepted into the M.S. program must successfully complete an introductory statistics course before they graduate (Note: Students in the M.S. program must also complete a graduate statistics course – see "Program Requirements" for the Core Area of Study and MFT programs).

In lieu of the standard UNH Graduate School personal statement, applicants to the MFT program must answer the questions listed on the department's MFT admissions website at <http://www.chhs.unh.edu/fs/mftadmiss.html>. Responses to the MFT questions should be submitted in numbered format, and should address each question separately and explicitly. Answers to the MFT questions should be submitted with the application (either online or in hard copy).

Individuals applying to the Core Areas of Study and Certificate programs should submit a standard personal statement with their applications

**Core Areas of Study Program**

**Adolescent Development:** This core area of study 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 projects involving adolescents and to complete a practicum in a program that serves adolescents.

**Child Advocacy and Family Policy:** This core area of study is designed to develop general competence in understanding theory and research regarding advocacy and policy issues impacting children and families. Those accepted into the program for this core area of study are expected to complete two practica with selected state, national, and international agencies as child advocacy and family policy interns, develop expertise on at least one advocacy/policy issue, and conduct research on an advocacy/policy related topic.

**Child Development:** This core area of study is designed to develop an understanding of theory and research regarding children from infancy through the early school years and preparing students to work in a variety of social science positions focused on children's family and school experiences. Students are expected to complete a practicum in a child-focused setting.

## Marriage and Family Therapy Program

The Marriage and Family Therapy Program 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 Center. 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. The program 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. AAMFT standards require five hundred (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. See [www.aamft.org](http://www.aamft.org) for information on clinical membership.

## Certificate Program

The certificate in adolescent development builds general competence in understanding and applying theory and research regarding adolescent development, with particular emphasis on the influences of families and communities. The program is grounded in an ecological approach that focuses on supporting the health and well-being of all adolescents, with special attention to using a developmental perspective to develop programs, policies, and other interventions that address contemporary risk and protective factors.

The certificate in CAFP develops general competence in understanding theory and research regarding advocacy and policy issues impacting children and families. CAFP certificate students will develop competency in planning for, implementing, and evaluating family policies, as well as identifying barriers to effective advocacy and policy-making.

## M.S. Degree Requirements - Core Areas of Study Program

### Program requirements for the Core Areas of Study include:

1. Completion of the 12-credit core curriculum that includes FS 991, Professional Issues for Family Specialists; FS 993, Theoretical Approaches to Family Studies; and FS 994, Research Seminar;
2. Twenty-two (22) hours of coursework including four (4) semester hours of practicum or internship (FS 911C), and a graduate-level statistics course; and
3. Successful completion of a research thesis (6-10 credits in FS 899) OR a comprehensive written examination, plus eight (8) credits of approved electives in place of FS 899. Students in the Child Advocacy and Family Policy core area of study must complete an additional four (4) hours of practicum/internship, for a total of eight (8) hours.

**Thesis Option:** Students electing to complete a research thesis must write and defend a thesis based on original research. Students must earn a minimum of 6 credits of FS 899 (Master's Thesis).

**Comprehensive Examination:** Students electing to complete a comprehensive examination must take an additional 8 credits of approved electives in place of thesis credits. The comprehensive examination consists of a timed, three-hour closed-book portion and a one-week take-home exam.

A graduate student who fails a course must immediately attend a mandatory meeting with the instructor of the course, the family studies graduate coordinator, and, if desired, the student's adviser. If a graduate student receives grades below "B-" in two or more courses, the family studies graduate coordinator will make a recommendation to the Graduate School that the student be dismissed from the family studies graduate program.

## M.S. Degree Requirements-Marriage and Family Therapy Program

### Program requirements include:

1. The 12-credit core curriculum (FS 991, Professional Issues for Family Specialists; FS 993, Theoretical Approaches to Family Studies; and FS 994, Research Seminar);
2. Thirty-two (32) semester hours of coursework, including FS 841, Marital and Family Therapy; FS 930, Child

Development in Context (or an approved substitution); FS 942, Advanced Systems of Marital and Family Therapy; FS 945, Family Therapy Practice I; FS 946, Critical Problems in Family Life; FS 947, Family Therapy Practice II; FS 952, Couples Therapy; and FS 954, Sex Therapy;

3. Successful completion of at least 20 credits of FS 898, Marriage and Family Therapy Practicum (500 hours of supervised clinical practice); and

4. Completion and presentation of an integrative paper and video representing the student's theory of change.

A graduate student who fails a course must immediately attend a mandatory meeting with the instructor of the course, the family studies graduate coordinator, and, if desired, the student's adviser. If a graduate student receives grades below "B-" in two or more courses, the family studies graduate coordinator will make a recommendation to the Graduate School that the student be dismissed from the family studies graduate program.

### Certificate Requirements – Adolescent Development

A certificate in Adolescent Development is awarded upon completion of: (1) a 2-course core curriculum; and, (2) an additional two elective courses, one of which must be a Family Studies course.

### Core Curriculum Courses

Abbreviation	Course Number	Title	Credits
FS	950	Contemporary Issues in Adolescent Development	4
FS	995E	Seminar & Special Problems - Human Development	3

### Family Studies Electives (choose at least one)

Abbreviation	Course Number	Title	Credits
FS	846	Human Sexuality	4
FS	860	Family Programs and Policies	4
FS	857	Race, Class, Gender, and Families	4
FS	876	Children, Adolescents, and the Law	4
FS	897	Special Topics (prior approval required)	4
FS	991	Professional Issues for Family Specialists	4
FS	993	Theoretical Approaches to Family Studies	4

**Multidisciplinary Electives**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
EDUC	810C	Youth Organizations	4
EDUC	817	Growing Up Male in America	4
RMP	805	Management and Policy in Therapeutic Recreation	3
RMP	830	Camp Administration and Leadership	3
RMP	860	Community Sports Organizations: Administration and Leadership	3
SOC	815	Criminological Theory	4
SOC	820	Sociology of Drug Use	4
SOC	840	Sociology of Mental Health	4
SOC	876	Family Violence Research Seminar	4
SOC	975	Sociology of the Family	4
SW	805	Child and Adolescent Risks and Resiliency: Program, Policy and Practice	3
SW	815	Practice with Gay, Lesbian, Bisexual and Transgender People	3

Other Family Studies or multidisciplinary electives may be selected with advisor approval.

**Certificate Requirements – Child Advocacy and Family Policy**

A certificate in Adolescent Development is awarded upon completion of: (1) a 2-course core curriculum; and, (2) an additional two elective courses, one of which must be a Family Studies course.

**Core Curriculum Courses**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
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FS	860	Family Programs and Policies	4
FS	995E	Seminar & Special Problems - Human Development	3

**Family Studies Electives (choose at least one)**

Abbreviation	Course Number	Title	Credits
FS	857	Race, Class, Gender, and Families	4
FS	872	International Approaches to Child Advocacy	4
FS	873	International Perspectives on Children and Families	
FS	876	Children, Adolescents, and the Law	4
FS	894	Families and the Law	4
FS	897	Special Topics – Families in Poverty	4
FS	991	Professional Issues for Family Specialists	4
FS	993	Theoretical Approaches to Family Studies	4

**Multidisciplinary Electives**

Abbreviation	Course Number	Title	Credits
RMP	912	Non-Profit Administration and Leadership	3
RMP	924	Grantwriting and Fund Development	3
SOC	820	Sociology of Drug Use	4
SOC	842	Sociology and Social Policy	4
SW	805	Child and Adolescent Risks and Resiliency: Program, Policy and Practice	3
SW	815	Practice with Gay, Lesbian, Bisexual and Transgender People	3

Other Family Studies or multidisciplinary electives may be selected with advisor approval.

**Courses****Courses**

Abbreviation	Course Number	Title	Credits
FS	807	Practicum	1 TO 6
FS	808	Child and Family Center Internship	1 TO 6

FS	809	Child Study and Development Center Internship	1 TO 6
FS	833	Supervising Programs for Young Children	4
FS	834	Curriculum for Young Children	4
FS	841	Marital and Family Therapy	4
FS	843	Families, Schools, and Community	4
FS	846	Human Sexuality	4
FS	857	Race, Class, Gender, and Families	4
FS	860	Family Programs and Policies	4
FS	871	Observation and Assessment of Young Children	4
FS	872	International Approaches to Child Advocacy	4
FS	873	International Perspectives on Children and Families	4
FS	876	Children, Adolescents and the Law	4
FS	894	Families and the Law	4
FS	897	Special Topics	1 TO 4
FS	898	Marriage and Family Therapy Practicum	1 TO 8
FS	899	Master's Thesis	1 TO 6
FS	911	Graduate Internship	2 TO 8
FS	930	Child Development in Context	4
FS	942	Advanced Systems of Marital and Family Therapy	4
FS	945	Family Therapy Practice I	4
FS	946	Critical Problems in Family Life	4
FS	947	Family Therapy Practice II	4
FS	950	Contemporary Issues in Adolescent Development	4
FS	952	Clinical Interventions in Couples Therapy	4
FS	954	Human Sexuality, The Treatment of Sexual Problems, and the Clinical Applications of Sexual Therapy	4
FS	991	Professional Issues for Family Specialists	4
FS	993	Theoretical Approaches to Family Studies	4
FS	994	Research Seminar	4
FS	995	Seminar and Special Problems	2 TO 4
FS	997	Advanced Research Seminar	4

## Genetics (GEN) ▼

» <http://mcbsgrad.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **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. Faculty members are housed in the Departments of Molecular, Cellular, and Biomedical Sciences, Biological Sciences and Natural Resources and the Environment. The genetics graduate program integrates disciplines ranging from molecular and cellular biology to environmental and evolutionary genetics and genomics, in microbial, plant, and animal systems.

### **Admission Requirements**

Qualified applicants are admitted with the approval of the genetics graduate faculty. Undergraduate preparation should include mathematics including calculus; chemistry including organic; physics; microbial, animal or plant biology courses with laboratories; and at least one course in genetics. A course in statistics is also desirable. Admitted students with deficiencies in background courses may be required to complete necessary coursework without graduate credit.

Applicants must submit a personal statement, current scores (within five years) from the general GRE test and three letters of recommendation. International applicants living outside the US must initially complete a free [online pre-application](#). If approved for a full application, applicants must submit current TOEFL scores in addition to the items listed above. If possible, the personal statement should specify the applicant's research interests and potential faculty mentors.

### **Degree Requirements**

#### **M.S. Degree Requirements**

The coursework for the master of science degree is formulated with input from the student's guidance committee. Students admitted to the M.S. program are required to conduct a research project under the guidance of a faculty adviser, write and submit a thesis based on this research, and pass an oral examination covering graduate courses and thesis. Students must take a minimum of 30 credits, including at least three genetics courses (minimum of 10 credits), attend seminars each semester, present one seminar per year, and write and defend a thesis before their guidance committee.

#### **Ph.D. Degree Requirements**

The coordinator of the genetics graduate program, with the concurrence of the student's thesis adviser, nominates the student's guidance and doctoral committees which administer the qualifying and final examinations, respectively. Doctoral students are expected to have a broad exposure to genetics courses, exceeding that required of master's degree students. Specific course requirements are developed by the student and the guidance committee. Students must attend seminars each semester and present one seminar per year. Upon completion of coursework, the student must pass an oral qualifying examination conducted by the guidance committee in order to advance to candidacy. Doctoral students must complete a dissertation on original research in genetics and orally defend their dissertation before the doctoral committee.

### **Courses**

## Courses

Abbreviation	Course Number	Title	Credits
GEN	804	Genetics of Prokaryotic Microbes	5
GEN	805	Population and Quantitative Genetics	4
GEN	806	Human Genetics	3
GEN	811	Genomics and Bioinformatics	4
GEN	812	Introduction to Perl programming for Bioinformatics	4
GEN	813	Microbial Ecology and Evolution	4
GEN	815	Molecular Evolution	4
GEN	817	Molecular Microbiology	5
GEN	828	Statistical Genomics	4
GEN	871	Molecular Genetics	4
GEN	872	Evolutionary Genetics of Plants	4
GEN	874	Plant Biotechnology and Genetic Engineering	3
GEN	875	Plant Biotechnology and Genetic Engineering Lab	2
GEN	895	Special Topics	2 TO 4
GEN	899	Master's Thesis	1 TO 10
GEN	995	Special Topics	2 TO 4
GEN	996	Special Topics	2 TO 4
GEN	999	Doctoral Research	0
MCBS	997	Seminar	1

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### Health and Human Services (HHS) ▼

- » <http://www.shhs.unh.edu/>
- » [Click to view course offerings](#)

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### Health Management and Policy (HMP) ▼

- » <http://www.shhs.unh.edu/hmp/gradhmp.html>
- » [Click to view course offerings](#)

*This program is offered in Durham and in Manchester through [GSMC](#).*

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### History (HIST) ▼

- » <http://www.unh.edu/history>
- » [Click to view course offerings](#)

*This program is offered in Durham.*

### **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 current scores (within five years) from the general test of the GRE. The department assesses the student's entire application, including letters of recommendation and writing sample, 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.

### **Degree Requirements**

#### **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 requires** at least eight courses in history numbered 800 or above, including at least one research seminar, and a thesis in a single subfield (equivalent to two courses).

**Plan B requires** at least 10 courses in history numbered 800 or above, including at least one research seminar, and an oral examination demonstrating competence in two subfields of history.

**Plan C requires** 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; and 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 the History M.A. 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: two research seminars, one in early U.S. history and one in modern U.S. history; two reading seminars, one in early U.S. history and one in modern U.S. history; a course in historical methods; correction of any deficiencies in the student's previous program; proficiency in one foreign language; History 970, Graduate Seminar in Teaching History (applies to all doctoral candidates awarded teaching assistantships); preparation through reading and coursework in the entirety of U.S. history, with accent upon either early or modern U.S.; 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; qualifying exams; and 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, 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

### Courses

Abbreviation	Course Number	Title	Credits
HIST	800	Advanced Explorations	1 TO 4
HIST	801	Seminar in Historical Explorations	4
HIST	802	Holocaust: The War on Europe's Jews	4
HIST	803	European Conquest of North America	4
HIST	804	History of Medicine in the United States	4
HIST	805	Revolutionary America, 1750-1788	4
HIST	806	History of the Early Republic	4
HIST	809	United States Legal History Special Topics	4
HIST	811	Civil War Era	4
HIST	812	Emergence of Industrial America	4
HIST	813	American Ways of War	4
HIST	815	United States Progressivism to the New Deal	4
HIST	816	United States Since World War II	4
HIST	817	Vietnam War	4

HIST	818	American Environmental History	4
HIST	819	Foreign Relations of the United States	4
HIST	820	Foreign Relations of the United States	4
HIST	821	History of American Thought	4
HIST	822	History of American Thought	4
HIST	823	Early American Social and Cultural History	4
HIST	824	Topics in Modern United States Social History	4
HIST	832	Topics in Latin American History	4
HIST	834	Medieval Empires	4
HIST	840	Holy War in the Holy Land: The Medieval Crusades	4
HIST	841	Europe After the Black Death	4
HIST	842	Saints, Sinners, and Heretics: Europe in the Age of Religious Reform	4
HIST	847	Early Modern France	4
HIST	848	Modern France	4
HIST	849	Comparative Topics in the History of Early Modern Europe	4
HIST	851	Topics in European Intellectual History	4
HIST	852	Topics in European Intellectual History	4
HIST	854	Topics in History of Science	4
HIST	856	20th Century Europe	4
HIST	862	England in the Tudor and Stuart Periods	4
HIST	864	Russia: Modernization through Soviet Empire	4
HIST	865	Themes in Women's History	4
HIST	866	Environmental History of Northwest Atlantic Commercial Fisheries	4
HIST	869	Germany from 1918 to Present	4
HIST	871	Museum Studies	4
HIST	872	Studies in Regional Material Culture	4
HIST	873	Early History of Ancient Greece	4
HIST	874	Historiography	4
HIST	875	Historical Methods	4
HIST	876	Classical and Hellenistic Greek Worlds	4
HIST	877	Roman Republic	4
HIST	879	Workshop in History and Historical Methods	1 TO 6
HIST	880	Special Topics in Museum Studies/Material Culture	4
HIST	881	Topics History of Modern China	4
HIST	892	Seminar in the History of Science	4

HIST	898	Internship in Museum Studies	4
HIST	899	Master's Thesis	1 TO 6
HIST	939	Readings in Early American History	3
HIST	940	Readings in Modern American History	3
HIST	949	Colloquium in United States History	3
HIST	951	Colloquium in European History	3
HIST	952	Colloquium in Comparative History	3
HIST	953	Colloquium in African, Asian, Latin American History	3
HIST	970	Graduate Seminar in Teaching History	2
HIST	989	Research Seminar in American History	3
HIST	990	Research Seminar in American History	3
HIST	991	Research Seminar in European History	3
HIST	992	Research Seminar in Comparative History	3
HIST	993	Research Seminar in African, Asian, Latin American History	3
HIST	994	Research Seminar in African, Asian, Latin American History	3
HIST	995	Tutorial Reading and Research	1 TO 6
HIST	997	Directed Readings in Early American History	1 TO 6
HIST	998	Directed Readings in Modern United States History	1 TO 6
HIST	999	Doctoral Research	0

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## Information Technology (IT) ▼

» <http://manchester.unh.edu/msit>

» [Click to view course offerings](#)

*This program is offered in Manchester through [GSMC](#).*

### **Degree Offered: M.S.**

The Division of Science and Technology at UNH Manchester offers a master of science in information technology (M.S. IT). The program prepares students for a professional IT or computing-related career and for advanced studies in a computing discipline.

The program is designed for computing professionals or working adults seeking a career change. The learning environment of the M.S. IT program uses a blended learning model, which combines in-class and online educational activities, emphasizes collaboration and communication among peers, and supports use of computing technologies and authentic project experiences.

The M.S. IT program has 33 credits (11 courses). All courses are offered in the evening, in fall, spring, and summer terms. If enrolled part-time and taking, on average, two courses per term, students can complete the program's coursework in two years.

The program's educational objectives for graduating students are:

1. Proficiency in applying knowledge and skills in core and advanced information technologies to help organizations

achieve their goals.

2. Proficiency in identifying, analyzing, and meeting the IT needs of users, whether they are end-users of information systems, managers of enterprise applications, developers of IT solutions, or customers of IT-reliant work systems.
3. Proficiency in developing, applying integrating, administering, and evaluating IT systems and services.

## Admission Requirements

Applicants must meet the admission standards of the UNH Graduate School and have a bachelor's degree in a computing discipline: computer science, information technology, computer information systems, information sciences, computer engineering, or software engineering.

The following application requirements are specific to the MS IT applicants:

Official transcripts from each institution of higher education that the applicant attended.

Three letters of recommendation from professional and/or academic references that describe your qualifications.

Personal references (from family members or friends) are not acceptable. References must be concrete and to the point. Big statements without supportive examples do not make an effective recommendation. No more than one page is allowed for each letter.

Current resume limited to no more than two pages.

M.S. IT Personal Statement replaces UNH Graduate School Standard Statement. Applicants are required to answer the questions below. No more than two pages are allowed for this statement (with font size no smaller than 11 pt). Less is more! Be concise and precise.

1. Why is this degree important to you?
2. What qualifications and experiences make you a good candidate for the program?
3. What IT knowledge areas are you eager to master and what professional skills will be the most valuable to you?
4. What challenges do you foresee with completing the required coursework?
5. An MS IT course requires on average 8 to 10 hours per week of study time. Describe the support (from work, family, or others) and/or plans you have to fit this time requirement in your life.
6. In your opinion, what distinguishes an accomplished and competitive IT professional?

Students with undergraduate degrees in other fields are invited to apply and required to schedule an interview with the program coordinator. The minimal formal course work required of students without a B.S. degree in computing includes: introduction to programming, operating systems, networking, databases, and college mathematics above college algebra (such as finite mathematics, discrete mathematics, or statistics).

Students can satisfy program's prerequisites by taking the following undergraduate courses at UNH Manchester and getting a minimum grade of B:

CIS 425 Introduction to Programming  
CIS 520 Database Design and Development  
CIS 542 Applications in Operating Systems  
CIS 550 Networking Concepts  
MA 418 Precalculus or MA420 Finite Mathematics

## Degree Requirements

The M.S. IT program has two options: thesis and project.

Both options require completion of 33 credits (11 courses), including:

Five core information technology courses (18 credits) and  
Two IT integration courses (6 credits).

In addition

MS Thesis option requires

Two elective course (6 credits)

Thesis (6 credits) to be completed under the supervision of a thesis adviser and a thesis committee of at least three members.

MS Project option requires

Three elective courses (9 credits)

Project (3 credits) to be completed under the supervision of a faculty advisor.

#### Core IT Courses

CIS 805 Web Application Development  
 CIS 810 Object Oriented Software Development  
 CIS 815 Information Security  
 CIS 820 Database Systems and Technologies  
 CIS 825 Networking Technologies

#### IT Integration Courses

CIS 830 Computing Infrastructures  
 CIS 831 System Integration and Architecture

#### Elective Courses

CIS 905 Advanced Web Systems and Services  
 CIS 910 Open Source Software Development  
 CIS 915 System and Network Security  
 CIS 920 Advanced Database Systems  
 CIS 930 Server Technologies and Applications  
 CIS 932 Design Patterns

Elective courses can also be selected from the curriculum of the graduate certificate in Software System Engineering that is offered by the CS department and whose courses are taught in Manchester:

CS 818 Software Systems Engineering Process  
 CS 853 Software Project Management  
 CS 851 System Requirements Engineering  
 CS 823 System Test and Evaluation  
 CS 852 Software Architecture Concepts

Other options are courses in the Master of Science in Management of Technology (MOT) program.

#### Project Course

CIS 898 Master's Project

The project course typically deals with an authentic project or problem to solve, which is integrative in nature and requires IT research.

#### Master's Thesis

CIS 899 Master's Thesis (6 credits)

### **Courses**

### **Courses**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
CIS	805	Web Application Development	3
CIS	810	Object-Oriented Software Development	3
CIS	815	Information Security	3
CIS	825	Networking Technologies	3
CIS	831	System Integration and Architecture	3
CIS	895	Independent Study	1-3

## Integrated Applied Mathematics (IAM) ▼

» [Click to view course offerings](#)

*This program is offered in Durham.*

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## Justice Studies (JUST) ▼

» <http://www.unh.edu/justice-studies/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: M.A.

The goal of the master of arts degree program in justice studies is to produce graduates who have a high level of knowledge about law and justice in American society and worldwide. Upon completion, graduates will be able to enhance their careers in the justice system, enter new careers in the justice system, or continue their graduate training in law, social sciences, or humanities.

The program addresses issues of justice that are not necessarily criminal in nature. It will familiarize students with legal and justice ideas, legal institutions, and the legal process. It will provide tools for a reasoned appraisal of how the law works and of the policies that underlie it. The courses address a wide variety of subjects, including philosophy of law, American legal history, psychological aspects of the law, social control, criminology, juvenile delinquency, law and literature, and family law. Courses are taught by faculty with backgrounds in both the social sciences and humanities.

### Special Note on Tuition:

The **Justice Studies Masters** program also has a different pricing structure. You can find the most current pricing for this program under the business services Web site (follow the Justice Studies-MA link).

### Admission Requirements

In addition to meeting the general Graduate School requirements, applicants must submit current scores (within five years) from the general test of the GRE or the LSAT.

## Deadlines

**Summer 2012:** Classes begin the first week in August

March 1st for financial assistance (to be eligible)

April 15th without financial assistance

### Degree Requirements

The master of arts in justice studies requires that students complete a minimum of nine courses (36 credit hours) in Justice Studies from the following list:

#### Required courses:

JUST 830 Theories of Justice (justice studies M.A. students only)

JUST 901 Proseminar

JUST 905 Quantitative Research Methods (justice studies M.A. students only)

JUST 907 Applied Research Methods

#### One of the three listed below:

SOC 815 Criminological Theory  
 SOC 880 Social Conflict  
 SOC 921 Crime and Conflict

**Concluding Experience:**

JUST 897 Culminating Project (4 credits), and  
 JUST 950/951 Internship (4 credits)

or

JUST 899 Masters Thesis (8 credits)

**Electives:**

Choose 2 courses if taking JUST 899 or 2 courses plus JUST 950/951 if taking JUST 897 from the following list (no more than 1 from any department other than justice studies):

EDUC 867 Students, Teachers, and the Law  
 EDUC 897 Higher Education and the Law  
 EDUC 951 Laws and Regulations Affecting the Education of Students with Disabilities  
 EDUC 967 School Law  
 EDUC 968 Collective Bargaining in Public Education  
 FS 872 International Approach to Child Advocacy  
 FS 897 Children, Adolescents, and the Law  
 FS 894 Families and the Law  
 HMP 940 Legal Strategies in Health Care  
 HIST 809 United States Legal History Special Topics  
 HIST 949 Colloquium in United States History  
 JUST 867 Students, Teachers, and the Law  
 JUST 950 Internship  
 JUST 951 Research Internship  
 JUST 965 Special Topics  
 JUST 995 Reading and Research  
 POLT 801 Courts and Public Policy  
 POLT 803 Urban and Metropolitan Politics  
 PSYC 954 Advanced Seminar in Social Psychology  
 SW 897 Special Topics: Domestic Violence  
 SW 979 Social Work and the Law  
 SOC 815 Criminological Theory  
 SOC 820 Sociology of Drug Use  
 SOC 876 Family Violence Research Seminar  
 SOC 880 Social Conflict  
 SOC 921 Crime and Conflict  
 SOC 976 Violence in the Family

**Courses****Courses**

Abbreviation	Course Number	Title	Credits
JUST	830	Theories of Justice	4
JUST	865	Special Topics	4
JUST	897	Culminating Project	4
JUST	899	Masters Thesis	1 TO 8
JUST	901	Pro-seminar: Introduction to Justice Studies	4

JUST	905	Quantitative Research Methods	4
JUST	907	Applied Research Methods	4
JUST	950	Internship	4
JUST	951	Research Internship	4
JUST	965	Special Topics	4
JUST	995	Reading and Research	1 TO 4

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## Kinesiology (KIN) ▼

» <http://www.unh.edu/kinesiology/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degree Offered: M.S.**

**Certificate Offered: Adapted Physical Education**

### Master of Science Degree

The Department of Kinesiology offers a master of science degree with the following areas of concentration: exercise science, outdoor education, and sport studies. In addition, the Departments of Kinesiology and Social Work offer a dual degree program, which consists of a master in science in kinesiology with a concentration in outdoor education, as well as a master in social work (M.S.W.).

Additionally, a graduate certificate in adapted physical education is offered.

### Admission Requirements

Admission is based on undergraduate preparation, academic record, Graduate Record Examination general test scores (current scores, within the last five years), 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.

Students applying for the dual degree program must meet both the admission requirements for kinesiology and for social work and be admitted to both programs (applications to each program required). See social work for their admission requirements.

### Degree Requirements

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

**Exercise science core:** KIN 804, Electrocardiography; KIN 805, Topics in Applied Physiology; KIN 824, Metabolic Adaptations to Exercise; KIN 836, Fitness and Graded Exercise Test and Prescription; and two semesters of KIN 902, Colloquium.

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

**Outdoor education core:**

KIN OE Concentration - EDUC 881, Statistics; KIN 883, Psychological Aspects of Adventure Education; KIN 884, Foundations of Adventure Education; KIN 885, Program Models and Evaluation in Outdoor Education; KIN 886, Organization and Administration of Outdoor Education Programs; KIN 887, Theory of Adventure Education; KIN 901, Analysis of Professional Literature.

Integrated MSW/MS Dual Degree Program - The UNH Departments of Social Work and Kinesiology offer an Integrated MSW/MS Dual Graduate Degree Program. This program is the first of its kind in the nation! It organizes a significant number of existing resources and assets at UNH in a way that empowers participating students for a career in adventure therapy.

The use of adventure experiences as a therapeutic or socio-educational intervention for clients with mental health needs is well documented. Prospective graduate students in the SW/OE Integrated Dual Degree program apply and need to be accepted into each separate graduate program. Upon acceptance in both programs, students progress through the integrated curriculum, graduating from both programs at the end of their third year. The exception to this would be an Advanced Standing student in social work, who could graduate from both programs in two years. In order to graduate with the dual degrees, the student completes a 24-hour per week social work/adventure therapy related field internship in their third year as well as an Outdoor Education Thesis or Advanced Studies Project in their last semester. Contact Dr. Michael Gass for additional information.

Any remaining coursework in each concentration 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), as well as an oral defense of the thesis, are required in the thesis plan.

**Non-thesis plan:** A minimum of eight approved graduate courses (with a minimum of 30 credits) are required in the non-thesis plan. Four credits of KIN 895, Advanced Studies, are required. A student may take KIN 895 only after completing at least three approved graduate courses including KIN 901.

**Advanced Research plan:** Exercise science students who elect this plan must take 6 credits of KIN 896, Advanced Research in Exercise Science. Outdoor education students who elect this plan must take 6 credits of KIN 897, Advanced Research in Outdoor Education. In addition, exercise science and outdoor education students must orally defend their research.

Dual degree students take classes simultaneously over the course of three years in both kinesiology: outdoor education and social work and complete a minimum of 77 credits for graduation. This includes two internships, one during their first year of study and a second specialized internship during the third year, which concentrates on the utilization and application of adventure therapy in an agency setting.

### **Certificate in Adapted Physical Education**

The Department of Kinesiology at the University of New Hampshire now offers a graduate certificate in Adapted Physical Education. The intent of this certificate is to better prepare teachers to enhance their overall knowledge of students with disabilities in general and adapted physical education settings. For more information, please contact Michelle Grenier at 603-862-1835 or email [grenier@unh.edu](mailto:grenier@unh.edu).

### **Certificate Requirements**

Students must hold a baccalaureate degree by an accredited college or university and have a valid New Hampshire physical education teaching license or be enrolled in the master in education program at the University of New Hampshire and complete 15 credit hours of specified coursework. A minimum 15 graduate credits are required for the certificate. Required courses - KIN 831, Inclusive Teaching Through Sport; KIN 742/842, PE Practicum for Students with Disabilities; KIN 895, Advanced Studies.

### **Applying**

Please visit the Graduate School PBACC site (<http://www.gradschool.unh.edu/pbacc.html>) for detailed instructions about applying to the certificate program.

**Courses****Courses**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
KIN	804	Electrocardiography	4
KIN	805	Topics in Applied Physiology	4
KIN	806	Neurology	4
KIN	807	Neurology Lab	2
KIN	824	Metabolic Adaptations to Exercise	4
KIN	831	Inclusive Teaching Through Sport	4
KIN	836	Fitness and Graded Exercise Test and Prescription	4
KIN	840	Athletic Administration	4
KIN	841	Social Issues in Contemporary Sports	4
KIN	842	PE Practicum for Students with Disabilities	4
KIN	843	Sport Marketing	4
KIN	880	Psychological Factors in Sport	4
KIN	881	Inclusion in Physical Education	4
KIN	882	Therapeutic Applications of Adventure Programming	4
KIN	883	Pysch Factors of Adventure Ed	4
KIN	884	Foundations of Adventure Education	4
KIN	885	Program Models and Evaluation in Outdoor Education	4
KIN	886	Organization and Administration of Outdoor Education Programs	4
KIN	887	Theory of Adventure Education	4
KIN	895	Advanced Studies	2 TO 4
KIN	896	Advanced Research in Exercise Science	6
KIN	897	Advanced Research in Outdoor Education	3 OR 6
KIN	898	Special Topics	1 TO 4
KIN	899	Master's Thesis	1 TO 6
KIN	900	Applied Statistics	4
KIN	901	Analysis of Professional Literature	4
KIN	902	Colloquium	1 TO 2
KIN	909	PE Practicum for Students with Disabilities	2 TO 4
KIN	910	Curricular Issues in Health Pedagogy	4
KIN	950	Internship	2 TO 4

KIN	998	Special Topics	2 TO 4
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## Languages, Literatures, and Cultures (LLC) ▼

» <http://www.unh.edu/languages/>

» [Click to view course offerings](#)

*Lecturer:* Mary Marshall Campbell

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## Liberal Studies (LS) ▼

» <http://www.unh.edu/mals/index.cfm?id=7D13DD7E-9D79-1057-EDB07CCEFD5F5F5B>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **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 resume, 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 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.

### **Degree Requirements**

The program consists of seven courses (30 credits) divided into three parts: a core seminar specifically designed for and required of every student, to be taken within one year of entrance to the program; 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 a master's thesis or project, which is intended to act as an integrating capstone experience for liberal studies students.

**Core seminar LS 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 core seminars focus on interdisciplinary issues and themes, each is meant to introduce students to different topics and divergent disciplines from across the liberal arts such as literature, the arts, philosophy, history, women's studies, political science, and sociology.

**Concentration (20 credits):** Students will work with the director of the program and a concentration and thesis adviser to develop an interdisciplinary concentration program of study, which focuses on a significant topic, issue, perspective, or cultural development, and is made up of five graduate-level elective courses offered in various departments throughout the college and University. A concentration should constitute a sustained thematic exploration and may be selected from a menu of suggested concentrations or may be self-designed by each student with the help

of his or her adviser. The five courses 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). 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, and women's studies.

**LS 898 Project or LS 899 Thesis (6 credits):** With the support of their concentration and thesis adviser, students prepare a final project consistent with their concentration and interests. A capstone experience, 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

### Courses

Abbreviation	Course Number	Title	Credits
LS	800	Core Seminar	4
LS	845	Special Topics	2 TO 4
LS	846	Special Topics	2 TO 4
LS	895	Independent Study	1 TO 6
LS	896	Independent Study	1 TO 6
LS	898	Master's Project	1 TO 6
LS	899	Master's Thesis	1 TO 6

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### Life Sciences and Agriculture (LSA) ▼

» <http://www.colsa.unh.edu/academics/>

» [Click to view course offerings](#)

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### Management of Technology (MOT) ▼

» <http://www.wsbe.unh.edu/graduate-programs>

» [Click to view course offerings](#)

*This program is offered in Manchester through [GSMC](#).*

#### **Degree Offered: M.S.**

The Whittemore School offers a master of science in the management of technology (MOT). The degree comprises 36 credits and is divided into three modules: Business Fundamentals for Technical Managers, Advanced Concepts for Technical Managers, and Advanced Management of Technology.

The MOT program is a flexible evening-based program for professionals in a technical field, in an industry that is challenged by rapid technological innovation, or in a company that does project-based work. Applications are accepted for the spring semester with a start date in early January.

*Please contact the department for details.*

### Admission Requirements

Applicants must have a minimum of a bachelor's degree from an accredited college or university and meet the admissions standards of the University of New Hampshire Graduate School. It is understood that some applicants will have advanced degrees in engineering or science fields.

A candidate should have significant (about five years or more) work experience. While the GMAT exam is not required, applicants may be asked to take the GMAT if the initial review of their transcripts reveals specific areas of concern or question. The admissions committee will request the GMAT in special circumstances only.

Applicants are required to submit copies of prior academic records, three references, resume and a complete graduate school application.

*Please contact the department for details.*

### Degree Requirements

*Please contact the department for details.*

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
MOT	898	Advanced Topics	3
MOT	931	Accounting and Finance for Technical Managers	3
MOT	934	Management of Technology and Innovation	3
MOT	935	Quantitative Methods	3
MOT	936	Leadership and Team Management	3
MOT	939	Information Systems/Management of Enterprise Systems	3
MOT	941	Product Development and Marketing	3
MOT	942	Project Management	3
MOT	945	Supply Chain Management and Procurement	3
MOT	946	Strategic Management of Technology	3
MOT	947	Managing Emerging Technologies	3
MOT	948	Business Planning and Program Management	3

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### Materials Science (MS) ▼

» <http://www.unh.edu/materials-science/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The materials science program offers the master of science degree in materials science and doctor of philosophy degree in materials science and engineering. The program offers research opportunities over a broad range of areas including synthesis and characterization of thin films, fullerenes and nanotubes, molecular templates, self-organizing nanostructures, polymers and polymer nanoparticles, using scanning probe microscopy, physical and chemical vapor deposition methods, micromechanics, molecular beam mass spectrometry, and computational methods.

### **Admission Requirements**

Admission to the master of science and doctor of philosophy degrees is based upon a strong undergraduate record. A minimum GPA of 3.0 is required, but undergraduate students with exceptional experience or other mitigating factors will be considered. Except under special circumstances, applicants must submit current scores (within five years) from the general test of the GRE. 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 will be considered. A suitable undergraduate program should 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. Members of the faculty are available to evaluate each student's undergraduate curriculum. A series of appropriate courses will be required for those students with deficiencies in their undergraduate program.

Qualified physics students at the University of New Hampshire may be admitted to an accelerated program leading to a combined bachelor of science degree in physics and a master's degree in materials science within a total of five years. Please consult the materials science website for details.

### **Degree Requirements**

#### **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 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.

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. Students who have done graduate work at other schools that included courses similar to those in the Materials Science Program may petition for waivers of UNH degree requirements.

#### **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). Students who have done graduate work at other schools that included courses similar to those in the Materials Science Program may petition for waivers of UNH degree requirements.

The student will be advanced to candidacy after he or 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

The table below shows courses with a M.S. designation. Several other courses that count as electives in the Materials Science Program are taught by faculty in chemistry, mechanical engineering, physics, and other departments. For a complete list of these courses please see the *Graduate Student Handbook* on the [Materials Science website](#).

## Courses

Abbreviation	Course Number	Title	Credits
MS	830	Mechanical Behavior Materials	4
MS	831	Fracture and Fatigue Engineering Materials	4
MS	844	Corrosion	4
MS	860	Thermodynamics and Kinetics of Materials I	3
MS	861	Diffraction and Imaging Methods in Materials Science	4
MS	862	Electronic Materials Science	4
MS	863	Thin Film Science and Technology	4
MS	895	Special Topics	2 TO 4
MS	898	Master's Project	3 TO 4
MS	899	Master's Thesis	1 TO 6
MS	900	Seminar	1
MS	905	Macromolecular Synthesis	3
MS	910	Macromolecular Characterization	3
MS	961	Thermodynamics and Kinetics of Materials II	3
MS	965	Advanced Surface and Thin Film Characterization	4
MS	995	Graduate Special Topics	2 TO 4
MS	999	Doctoral Research	0

## Mathematics and Statistics (MATH) ▼

» <http://www.math.unh.edu>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

### **Certificate Offered: Industrial Statistics**

The Department of Mathematics and Statistics offers programs leading to a master of science for teachers (M.S.T.) in mathematics, master of science in mathematics, master of science in mathematics with an option in applied mathematics, and a master of science in mathematics with an option in statistics. The department also offers a doctor of philosophy in mathematics with options in pure mathematics, applied mathematics, statistics, and mathematics education. Students may also choose to study for the master's or doctoral degree in the integrated applied mathematics (IAM) program ([click here for a list of the IAM course descriptions](#)).

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. 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, geometric function theory, complex analysis, Radon transforms, integral geometry, ring theory, computational algebra, homological algebra, quantum groups, tensor categories, combinatorics, topology, algebraic topology, category theory, nonlinear dynamics and chaos, data compression, chaotic prediction and control, spectral analysis, asymptotic analysis, mathematical control theory, environmental statistics, spatial and spatio-temporal statistics, Bayesian and computational statistics, wavelets in statistics, teaching and learning of mathematics, teaching and learning of probability and statistics, mathematics curriculum and teacher education, calculus learning, K-12 mathematics education reform, and mathematics education.

Additionally, a graduate certificate in industrial statistics is offered.

### **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 (M.S.T.) usually possess a background equivalent to at least a minor in mathematics and must have completed education courses sufficient for certification, or have three years teaching experience, or currently hold a full-time teaching position.

### **Degree Requirements**

#### **M.S. Degree Requirements**

##### **Pure Mathematics Option**

This program requires 30 credit hours, consisting of at least 10 semester courses approved by the department and chosen from courses in 801-888 and 931-998, with at least six of the courses in the 931-998 group. As a concluding experience, the student will take an oral exam before a committee of three faculty members. The committee membership is suggested by the student and is approved by the graduate program committee.

**Applied Mathematics Option**

This program requires 30 credit hours, consisting of the courses MATH 931, MATH/IAM Applied Functional Analysis, an approved two-course sequence in applied mathematics (such as MATH 967/977). In addition to these courses, the student chooses either a thesis or project option. The thesis option consists of 6 credits of Master's Thesis (MATH 899), and four elective courses. The project option consists of 3 credits of Master's Project (MATH 898), and five 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. There is no comprehensive examination in this option.

**Statistics Option**

This program requires 30 credit hours, consisting of at least ten 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 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 ten 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 to 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 examination in this option.

**M.S.T. Degree Requirements**

The program requires 30 credit hours, consisting of at least ten 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 to 3 (below) 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 and 2, which replace basic requirements 1 and 2; all other Ph.D. students must satisfy requirements 1 and 2. The additional requirements 3 to 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, 955;
2. Mathematics Ph.D. students must pass written comprehensive examinations in algebra, analysis, topology and an elective subject. Mathematics Education Ph.D. students must pass written comprehensive examinations in algebra, analysis, mathematics education and an elective subject. (Elective subjects include functional analysis, algebraic topology, applied mathematics, statistics, advanced algebra, advanced complex analysis, advanced mathematics education, et al.)

**Alternate basic degree requirements for mathematics Ph.D. students in statistics:**

1. All of the courses MATH 839, 840, 855, 856, 951, 953, and 954;
2. Must pass 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 minor field (usually within mathematics, but possibly in another area of the mathematical sciences), and a major field (that of the student's intended dissertation work) followed by qualifying presentations 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.

**Certificate in Industrial Statistics**

The Department of Mathematics and Statistics offers a graduate certificate in the area of industrial statistics. For more information please visit the [Industrial Statistics](http://www.math.unh.edu/statistics/certificates.pdf) website (<http://www.math.unh.edu/statistics/certificates.pdf>) or contact [Philip Ramsey](mailto:Philip.Ramsey@unh.edu) at (603) 862-2320.

**Applying**

Please visit the [Graduate School PBACC site](http://www.gradschool.unh.edu/pbacc.html) (<http://www.gradschool.unh.edu/pbacc.html>) for detailed instructions about applying to the certificate program.

**Certificate Requirements**

A graduate certificate in industrial statistics is awarded for completion of three courses as follows:

**Two Required Courses:** Any two of:

MATH 837: Statistical Quality Improvement (SQI)

MATH 839: Applied Regression Analysis

MATH 840: Design of Experiments I

MATH 844: Design of Experiments II (DOE II)

**One Elective Course:** chosen from remaining courses of the above list and from

MATH 841: Biostatistics and Life Testing

MATH 842: Multivariate Statistical Methods

or any other approved special topics course in the area of industrial statistics

Other special topics courses are occasionally offered and may be added to the list of elective courses.

All of these courses are currently offered live over the Internet in "Far View" mode. See <http://e-learn.unh.edu/> for more information on the Far View program.

**Contact:** Ernst Linder, Department of Mathematics and Statistics

**Web site:** [Industrial Statistics](http://www.math.unh.edu/cgi-bin/generatePage.cgi?programs) (<http://www.math.unh.edu/cgi-bin/generatePage.cgi?programs>)

**Phone:** 603-862-2687

**E-mail:** [elinder@unh.edu](mailto:elinder@unh.edu)

## Courses

Courses numbered MATH 903-929 may be applied to the master of science for teachers (M.S.T.) 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.

## Interdisciplinary Opportunities

The College of Engineering and Physical Sciences has developed an Integrated Applied Mathematics Program (IAM). Students interested in applied and interdisciplinary work are encouraged to inquire about IAM within the college.

## Courses

Abbreviation	Course Number	Title	Credits
MATH	835	Statistical Methods for Research	3
MATH	836	Advanced Statistical Methods for Research	3
MATH	837	Statistical Methods For Quality Improvement	3
MATH	839	Applied Regression Analysis	3
MATH	840	Design of Experiments I	3
MATH	841	Survival Analysis	3
MATH	843	Time Series Analysis	3
MATH	845	Foundations of Applied Mathematics	3
MATH	846	Foundations of Applied Mathematics	3
MATH	847	Introduction to Nonlinear Dynamics and Chaos	3
MATH	853	Introduction to Numerical Methods	3
MATH	854	Introduction to Scientific Computing	3
MATH	855	Probability and Stochastic Processes	3
MATH	856	Principles of Statistical Inference	3
MATH	861	Abstract Algebra	3
MATH	862	Linear Algebra	3
MATH	867	One-Dimensional Real Analysis	3
MATH	876	Logic	3
MATH	884	Topology	3
MATH	888	Complex Analysis	3

MATH	896	Topics in Mathematics and Statistics	1 TO 4
MATH	898	Master's Project	1 TO 6
MATH	899	Master's Thesis	1 TO 6
MATH	903	Higher Algebra for Teachers I	3
MATH	904	Higher Algebra for Teachers II	3
MATH	905	Higher Geometry for Teachers I	3
MATH	906	Higher Geometry for Teachers II	3
MATH	907	Higher Analysis for Teachers I	3
MATH	908	Higher Analysis for Teachers II	3
MATH	909	Probability and Statistics for Teachers	3
MATH	910	Selected Topics in Mathematics Education for Teachers	1 TO 4
MATH	916	Theory of Numbers for Teachers	3
MATH	917	Mathematical Proof and Problem Solving	3
MATH	925	Problem Solving Seminar	3
MATH	928	Selected Topics in Mathematics for Teachers	1 TO 3
MATH	929	Directed Reading	1 TO 3
MATH	931	Mathematical Physics	3
MATH	941	Bayesian and Computational Statistics	3
MATH	942	Beyond ANOVA: Generalized Linear and Semi-parametric Smoothing Methods	3
MATH	944	Spatial Statistics	3
MATH	951	Algebra I	3
MATH	952	Algebra II	3
MATH	953	Analysis I	3
MATH	954	Analysis II	3
MATH	955	Topology I	3
MATH	956	Topology II	3
MATH	958	Foundations of Math Education	3
MATH	961	Topics in Algebra I	3
MATH	963	Functional Analysis	3
MATH	964	Topics in Analysis I	3
MATH	965	Topics in General Topology I	3

MATH	966	Topics in Algebraic Topology I	3
MATH	967	Topics in Applied Mathematics I	3
MATH	968	Topics in Mathematics Education I	3
MATH	969	Topics in Probability and Statistics I	3
MATH	971	Topics in Algebra II	3
MATH	973	Topics in Operator Theory	3
MATH	977	Topics in Applied Mathematics II	3
MATH	978	Topics in Mathematics Education II	3
MATH	979	Research Topics in Statistics	3
MATH	998	Reading Courses	1 TO 6
MATH	999	Doctoral Research	0

## Mechanical Engineering (ME) ▼

» <http://www.unh.edu/mechanical-engineering/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### 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, materials 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. Students from other disciplines may also be admitted to the program. However, in order to be properly prepared for graduate-level coursework, these students must have taken the equivalent of the UNH Mechanical Engineering undergraduate core courses listed below. Students who are deficient in three or fewer courses may be admitted to the department on a provisional basis. Students who are deficient in more than three courses must apply and enroll as an undergraduate student until they meet the core course requirement. It is department policy that engineering courses taken as part of an Engineering Technology program are generally not considered equivalent to any of the courses listed below. The decision on equivalence for any courses taken at an institution other than UNH is at the discretion of the Graduate Committee of the Mechanical Engineering Department.

Applicants must submit current scores (within five years) from the general test of the GRE.

### Core courses required for admission to the M.S. in Mechanical Engineering degree program:

#### Mathematics and Physics Courses:

MATH 425, Calculus I; MATH 426, Calculus II; MATH 527, Differential Equations; MATH 528, Multi-Dimensional Calculus; PHYS 407, General Physics; PHYS 408, General Physics II

#### Mechanics Courses:

ME 525, Mechanics I; ME 526, Mechanics II; ME 627, Mechanics III; ME 643, Elements of Design

#### Thermal Sciences:

ME 503, Thermodynamics; ME 608, Fluid Mechanics; ME 603, Heat Transfer

#### Other Courses:

ME 561, Materials Science; ME 670, Systems Modeling and Controls; EE 537, Circuits and Signals

### Degree Requirements

#### M.S. Degree Requirements

A candidate for the degree of master of science will satisfy the requirements of either a thesis plan or a project plan. The thesis plan requires 24 semester hours of coursework in addition to 8 semester hours of ME 899, Master's Thesis; the project plan requires 28 semester hours of coursework in addition to 4 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.

All full-time graduate students are required to attend a weekly M.E. Graduate Seminar and make one presentation per year.

#### Ph.D. in Mechanical Engineering

Following admission into the program, a research adviser is appointed for the student by the graduate coordinator. The student's research adviser 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 twelve 3- or 4-credit courses with three at the 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 the 900 level, although the committee may determine that additional coursework is necessary. The guidance committee also administers the qualifying examination, which is two parts: 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 will 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 of the results of the defense by the dissertation chair.

All full-time graduate students are required to attend a weekly M.E. Graduate Seminar and make one presentation per year.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
ME	807	Analytical Fluid Dynamics	4
ME	809	Computational Fluid Dynamics	3

ME	812	Waves in Fluids	3
ME	824	Vibrations Theory and Applications	4
ME	827	Advanced Mechanics of Solids	4
ME	835	Mechanics of Composite Materials	4
ME	843	Satellite Systems, Dynamics, and Control	3
ME	860	Physical Metallurgy I	4
ME	870	Design with Microprocessors	4
ME	872	Control Systems	4
ME	873	Electromechanical Analysis and Design	4
ME	876	Product Design	4
ME	877	Computer Aided Engineering	4
ME	883	Geometric Modeling	4
ME	885	Solid Mechanics in Manufacturing	4
ME	886	Introduction to Finite Element Analysis	4
ME	895	Special Topics	1 TO 4
ME	899	Master's Thesis	1 TO 8
ME	906	Convection Heat Transfer	4
ME	909	Viscous Flow	3
ME	910	Turbulence	3
ME	911	Theory of Hydrodynamic Stability	3
ME	927	Theory of Plasticity	4
ME	935	Micromechanics of Composite and Porous Materials	4
ME	944	Nonlinear Control Systems	4
ME	951	Advanced Control Systems I	3
ME	952	Advanced Control Systems II	3
ME	955	Estimation and Filtering	3
ME	986	Advanced Finite Element Analysis	4
ME	992	Master's Project	4
ME	995	Graduate Special Topics	1 TO 4
ME	999	Doctoral Research	0

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## Microbiology (MICR) ▼

» <http://mcbsgrad.unh.edu/microbiology>

» [Click to view course offerings](#)

*This program is offered in Durham.*

microbiology

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

The Department of Molecular, Cellular, and Biomedical Science (MCBS) offers the master of science and the doctor of philosophy degrees in Microbiology. Research opportunities are available in a broad range of areas, including plant-microbe interactions, nitrogen fixation, signal transduction, microbial development, host-microbe interactions, molecular mechanisms of pathogenesis, environmental and molecular virology, microbial ecology, microbial evolution, microbial genetics, molecular microbiology, 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. Applicants must submit current scores (within five years) from the general test of the GRE. 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 Microbiology Graduate Program Coordinator to obtain information on the department.

### **Degree Requirements**

#### **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 thesis credits, is required. In addition, the student must submit 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. Successful entrance to candidacy requires the successful completion of the following:

1. All courses required by the Graduate Committee including MCBS 905
2. A written qualifying exam administered by the Graduate Program Coordinator and graduate faculty
3. An independent research proposal developed in conjunction with a faculty adviser
4. An oral defense of the research proposal

Students enrolled in the doctoral program are required to complete one semester of teaching; and to complete and successfully defend a dissertation based on their research proposal.

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

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

### **Courses**

### **Courses**

Abbreviation	Course Number	Title	Credits
MCBS	901	Introduction to Research in the Life Sciences	2
MCBS	905	Contemporary Topics in Molecular, Cellular and Biomedical Sciences	1
MCBS	997	Seminar	1
MICR	802	Infectious Disease and Health	5
MICR	803	Infectious Disease and Health	5
MICR	805	Immunology	3
MICR	806	Virology	3
MICR	808	Virology Lab	2
MICR	816	Public Health and Waterborne Diseases	4
MICR	830	Ethical Issues in Biomedical Science	4
MICR	895	Special Topics	1 TO 4
MICR	899	Master's Thesis	1 TO 10
MICR	906	Hot Topics	1
MICR	907	Instrumentation	1
MICR	999	Doctoral Research	0

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## Molecular, Cellular, and Biological Sciences (MCBS) ▼

» <http://microbiology.unh.edu>

» [Click to view course offerings](#)

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## Music (MUSI) ▼

» <http://www.unh.edu/music>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: M.A.

The Department of Music offers programs leading to the degree of master of arts with options in music studies and 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 for doctoral study.

### Admission Requirements

For the music studies 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, or a bachelor's degree in music and teacher certification. Graduate Record Exams are not required. However, a placement examination covering music theory, aural skills, and music history will be administered to incoming students prior to registration. Any deficiencies must be remediated by the end of the second semester in order to remain in the

program. In the music studies option, a reading knowledge of both German and French is strongly recommended for candidates who intend to continue on for a Ph.D. in musicology.

Applicants planning to enter the music studies option should contact the graduate coordinator concerning additional application requirements. Applicants for the music education option must arrange for an interview with the music education coordinator.

Graduate students interested in earning teacher certification in music should apply for the master of arts in teaching offered through the Department of Education.

## Degree Requirements

### Music Studies 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. Additional courses at the 800 and 900 levels in music, or at the 800 and 900 levels in other departments, may be selected with the approval of the student's adviser to augment the required courses for a minimum total of 30 credits. Candidates pursuing advanced study in performance, conducting, or composition may also present a recital in consultation with their adviser and major teacher. A written essay of a substantive nature on a topic of the candidate's special interest is required, as approved by the adviser. Candidates must also pass a comprehensive oral examination that includes questions on the essay and on a number of unidentified scores from different historical periods. (Students are allowed to study these scores two hours prior to the exam.)

### 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 805, 807, 809, 811, 813, 815, 956, 957, and 958. Also required are MUED 996 and either MUED 983 or 984. 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. Additional courses at the 800 and 900 levels in music, or at the 800 and 900 levels in other departments, may be selected with the approval of the student's adviser to augment the required courses for a minimum total of 30 credits. Candidates must also pass a comprehensive oral examination that includes questions on the final project as well as on music history and/or theory, to be determined in consultation with the members of the candidate's oral examination committee.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
MUED	841	Techniques and Methods in Choral Music	2
MUED	843	Materials and Methods in Piano Music	2
MUED	845	Techniques and Methods in String Instruments	2
MUED	846	Techniques and Methods in String Instruments	2
MUED	847	Techniques and Methods in Woodwind Instruments	3
MUED	849	Techniques and Methods in Brass Instruments	2
MUED	851	Techniques and Methods in Percussion Instruments	2
MUED	855	Vocal Pedagogy	2

MUED	863	Jazz Music Methods	2
MUED	865	Instrumental Music Methods	2
MUED	871	Marching Band Methods	2
MUED	890	Teaching Elementary School Music	3
MUED	891	Teaching Secondary School Music	3
MUED	895	Special Studies	1 TO 4
MUED	983	Instrumental Literature and Its Performance	3
MUED	995	Special Projects	1 TO 4
MUED	996	Foundations and Perspectives of Music Education	4
MUSI	803	Music of the Renaissance	3
MUSI	805	Music of the Baroque	3
MUSI	807	Music of the Classical Period	3
MUSI	809	Music of the Romantic Period	3
MUSI	811	Music of the 20th and 21st Centuries	3
MUSI	813	Art Song	3
MUSI	815	Survey of Opera	3
MUSI	831	Advanced Instrumental Conducting	2
MUSI	832	Advanced Choral Conducting	2
MUSI	836	Graduate Early Wind Instruments	1 TO 4
MUSI	841	Graduate Piano	1 TO 4
MUSI	845	Graduate Voice	1 TO 4
MUSI	846	Graduate Violin	1 TO 4
MUSI	847	Graduate Viola	1 TO 4
MUSI	848	Graduate Cello	1 TO 4
MUSI	849	Graduate Bass	1 TO 4
MUSI	851	Graduate Flute	1 TO 4
MUSI	852	Graduate Clarinet	1 TO 4
MUSI	853	Graduate Saxophone	1 TO 4
MUSI	854	Graduate Oboe	1 TO 4
MUSI	855	Graduate Bassoon	1 TO 4
MUSI	856	Graduate French Horn	1 TO 4
MUSI	857	Graduate Trumpet	1 TO 4
MUSI	858	Graduate Trombone	1 TO 4
MUSI	859	Graduate Euphonium	1 TO 4
MUSI	860	Graduate Tuba	1 TO 4

MUSI	861	Graduate Percussion	1 TO 4
MUSI	862	Graduate Keyboards	1 TO 4
MUSI	863	Graduate Jazz Guitar	1 TO 4
MUSI	864	Graduate Drum Set	1 TO 4
MUSI	871	Counterpoint	3
MUSI	875	Composition	3
MUSI	876	Composition	3
MUSI	877	Advanced Composition	3
MUSI	879	Orchestration	3
MUSI	881	Analysis: Form and Structure	3
MUSI	882	Analysis: Form and Structure	3
MUSI	895	Special Studies	1 TO 4
MUSI	955	Introduction to Bibliography	3
MUSI	956	Readings in Music History: Antiquity to 1600	3
MUSI	957	Readings in Music History: 1600 to 1820	3
MUSI	958	Readings in Music History: 1820 to the Present	3
MUSI	991	Research Seminar	1 TO 4
MUSI	994	Theory Seminar	3
MUSI	995	Independent Study in the History and Theory of Music	1 TO 4

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## Music Education (MUED) ▼

» <http://www.unh.edu/music/index.cfm?id=8ED2726B-DCA9-AB19-09B09B870282A910>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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## Natural Resources (NR) ▼

» <http://www.naturalresources.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: M.S.

The Department of Natural Resources and the Environment offers a master of science in natural resources in the following options.

#### Natural Resources: Environmental Conservation

Areas of interest include natural resource policy, conservation biology, sustainability, ecological ethics and values, international environmental affairs, and spatial data analysis (remote sensing and GIS).

#### Natural Resources: Forestry

Areas of interest include forest resource economics and management, biometrics, genetics, forest ecosystem dynamics, spatial data analysis (remote sensing and GIS).

#### **Natural Resources: General**

This program is designed for students whose work crosses disciplinary boundaries within the natural resources and 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.

#### **Natural Resources: TIDES (Integrated Coastal Ecosystem Science, Policy and Management)**

Areas of interest include ecosystem science, coastal resource management, natural resources and environmental policy, and marine resource education.

#### **Natural Resources: Water Resources**

Areas of interest include wetlands, land-water interactions, groundwater chemistry, and biogeochemistry.

#### **Natural Resources: Wildlife**

Areas of interest include field and laboratory aspects of wildlife energetics, wildlife use of managed and unmanaged forest systems, habitat management and fragmentation, conservation biology, wetland wildlife ecology, 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 any deficiencies. All entering students must have taken at least one statistics course or do so at the graduate level. Applicants must submit current scores (within five years) from the general test of the GRE.

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. Students interested in 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. Students interested in TIDES (Integrated Coastal Ecosystem Science, Policy and Management) option are required to have adequate preparation in ecology, social sciences, and statistics.

Prior to submitting an application, applicants should contact one or more graduate faculty advisors to discuss programs and funding, and secure a commitment of a faculty member to serve as graduate adviser.

### **Degree Requirements**

An M.S. degree is conferred upon successful completion, a program of not less than 30 credits for Natural Resources options: forestry, environmental conservation, general, water resources, and wildlife.

#### Course requirements or equivalents:

NR 903, Approach to Research  
 NR 993, Seminar **or** NR 947, Current Issues in Ecosystem Ecology  
 NR 996, Natural Resource Education  
 Quantitative methods course  
 NR 899, Master's Thesis and a formal presentation of the thesis **or**  
 NR 998, Directed Research and directed research results  
 One course in Ecology, requirement of EC option only

Natural Resources: Tides option requires a minimum of 36 credits.

#### NR: Tides Course requirements or equivalents:

NR 903, Approach to Research  
 NR 915, Seminar: Coastal Challenges for Science-Policy Collaborations

NR 916, Linking Decision-making and Coastal Ecosystem Science  
 NR 917, Coastal Ecosystem Science Policy and Management Internship  
 NR 824, Resolving Environmental Conflicts  
 Quantitative methods course  
 One ecology course  
 One resource management course  
 NR 998, Directed Research and directed research results

#### A Cooperative Doctoral Program

The Department of Natural Resources and the Environment participates in the Natural Resources and Earth System Science Ph.D. Program (NRESS), an interdepartmental degree offered at UNH. For further details on this program, please visit the NRESS program page.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
NR	801	Ecological Sustainability and Values	4
NR	802	Workshops	1 TO 4
NR	803	Watershed Water Quality Management	4
NR	806	Soil Ecology	4
NR	810	Endangered Species Seminar	2
NR	811	Wetland Ecology and Management	4
NR	813	Quantitative Ecology	4
NR	816	Wetland Delineation	4
NR	818	Law of Natural Resources and Environment	3
NR	819	Wetlands Restoration and Mitigation	3
NR	820	International Environmental Politics and Policies for the 21st Century	4
NR	824	Resolving Environmental Conflicts	4
NR	829	Silviculture	4
NR	830	Terrestrial Ecosystems	4
NR	835	Land Conservation Principles and Practices	4
NR	838	Wildlife Policy and Management	4
NR	840	Inventory and Monitoring of Ecological Communities	4
NR	841	Demographic Methods in Conservation Biology and Wildlife Ecology	2
NR	844	Biogeochemistry	4
NR	845	Forest Management	4
NR	849	Forest Inventory and Modeling	4
NR	851	Aquatic Ecosystems	4
NR	857	Remote Sensing of the Environment	4

NR	859	Digital Image Processing for Natural Resources	4
NR	860	Geographic Information Systems in Natural Resources	4
NR	867	Earth System Science	4
NR	882	Monitoring Forest Health	4
NR	883	Forest Communities of New Hampshire	4
NR	884	Sustainable Living	4
NR	885	Systems Thinking for Sustainable Living	4
NR	897	Special Topics	1 TO 4
NR	899	Master's Thesis	1 TO 10
NR	902	Ecological Ethics and Values	4
NR	903	Approach to Research	4
NR	910	Forest Stand Dynamics	4
NR	912	Sampling Techniques	2 TO 4
NR	915	Coastal Challenges Sci-Policy	2
NR	916	Linking Decision-making and Coastal Ecosystem Science	4
NR	917	Coastal Ecosystem Science Policy and Management Internship	6
NR	947	Current Issues in Ecosystem Ecology	2
NR	965	Community Ecology	4
NR	993	Natural and Environmental Resources Seminar	1 OR 2
NR	995	Investigations	1 TO 4
NR	996	Natural Resource Education	1
NR	997	Special Topics	1 TO 4
NR	998	Directed Research	1 TO 4

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## Natural Resources and Earth Systems Science (NRES) ▼

» <http://www.unh.edu/nressphd/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: Ph.D.

The graduate program in Natural Resources and Earth Systems Science (NRESS) is an interdepartmental program offering 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, environmental philosophy, forestry, geologic science, hydrology, marine science, oceanography, social science, environmental policy and ethics, environmental education, and multidisciplinary natural resources management.

The NRESS Ph.D. program offers two degrees:

[Ph.D. in Natural Resources and Environmental Studies \(NRES\)](#)

## Ph.D. in Earth and Environmental Science (EES)

### Admission Requirements

Applicants to the NRESS Program come from a wide range of undergraduate majors and master's degree concentrations. Individuals are admitted based on the quality of their previous 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.

All applicants must identify an adviser before being admitted, and this faculty member must agree to serve as the applicant's adviser. 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. All applicants must submit GRE scores. Please see the program website for details on applying to the program.

### Degree Requirements

The requirements of the doctoral program are flexible to accommodate the diverse interests and needs of students. All students in the NRESS program must meet the requirements listed below.

### Committees and Coursework

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

### Core Area Course Requirements

All students will take one pre-approved course in each of four core areas while enrolled in the program: natural sciences, ethics/policy/law, methods, and seminar. Any course used to satisfy the natural sciences, ethics/policy/law, and methods 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 members, and the NRESS program chair once the coursework is completed.

### Students Entering the Program without a Master's Degree

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 beyond the required four core courses for students who have completed a M.S. or M.A. degree in a related field. Students enter the NRESS program with diverse backgrounds and preparation in their particular area of study. Therefore, 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.

### Transfer Credits

Graduate-level courses taken prior to admission may be transferred into the program and applied to the total only if they were not taken while matriculated in another degree program, as per Graduate School policy. These courses may not be used to meet the core course requirements. Transfer of credits must be approved by the adviser, the guidance committee, and the graduate school.

### Language Proficiency

Language proficiency may be required at the discretion of the student's adviser/committee. If required, a student will 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 will determine areas where the student needs additional coursework or could result in the student's removal from the program.

**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.

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

**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

### Courses

Abbreviation	Course Number	Title	Credits
NRES	995	Independent Study	1 TO 4
NRES	999	Doctoral Research	0

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## Nursing (NURS) ▼

» <http://www.chhs.unh.edu/nursing/index.html>

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degrees Offered: M.S.**

**Certificate Offered: Post-Master's Family Nurse Practitioner**

The Department of Nursing offers the master of science degree in nursing under two programs: Graduate Program in Nursing and Direct Entry Master's in Nursing.

The Graduate Program in nursing currently offers three clinical practice tracks: clinical nurse leader (CNL), evidence-based nursing (EBN), and family nurse practitioner (FNP). Within the evidence-based nursing track, students can complete a program of study in clinical nursing education. All tracks are designed to be completed in three to four semesters of full-time study including summer. Individual plans of study are available for those wishing to pursue part-time study. Although no guarantees are given, we do try to accommodate student requests to the extent possible. All tracks prepare nurses for evidence-based practice through critical inquiry using a variety of instructional

modalities.

The Direct Entry Master's in Nursing Program is an accelerated, full-time, two-year, 73-credit-course of study designed for non-RN students who hold a B.S. or B.A. or higher degree in a field other than nursing. Students are provisionally admitted to the program. Provision will be removed once the RN license is received. Students will be eligible to take the NCLEX-RN after completing four semesters of accelerated study (including summer), a total of 64 credits. Student must pass NCLEX-RN prior to entering the final semester of the program. Students are eligible to take the CNL (Clinical Nurse Leader) Certification Examination upon completion of the degree. The curriculum begins in January and includes two summer sessions. Students graduate as an advanced generalist with a master of science (M.S.) degree in nursing and upon passing certification examination, as a Clinical Nurse Leader<sup>sm</sup> (CNL).

The Department of Nursing offers the Post-Master's Family Nurse Practitioner Certificate Program for students who completed a master of science degree in nursing.

### **Admission Requirements**

All applicants who are not native English speakers are required to demonstrate a sufficient level of proficiency in the English language to meet the admission requirement of the Graduate School. Proficiency can be demonstrated by the receipt of a bachelor's or advanced degree from an accredited institution of higher education in the United States or from a university in another country where English is the primary language of instruction. All other non-native speakers must achieve a minimum score of 550 (paper-based test) or 213 (computer-based test) or 80 (Internet based) on the Test of English as Foreign Language (TOEFL).

The GRE and MAT are not required. The Student Affairs Council in the Department of Nursing will review completed applications throughout the academic year (rolling admission). Individuals apply to the University of New Hampshire Graduate School.

**Graduate Program in Nursing:** Registered nurses (RNs) who have successfully passed the NCLEX-RN and currently hold an unencumbered active RN license in the United States and 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. Their program of study is individualized based on evaluation of competency statements and resume submitted with the application form. RNs whose degree is outside nursing should contact the Graduate Nursing Office for a copy of the competency statement form. References should be substantial with at least one academic from your nursing program and two current nursing professionals with graduate education background. Application deadline for fall admission is April 1; application deadline for spring admission is November 1. An interview may be requested.

**Direct Entry Master's in Nursing:** A grade point average of 3.0 or better is suggested. Previous course work and professional experience is taken into consideration. Prerequisite courses must be complete at the time the application is reviewed. These include Human Anatomy & Physiology I and II with lab, Microbiology at the cellular level, and Statistics with a grade of B or better. References should be substantial with at least one academic and professionals with graduate education background. The completed application deadline is September 1st. An interview may be requested.

### **Graduate Program in Nursing Degree Requirements**

#### **Clinical Nurse Leader 34 Credits**

**Fall**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
NURS	900	The Discipline of Nursing	3
NURS	905	Research	3
NURS	908	Clinical Application of Human Physiology	3

**Spring**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
NURS	925	Health Care Systems & Leadership	3
NURS	951	Clinical Epidemiology & Decision Analysis	3
NURS	952	Clinical Nursing Leadership I	8

**Summer**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
NURS	901	Nursing & Change in Health Services	3
NURS	953	Promoting Quality Management	2
NURS	954	Clinical Nursing Leadership II	3
NURS	956	Capstone Project Seminar	3

**Evidence-Based Nursing 32 Credits****Fall I**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
NURS	900	The Discipline of Nursing	3
NURS	905	Research	3
NURS	908	Clinical Application of Human Physiology	3

**Spring I**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
NURS	925	Health Care Systems & Leadership	3
NURS	951	Clinical Epidemiology & Decision Analysis	3

		Elective	3
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**Summer I**

Abbreviation	Course Number	Title	Credits
NURS	901	Nursing & Change in Health Services	3
NURS	953	Promoting Quality Management	2

**Fall II**

Abbreviation	Course Number	Title	Credits
NURS	955	Practicum in Advanced Nursing Practice	6
NURS	956	Capstone Project Seminar	3

**Family Nurse Practitioner 48 Credits****Fall I**

Abbreviation	Course Number	Title	Credits
NURS	900	The Discipline of Nursing	3
NURS	905	Research	3
NURS	908	Clinical Application of Human Physiology	3
NURS	909	Health & Illness Appraisal	3

**Spring I**

Abbreviation	Course Number	Title	Credits
NURS	907	Advanced Pharmacology	3
NURS	935	Primary Care of Families I	3
NURS	936	Practicum in the Primary Care of Families I	3
NURS	951	Clinical Epidemiology & Decision Analysis	3

**Summer I**

Abbreviation	Course Number	Title	Credits
NURS	901	Nursing & Change in Health Services	3

NURS	925	Health Care Systems & Leadership	3
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**Fall II**

Abbreviation	Course Number	Title	Credits
NURS	937	Primary Care of Families II	3
NURS	938	Practicum in the Primary Care of Families II	3
NURS	942	Advancing Evidence in Complex Health Challenges	3

**Spring II**

Abbreviation	Course Number	Title	Credits
NURS	810	Families in Health & Illness	3
NURS	939	Seminar & Practicum in Primary Care of Families III	6

**Direct Entry Master's in Nursing Degree Requirements****Spring I**

Abbreviation	Course Number	Title	Credits
NURS	806	Clinical Inquiry	4
NURS	807	Pathophysiology and Pharmacology	4
NURS	813	Health Assessment and Clinical Nursing	5
NURS	825	Collaborative Care I: Care of Older Adult	3
NURS	900	The Discipline of Nursing	3
Total			19

**Summer I**

Abbreviation	Course Number	Title	Credits
NURS	826	Caring for People with Severe and Persistent Mental Illness	4
NURS	827	Collaborative Care II: Managing Acute and Complex Care of Individuals	6
NURS	953	Promoting Quality Management	2
Total			12

**Fall I**

Abbreviation	Course Number	Title	Credits
NURS	828	Public Health Nursing	5
NURS	829A	Collaborative Care III: Childbearing Families	2
NURS	829B	Collaborative Care III: Childrearing Families	2
NURS	829C	Collaborative Care III: Clinical	2
NURS	905	Research	3
NURS	908	Clinical Application of Human Physiology	3
Total			17

**Spring II**

Abbreviation	Course Number	Title	Credits
NURS	925	Health Care Systems & Leadership	3
NURS	951	Clinical Epidemiology & Decision Analysis	3
NURS	952	Clinical Nursing Leadership I	10
Total			16

**Summer II**

Abbreviation	Course Number	Title	Credits
NURS	901	Nursing & Change in Health Services	3
Total			3

**Fall II**

Abbreviation	Course Number	Title	Credits
NURS	954	Clinical Nursing Leadership II	3
NURS	956	Capstone Project Seminar	3
Total			6

**Concluding Experience for All Graduate Nursing Tracks**

For clinical nurse leader (CNL) and evidenced-based nursing (EBN) tracks, the capstone course, NURS 956, requires students to complete a scholarly project which synthesizes advanced practice knowledge and skills to address substantive nursing practice issues. CNL and EBN students may elect to complete a thesis, NURS 899 (6 credits), as

the capstone course in place of NURS 956. If a student opts to do a thesis, the student should discuss this option with a faculty adviser early in the program of study. For family nurse practitioner students, the capstone course, NURS 939, is the final integrated clinical practicum.

### 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. 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 leaders, or clinical educators.

The generation, dissemination, and application of evidenced-based nursing knowledge and practice are 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, acute symptom management, 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 website.

### Certificate in Nursing: Family Nurse Practitioner (post-master's)

The Department of Nursing offers the Post-Master's Family Nurse Practitioner Certificate Program for students who completed a master of science degree in nursing. The graduate certificate of advanced practice is designed for those individuals with a master's degree in nursing who wish to expand their practice into the role of a family nurse practitioner. The PM-FNP specialty area prepares nurses to provide comprehensive care that includes health promotion, maintenance, and restoration for persons across the life span.

Depending on educational background and previous coursework in master's program, students accepted into the PM-FNP certificate program are required to take as few as nine and as many as twelve courses or 30-39 credits. Successful completion of the required curriculum qualifies the RN to sit for the Family Nurse Practitioner Certification Examination.

Our nurse practitioner graduates continue to excel on the national certification exam and are well-received in the regional community. We plan to continue to provide premier nurse practitioner education. For more information please visit the [PM-FNP Certificate website](#) or contact the [Nursing Department](#) at (603) 862-2299.

### Applying

In addition to the standard graduate school requirements the following additional requirements are required:

The applicant must hold an unencumbered, active RN license in the United States and have a master's degree in nursing.

The applicant must submit two letters of reference. References should be substantial with one academic, if available, and one current professional with graduate education background.

The GRE and MAT are not required

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the certificate program.

### Post-Master's FNP Certificate Program 30-39 Credits

#### Fall I

Abbreviation	Course Number	Title	Credits
NURS	908*	Clinical Application of Human Physiology	3

NURS	909*	Health & Illness Appraisal	3
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**Spring I**

Abbreviation	Course Number	Title	Credits
NURS	907*	Advanced Pharmacology	3
NURS	935	Primary Care of Families I	3
NURS	936	Practicum in the Primary Care of Families I	3
NURS	951	Clinical Epidemiology & Decision Analysis	3

**Summer I**

Abbreviation	Course Number	Title	Credits	Summer
NURS	925	Health Care Systems & Leadership	3	

**Fall II**

Abbreviation	Course Number	Title	Credits
NURS	937	Primary Care of Families II	3
NURS	938	Practicum in the Primary Care of Families II	3
NURS	942	Advancing Evidence in Complex Health Challenges	3

**Spring II**

Abbreviation	Course Number	Title	Credits
NURS	810	Families in Health & Illness	3
NURS	939	Seminar & Practicum in Primary Care of Families III	6

\*These courses may be waived if taken in master's in nursing program.

**Courses****Courses**

Abbreviation	Course	Title	Credits
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	<b>Number</b>		
NURS	806	Clinical Inquiry	4
NURS	807	Pathophysiology and Pharmacology	4
NURS	810	Families in Health and Illness	3
NURS	813	Health Assessment and Clinical Nursing	5
NURS	825	Collaborative Care I: Care of Older Adult	3
NURS	826	Caring for People with Severe and Persistent Mental Illness	4
NURS	827	Collaborative Care II: Managing Acute and Complex Care of Individuals	6
NURS	828	Public Health Nursing	5
NURS	894	Special Topics	1 TO 4
NURS	899	Master's Thesis	1 TO 6
NURS	900	Discipline of Nursing	3
NURS	901	Nursing and Change in Health Services	3
NURS	905	Research	3
NURS	907	Advanced Pharmacology	3
NURS	908	Advanced Clinical Application of Human Physiology	3
NURS	909	Advanced Health and Illness Appraisal	3
NURS	925	Health Care Systems and Leadership	3
NURS	935	Primary Care Families I	3
NURS	936	Practicum in the Primary Care Families I	3
NURS	937	Primary Care of Families II	3
NURS	938	Practicum in the Primary Care of Families II	3
NURS	939	Seminar and Practicum in the Primary Care of Families III	6
NURS	941	Population Focused Practicum	3
NURS	942	Advanced Evidence in Complex Health Challenges	3
NURS	946	Practicum in Adult Health Care	6
NURS	950	Reading and Research in Advanced Nursing	2 TO 8
NURS	951	Clinical Epidemiology and Decision Analysis	3
NURS	952	Clinical Nursing Leadership I	8 OR 10
NURS	953	Promoting Quality Management	2
NURS	954	Clinical Nursing Leadership II	3
NURS	955	Practicum in Advanced Nursing Practice	3 TO 12
NURS	956	Capstone Project Seminar	3
NURS	996	Independent Study	1 TO 3

NURS	829A	Collaborative Care III: Childbearing Families	2
NURS	829B	Collaborative Care III: Childrearing Families	2
NURS	829C	Collaborative Care III: Clinical	2

## Nutritional Sciences (NUTR) ▼

» <http://mcbsgrad.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

The Department of Molecular, Cellular, and Biomedical Sciences (MCBS) offers the master of science degree in nutritional sciences; and in conjunction with animal science faculty in the Department of Biological Sciences, a Ph.D. in animal and nutritional sciences. MCBS also offers a postgraduate internship in dietetics.

Information on these programs is described below and at the above website.

### Degree Programs Offered: M.S., Ph.D.

The graduate program includes the M.S. degree in nutritional sciences, or a Ph.D. degree in animal and nutritional sciences. Areas of research specialization include human nutrition, mammalian physiology and pathology, nutritional biochemistry and metabolism, and reproduction and endocrinology. Research activities utilize human, animal, and cell culture systems to investigate nutrient metabolism and a molecular-level understanding of life processes and diseases.

### Dietetic Internship Program

In addition to degree-granting programs, the UNH Nutrition Program offers an American Dietetic Association-approved dietetic internship program. The emphasis of the internship is on "Health Promotion and Disease Prevention." In addition to the more than 1,200 hours of practicum work, students earn 12 graduate-level credits as part of the internship. These credits may be applied to a master's degree if the candidate is accepted into the graduate program at UNH.

### 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 sciences appropriate for advanced study in the proposed area of specialization (for example, courses in biology, chemistry, organic chemistry, biochemistry, and physics). 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. Students interested in preparing themselves for admittance to a dietetic internship while pursuing the graduate degree should contact Clinical Associate Professor Ruth Reilly in advance of applying (603-862-2164; [ruth.reilly@unh.edu](mailto:ruth.reilly@unh.edu)) in order to determine their best course of action.

### Degree Requirements

#### M.S. in Nutritional Sciences-Thesis Option

With this option, students must become actively engaged in a research project related to the nutritional sciences and gain a comprehensive understanding of nutritional science through coursework. The option 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. Two formal seminars presented during their program of study are required of thesis degree students.

### Ph.D. in Animal and Nutritional Sciences

For a description and list of courses offered, please visit [www.mcbsgrad.unh.edu](http://www.mcbsgrad.unh.edu).

#### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
MCBS	901	Introduction to Research in the Life Sciences	2
MCBS	997	Seminar	1
NUTR	825	Metabolic Adaptations to Exercise II	4
NUTR	840	Nutrition for Children with Special Needs	2
NUTR	850	Nutritional Biochemistry	4
NUTR	851	Nutritional Biochemistry of Micronutrients	4
NUTR	855	Treatment of Adult Obesity	4
NUTR	870	Nutrition and Gender-Based Health Concerns	4
NUTR	873	Clinical Nutrition	4
NUTR	880	Critical Issues in Nutrition	4
NUTR	895	Investigations	1 TO 4
NUTR	898	Nutrition Research Experience	4
NUTR	899	Master's Thesis	1 TO 6
NUTR	900	Contemporary Topics in Animal, Nutritional, and Biomedical Sciences	1
NUTR	929	Dietetics: Principles and Practices	4
NUTR	930	Dietetics: Foodservice, Community and Research	4
NUTR	931	Dietetics: Clinical Theory and Practice	4
NUTR	955	Topics in Obesity	4
NUTR	995	Non-thesis Investigations	1 TO 4

» [Click to view course offerings](#)

^ [back to top](#)

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## Occupational Therapy (OT) ▼

» <http://www.chhs.unh.edu/ot/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degree Offered: M.S.**

### **Certificate Offered: Assistive Technology**

The Department of Occupational Therapy offers the master of science degree in occupational therapy and a graduate certificate in assistive technology.

### **Admission Requirements**

The master's degree 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 program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). ACOTE is located at the American Occupational Therapy Association, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220. ACOTE's 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 a certified occupational therapist, (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

Applicants need a minimum overall grade point of 3.0 for undergraduate coursework and the following prerequisite courses: human anatomy and physiology (two courses with labs), neurology (neuroanatomy with a lab preferred), abnormal psychology, human development (two courses, one in child development and one in adult development preferred), and statistics.

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. Applications are accepted beginning in the fall of the year prior to the year the candidate wishes to begin, until March 1. The OT Department has a rolling admissions process, so that strong candidates with prerequisite coursework completed may be accepted into the program within six weeks of receipt of their application. Due to limited space, admission to the program is a competitive process, and not all qualified students are admitted.

**Advanced-standing Professional Master's Degree Students:** Students who have completed a baccalaureate degree in occupational science at UNH as part of a combined B.S./M.S. program will take the first year of the two and a half-year (five semesters) 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 three 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, meet Graduate School requirements for entry into the graduate portion of their program, and be officially admitted by the Graduate School. An overall minimum grade point of 3.0 and B- or better in all senior level OT coursework is required for admission.

## Degree Requirements

Graduate students include those entering the first year of the Professional OT M.S. Program, as new students, and those who are in the OT B.S./M.S. Professional OT Program, who begin as graduate students in the second year of the OT professional program. The B.S./M.S. track students are considered advanced standing graduate students. Graduate academic requirements are listed below for both the Advanced Standing graduate students and new entering graduate students. In addition to coursework requirements, students must meet professional behavioral standards which are outlined in the Department of Occupational Therapy Policy and Procedure Manual.

### Professional OT Program M.S. requirements for Advanced Standing B.S./M.S. Graduate Students

The program consists of two and a half years of study (five semesters) of coursework, including fieldwork experiences, with no summer semester coursework. Students are also required to enroll in a 1-credit January term (J-term) Level 1 fieldwork course in between the first and second semesters. For advanced standing students, the first year of the program is completed as part of the B.S. degree in occupational science. Course requirements are listed below by year:

First year: OT 710, OT 741, OT 751, OT 752, OT 752L, , one of OT 771 with OT 771L OR OT 730 with OT 730L, OT 785, OT 760 with OT 760L, OT 745. OT 792 (J-term)

Second Year: OT 862 with OT 862L, OT 863 with OT 863L, one of OT 871 with OT 871L OR OT 830 with OT 830L (whichever was not taken in year one) OT 854, OT 855, OT 856. The spring semester of the second year is an extended semester to accommodate the fieldwork schedule, requiring students to continue in their Level II fieldwork until the third week of June.

Third Year: OT 865, OT 875, OT 886. Students are also required to take a 3-4 credit graduate level elective course, which is typically taken in this third, and final semester.

Course requirements for OT 865, OT Practice and Professional Reasoning, includes a capstone experience requiring students to synthesize knowledge from academic coursework and fieldwork experiences to develop a unique occupational therapy program to address the needs of a specific population or program.

Advanced standing students are required to have 44 graduate credits in addition to 36 credits of coursework taken as part of the occupational science degree.

### Professional OT Program M.S. requirements for Entering Graduate Students.

The program consists of two and a half years of study (five semesters) of coursework, including fieldwork experiences, with no summer semester coursework. Students are also required to enroll in a 1-credit January term (J-term) Level 1 fieldwork course in between the first and second semesters. The spring semester of the second year is an extended semester to accommodate the fieldwork schedule, requiring students to continue in their Level II fieldwork until the third week of June.

Required OT courses include:

First Year: OT 810, OT 841, OT 851, OT 852, OT 852L, OT 892 (J-term), one of OT 871 with OT 871/L OR OT 830 with OT 830L, OT 885, OT 860, OT 860L, OT 845

Second Year: OT 862, OT 862L, OT 863, OT 863L, OT 846, OT 871, OT 871/L or OT 830, OT 830L, OT 854, OT 855, OT 856

Third year: OT 865, OT 875, OT 886. Students are also required to take a 3-4 credit graduate-level elective course, which is typically taken in this third, and final semester. The Professional Master's Degree Track requires the completion of 74 graduate-level credits, which includes 18 credits of fieldwork.

Course requirements for OT 865, OT Practice and Professional Reasoning, includes a capstone experience requiring students to synthesize knowledge from academic coursework and fieldwork experiences to develop a unique occupational therapy program to address the needs of a specific population or program.

## Academic Standards and Policies

Students must earn a minimum of B- in all required OT courses and receive a passing criterion score on the American Occupational Therapy Association Fieldwork Evaluation for the Occupational Therapist. Curriculum review and revision is undertaken annually. They must maintain an overall GPA of 3.0 and meet professional behavioral standards that are explained in detail in the *OT Department Policy and Procedure Manual*. Occupational therapy faculty members work closely with students during academic advising sessions and share information about policy and requirement changes during registration periods as well as throughout the academic year. Students are also expected to take an active role in verifying expectations and should check with their departmental advisers each September for updated policies and requirements. Program requirements and policies for retention in the major are posted annually in the *OT Department Policy and Procedure Manual*, which is available on the OT department's organization site on Blackboard.

Fieldwork experiences are scheduled in centers that are approved by the Department of Occupational Department. Students are responsible for transportation to off-campus fieldwork sites and other community learning experiences and are covered with basic personal liability insurance through UNH for the practical components of the curriculum. Students are responsible for meeting the health and criminal record clearances established by their fieldwork sites. Proof of immunization such as poliomyelitis, rubella, HINI, and hepatitis B may also be required. For level II fieldwork, health insurance, and a physical examination, including a tuberculin test, are required. After successfully completing both level II fieldwork requirements and all academic work, students are awarded a master of science degree in occupational therapy. They are then eligible to sit for the National Board Certification Examination in Occupational Therapy (NBCOT). Consistent with NBCOT expectations, students must sit for the certification examination within two years of completion of coursework and fieldwork. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and/or obtain licensure.

**Curriculum design and schedule:** Most classes will be scheduled during weekdays throughout the school day. Some courses require experiential learning, which students need to include in their weekly schedules.

## Certificate in Assistive Technology

The graduate certificate in assistive technology is designed for individuals who have completed a bachelor's degree or higher, to provide assistive technology services for individuals with disabilities, at home, school, work, or play; to work collaboratively with a team implementing recommended assistive technology solutions and to become leaders in assistive technology. This certificate program applies to individuals pursuing or engaged in the following careers: occupational, speech, physical, recreation therapy, rehabilitation counseling, engineering, education, special education, or nursing. For more information please visit the [Assistive Technology website](#) or contact [Therese Willkomm](#), PhD, ATP at (603) 892-1056.

## Applying

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the certificate program.

## Certificate Requirements

The 15 credit hours curriculum will consist of three 4-credit required courses plus one 3-credit elective. These courses are taught by regular faculty and have been offered for the last seven years.

### Required Courses:

OT 822, Introduction to Assistive Technology (4 cr.) OR \* OT 830 Enhancing Occupational Performance Through Assistive Technology (3 credits) with co-requisite lab OT 830L (2 credits)

OT 826, Assistive Technology and Sensory, Communicative, and Cognitive Disabilities (4 credits)

### One of:

OT 824, Assistive Technology and Physical Disabilities Credits: (4 credits),  
COMM 920 02 AAC Seminar (4 credits), COMM 914 02, Augmentative and Alternative Communication Credits: (4 credits)

EDUC 820 - Introduction to Computer Applications for Education (4 credits)

**One of The Following Electives: Any of the above course options not selected for use as a required course can be taken as an elective. Other electives are as follows:**

EDUC 850, Introduction to Exceptionality (4 credits)

EDUC 851C, Educating Exceptional Learners: Related Services (4 credits)

EDUC 854, Contemporary Issues of Developmental Disabilities (4 credits)

OT 852, Human Movement and Environmental Effects on Everyday Occupations (3credits) with co-requisite lab 852L (1 credit)\*

OT 895, Readings and Research in Occupational Therapy (4 credits)SOC 860, Aging and Late Life Family (4 credits)

SW 812, Social Work and Developmental Disabilities (3 credits) UNDO (keep SW 992)

COMM 895, Special Topics (3 credits)

**Note: With the exception of COMM 914, all assistive technology required courses will be offered on weekends to accommodate the needs of a diverse audience, many of whom work full time and could not otherwise take these courses. In addition, at least 25% of the content is provided off campus in order to take advantage of hands on assistive technology learning opportunities in the community.**

**\* Courses restricted to OT majors only.**

## Electives and Required Courses

### Elective Courses

Abbreviation	Course Number	Title	Credits
OT	893	Special Topics: Ergonomics, Sensory integration, Upper Extremity Rehab and Splinting	4
OT	822	Introduction to Assistive Technology	4
OT	824	Assistive Technology and Physical Disabilities	4
OT	826	Assistive Technology and Sensory, Communicative, and Cognitive Disabilities	4
OT	895	Readings and Research in Occupational Therapy	1 TO 6
OT	897	Graduate Project (post-professional program)	1 TO 6
OT	898	Capstone (Post-professional Program)	2
OT	899	Master's Thesis	1 TO 6

Post-Professional OT Program is closed to new admissions.

### Required Professional OT Program Courses

Abbreviation	Course	Title	Credits
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	<b>Number</b>		
OT	841	Human Occupation	4
OT	851	Mind Body Systems/Neurologically-based Function and Dysfunction	3
OT	852	Human Movement and Environmental Effects on Everyday Occupations	3
OT	852L	Human Movement and Environmental Effects on Everyday Occupations Lab	1
OT	810	OT Practice and Professional Roles	3
OT	885	Research methods and Application to Practice	3
OT	845	Administration and Policy for OT Practice	3
OT	860	Psychosocial Evaluation and Intervention	3
OT	860L	Psychosocial Evaluation and Intervention Lab	1
OT	871	Enabling Participation in Community Groups	3
OT	871L	Enabling Participation in Community Groups Lab	2
OT	830	Enhancing Occupational Performance Through Assistive Technology	3
OT	830L	Enhancing Occupational Performance Through Assistive Technology Lab	2
OT	892-J Term	Level 1 Fieldwork	1
OT	862	OT Evaluation and Intervention for Children	3
OT	862L	OT Evaluation and Intervention for Children Lab	1
OT	863	Occupational Therapy Evaluation and Intervention for Adults	3
OT	863L	Occupational Therapy Evaluation and Intervention for Adults Lab	1
OT	846	Transitions: Student to Professional	2
OT	854	Level II Fieldwork, I	8
OT	855	Level II Fieldwork, I Online Discussion	1
OT	856	Level II Fieldwork, II	8
OT	865	Occupational Therapy Practice and Professional Reasoning	3
OT	875	Leadership in Occupational Therapy Systems Practice	3
OT	886	Research Engagement	3

## Courses

## Courses

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
OT	810	OT Practice and Professional Roles	3
OT	822	Introduction to Assistive Technology	4

OT	824	Assistive Technology and Physical Disabilities	4
OT	826	Assistive Technology and Sensory, Communicative, and Cognitive Disabilities	4
OT	830	Assistive Technology for Enhancing Occupational Performance	3
OT	841	Human Occupation	4
OT	845	Administration and Policy for Occupational Therapy Practice	3
OT	846	Transitions: Student to Professional	2
OT	851	Mind Body Systems/Neurologically-based Function and Dysfunction	3
OT	852	Human Movement and Environmental Effects on Everyday Occupations	3
OT	854	Level II Fieldwork, I	8
OT	855	Level II Fieldwork Discussion	1
OT	856	Level II Fieldwork, II	8
OT	860	Psychosocial Evaluation and Intervention	3
OT	862	OT Evaluation and Intervention for Children	3
OT	863	Occupational Therapy Intervention	3
OT	865	Occupational Therapy Practice and Professional Reasoning	3
OT	871	Enabling Participation in Community Groups	3
OT	875	Leadership in Occupational Therapy Systems of Practice	3
OT	885	Research Methods and Application to Practice	3
OT	886	Engagement in Research	3
OT	892	Level I Fieldwork	1
OT	893	Special Topics	2 TO 4
OT	895	Readings and Research in Occupational Therapy	1 TO 6
OT	897	Graduate Project	1 TO 6
OT	898	Capstone	2
OT	899	Master's Thesis	1 TO 6
OT	830L	Assistive Technology for Enhancing Occupational Performance Lab	2
OT	852L	Human Movement and Environmental Effects on Everyday Occupations Lab	1
OT	860L	Psychosocial Evaluation and Intervention Lab	1
OT	862L	OT Evaluation and Intervention for Children - Lab	1
OT	863L	Occupational Therapy Evaluation and Intervention for Adults - Lab	1
OT	871L	Enabling Participation in Community Groups Lab	2

\* Please note that these courses will begin to appear in Banner, the online course listing, on the dates listed.

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## Ocean Engineering (OE) ▼

» <http://www.unh.edu/oe>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

### **Certificate Offered: Ocean Mapping: Basic and Advanced**

Ocean Engineering (OE) offers programs leading to the master of science and doctor of philosophy degree program in ocean 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.

Additionally, a two-component graduate certificate in ocean mapping: basic and advanced is offered.

### **Admission Requirements**

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

### **Degree Requirements**

Each student is required to take one oceanography course: ESCI 852, Chemical Oceanography; ESCI 858, Introductory Physical Oceanography; ESCI 859, Geological Oceanography; or ZOO 850, Biological Oceanography; as well as 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; OE 870, Fundamentals of Ocean Mapping; or OE 895 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**

For more information, visit <http://www.unh.edu/oe/education/graduate.html>.

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 870, Fundamentals of Ocean Mapping; OE/ESCI 871, Geodesy and Positioning for Ocean Mapping; OE 895 Underwater Acoustics and OE/ESCI 972, Hydrographic Field Course.

In addition, each student must select at least 6 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, 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; or 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. Requirements

Students admitted to this Ph.D. program come from traditional engineering degree programs, physics, mathematics, computer science, and in some cases marine science programs. Those entering the Ph.D. program with a B.S. degree from an engineering program should be prepared to enter the Ph.D. program 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 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 873, Seafloor Characterization; OE 870, Introduction to Ocean Mapping; OE 871, Geodesy and Positioning for Ocean Mapping; OE 872, Hydrographic Field Course or OE 895 Underwater Acoustics.

**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; or 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 Numerical 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; or 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; or ECE 970, Introduction to Optical Signal Processing

**The general progress of a student through this program 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.

### **Certificate in Ocean Mapping: Basic and Advanced**

The program goal is to provide advanced graduate training to working professionals in the area of Ocean Mapping. These professionals will come from a variety of backgrounds ranging from earth science, geology, biology, to engineering. To meet the demands of this broad audience the graduate certificate program has two components.

The first component, a graduate certificate in **ocean mapping (basic)** is awarded for completion of the four core courses. The second component, a graduate certificate in **ocean mapping (advanced)** is awarded for successful completion of three additional electives (totaling at least 10 credits).

The advanced certificate is the component where students tailor their courses to meet their individual goals, hence the array of courses. It is possible to select courses for the advanced certificate, which would fulfill the Category A (professional) International Federation of Surveyors/International Hydrographic Organization (FIG/IHO) Standards of Competence for Hydrographics Surveyors.

Successful completion of, or concurrent enrollment in courses for the basic certificate is necessary to begin the advanced certificate. For more information please visit the ocean mapping Web site (<http://www.ccom-jhc.unh.edu/index.php?p=&page=education.php#certificate>) or contact Linda Prescott ([info@ccom.unh.edu](mailto:info@ccom.unh.edu)) at the Center of Coastal and Ocean Mapping Joint Hydrographic Center.

### **Applying**

Please visit the Graduate School PBACC site (<http://www.gradschool.unh.edu/pbacc.html>) for detailed instructions about applying to the certificate program.

### **Certificate Requirements (Basic)**

#### **Required Courses**

- OE 810 Ocean Measurements Lab (4 cr)
- ESCI/OE 870 Introduction to Ocean Mapping(4 cr)
- ESCI/OE 871 Geodesy and Positioning for Ocean Mapping(4 cr)
- ESCI/OE 972 Hydrographic Field Course (4 cr)

### **Certificate Requirements (Advanced)**

#### **Elective Courses (3 courses equaling at least 10 credits)**

- OE 845 Environmental Acoustics I (4 cr)
- EOS/OE 854 Ocean Waves and Tides (4 cr)
- NR 857 Photo Interpretation and Photogrammetry (4 cr)
- ESCI 858\* Intro. to Physical Oceanography (3 cr)
- ESCI 859\* Geological Oceanography (4 cr)
- NR 860 GIS in Natural Resources (4 cr)
- OE/CS 867 Data Visualization (3 cr)
- OE 885 Environmental Acoustics II (4 cr)

ESCI 895 Topics in Earth Sciences (4 cr)

OE 895\* CARIS Training and Seamanship (4 cr)

ESCI 973 Seafloor Characterization (3 cr)

\*Required Advanced Certificate courses for Category A Certification.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
OE	810	Ocean Measurements Laboratory	4
OE	844	Corrosion	4
OE	853	Ocean Hydrodynamics	3
OE	854	Ocean Waves and Tides	4
OE	856	Principles of Naval Architecture and Model Testing	4
OE	857	Coastal Engineering and Processes	3
OE	867	Interactive Data Visualization	3
OE	870	Fundamentals of Ocean Mapping	4
OE	871	Geodesy and Positioning for Ocean Mapping	4
OE	895	Special Topics	1 TO 4
OE	899	Master's Thesis	1 TO 6
OE	972	Hydrographic Field Course	4
OE	973	Seafloor Characterization	3
OE	990	Ocean Seminars I	1
OE	991	Ocean Seminars II	1
OE	995	Graduate Special Topics	2 TO 4
OE	998	Independent Study	1 TO 4
OE	999	Doctoral Research	0

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## Painting (ARTS) ▼

» <http://www.arts.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### 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 means 60 credit hours in studio art and 8 credit hours in art history) is required for admission to this program. Additionally, a minimum undergraduate GPA of 2.6 is required. Prospective students must submit 20 images on a CD of recent work to be reviewed by the graduate faculty of the Department of Art and Art History.

### Degree Requirements

Each student in the master of fine arts degree in painting program shall complete 60 credit hours of work. Twenty-six credits of work will be in the area of concentration (painting) leading toward a thesis exhibition. Eighteen credits will be in graduate-level drawing. Eight credits will be in graduate-level art history and the final eight credits will be in art electives to be chosen from drawing, printmaking, painting, or art history. In addition to the thesis exhibition, degree candidates will be required to submit a written artist statement focusing on aesthetic, technical, and historical issues related to their work. Also required is participation in two major critiques per year. The graduate student will present their work with a verbal or written rationale to the entire graduate painting faculty, invited guests, and student peers.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
ARTS	832	Advanced Drawing	4
ARTS	846	Advanced Painting	4
ARTS	897	Seminar in Art History	4
ARTS	932	Graduate Drawing	6
ARTS	996	Independent Study in the Visual Arts	1 TO 6
ARTS	997	Graduate Painting Thesis	10
ARTS	998	Graduate Painting Seminar	4
ARTS	932T	Graduate Drawing (Teaching)	6

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### Physics (PHYS) ▼

» <http://www.physics.unh.edu>

» [Click to view course offerings](#)

*This program is offered in Durham.*

#### 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, and string theory.

### 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. Applicants must submit current scores (within five years) from the general test of the GRE.

## Degree Requirements

### M.S. Degree Requirements

The courses required for the master of science in physics are PHYS 805, 931, 939, 941, and 943. Students are also expected to take PHYS 900 and PHYS 901. Students in the M.S. program are not required to take the Ph.D. comprehensive examination. Students may select one of the following plans:

- Complete 9 additional credits of coursework plus 6 credit hours of master's thesis work and an oral thesis defense
- Complete 12 additional credits of coursework plus 3 credit hours of research project work and an oral exam in form of a seminar
- Complete 15 additional credits of coursework and pass the written comprehensive and the oral qualifying exam (for students in the Ph.D. program only)

### Ph.D. Degree Requirements

The courses required for a doctor of philosophy degree in physics are PHYS 805, 931, 935, 939, 941-942, and 943-944, and an additional four elective courses at the 900 level, excluding 999. Two of the four elective courses may be taken at the 800 level. Students are also expected to take PHYS 900 and PHYS 901.

For students doing Ph.D. research in astrophysics or space physics, two of their four elective courses must be PHYS 951 and PHYS 953. These students must also take either PHYS 810 or PHYS 812. These special requirements are currently under revision and students who are interested in astrophysics or space physics research should consult the physics department Web site for the actual required course sequences.

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; passing a written comprehensive examination; and passing an oral defense of a proposed thesis topic. The comprehensive examination is normally taken during the first year and must be passed by the middle of the second 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. If students desire to do research in a field related to physics, special provisions may be made. Contact the department chairperson or graduate adviser for details.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
PHYS	805	Experimental Physics	4
PHYS	806	Introduction to Physics Research	1
PHYS	808	Optics	4
PHYS	810	Introduction to Astrophysics	4

PHYS	811	Topics in Modern Physics	1 TO 4
PHYS	812	Introduction to Space Plasma Physics	4
PHYS	818	Introduction to Solid-State Physics	4
PHYS	820	Nuclear Physics	4
PHYS	864	General Relativity and Cosmology	4
PHYS	895	Independent Study	1 TO 8
PHYS	899	Master's Thesis	1 TO 6
PHYS	900	Introduction to Physics Research and Teaching I	1
PHYS	901	Introduction to Physics Research and Teaching II	1
PHYS	902	Issues in Teaching and Learning Physics	1 TO 3
PHYS	931	Mathematical Physics	3
PHYS	935	Statistical Physics	3
PHYS	939	Classical Mechanics	3
PHYS	941	Electromagnetic Theory I	3
PHYS	942	Electromagnetic Theory II	3
PHYS	943	Quantum Mechanics I	3
PHYS	944	Quantum Mechanics II	3
PHYS	951	Plasma Physics	3
PHYS	953	Magnetohydrodynamics of the Heliosphere	3
PHYS	954	Heliospheric Physics	3
PHYS	965	Advanced Solid-State Physics	3
PHYS	987	Magnetospheres	3
PHYS	995	Special Topics	1 TO 3
PHYS	999	Doctoral Research	0

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## Plant Biology (PBIO) ▼

» <http://www.pbio.unh.edu>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Biological Sciences offers the master of science and doctor of philosophy degrees in plant biology. 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, phycology, physiology, systematic botany, crop production, and environmental horticulture.

### Admission Requirements

Applicants are expected to have adequate preparation in plant biology and in the fundamentals of physical and biological sciences. They must submit current scores (within five years) from the general test of the GRE.

### 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.

### 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

#### Courses

Abbreviation	Course Number	Title	Credits
PBIO	801	Plant Physiology	3
PBIO	802	Plant Physiology Laboratory	2
PBIO	809	Plant Stress Physiology	3
PBIO	813	Biochemistry of Photosynthesis	4
PBIO	817	Lake Ecology	4
PBIO	819	Field Studies in Lake Ecology	4
PBIO	820	Plant Nutrition	4
PBIO	822	Marine Phycology	4
PBIO	825	Marine Ecology	4
PBIO	827	Algal Physiology	3
PBIO	832	Lake Management: A Multidisciplinary Approach	4
PBIO	847	Aquatic Plants in Conservation	4
PBIO	852	Mycology	4
PBIO	858	Plant Anatomy	5
PBIO	860	Insect Pest Management	4

PBIO	899	Master's Thesis	1 TO 10
PBIO	985	Advanced Topics	1 TO 6
PBIO	995	Investigations	1 TO 6
PBIO	997	Graduate Seminar	1
PBIO	999	Doctoral Research	0

Some PBIO courses have new prefixes. They are BMCB 814 Electron Microscopy (2 cr), BMCB 815 Electron Microscopy Lab (3 cr), GEN 853 Cytogenetics (4 cr), GEN 872 Evolutionary Genetics of Plants (4 cr), GEN 874 Plant Biotechnology & Genetic Engineering (3 cr), and GEN 875 Plant Biotechnology & Genetic Engineering Lab (2 cr)

## Political Science (POLT) ▼

» <http://www.unh.edu/political-science/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

**Certificate Offered: Sustainability Politics and Policy**

### About the Department of Political Science Graduate Programs

The Department of Political Science at UNH offers two graduate degrees: the master of arts in political science and the master of public administration. Both provide advanced study in political science, public policy, and public administration for students interested in professions in the fields of government, public service, nonprofit management, electoral politics, education and research, or as preparation for Ph.D. programs. Our degree programs give students the flexibility to tailor their coursework to individual interests within a curriculum that ensures a strong foundation in research methodology, management, and other needed skills in the professions. Our faculty engage in teaching and research activities encompassing the fields of American politics, political thought, comparative/international politics, and public administration.

Both programs are offered to full- and part-time students. The M.A. program is offered in Durham. The M.P.A. program offers evening courses for working professionals at Durham and Manchester.

Additionally, a graduate certificate in sustainability politics and policy is offered.

### Admission Requirements

Applicants are expected to have majored in political science or a related field, or have worked in government or the nonprofit sector and must possess a bachelor's degree from an accredited institution. Where undergraduate preparation has been insufficient, applicants may be admitted provided that they follow a program of study approved by the Graduate Committee. The GRE general test is required for the M.A. program. M.P.A. applicants are strongly encouraged to include GRE test results with their application, but it is required only for those M.P.A. applicants requesting consideration for graduate assistant or tuition assistance awards. M.P.A. applicants may be asked to interview either in person or by conference call with the director of the M.P.A. program and the graduate program coordinator.

### Degree Requirements

## Master of Arts in Political Science

**Thesis Option**

## I. Required Courses: 6 credits

POLT 900 Pro-Seminar  
POLT 905 Introduction to Statistical Analysis

## II. Required Electives: 9 credits

Two courses in major subfield in political science  
One course in minor subfield

Subfields

Comparative Politics  
International Politics  
Political Thought/Theory (limited availability AY2010)  
American Politics/Public Administration

## III. Additional Electives: 9 credits

Three courses at the 800 or 900 level in political science or related discipline

\*\*approval signature of M.A. director or adviser if course is outside the department

## IV. Master's Thesis: 6 credits

POLT 899 Master's Thesis: successful completion

## Total:

Eight courses  
Thesis  
30 credit hours

**Non-Thesis Option**

## I. Required Courses: 6 credits

POLT 900 Pro-Seminar  
POLT 905 Introduction to Statistical Analysis

## II. Required Electives: 9 credits

Two courses in major subfield in political science  
One course in minor subfield

Subfields

Comparative Politics  
International Politics  
Political Thought/Theory(limited availability AY2010)  
American Politics/Public Administration

## III. Additional Electives: 15 credits

Five courses at the 800 or 900 level in political science or related discipline

\*\*approval signature of M.A. director or adviser if course is outside the department

## IV. Comprehensive Examination

Successful completion of comprehensive examination taken in final semester

## Total:

Ten courses  
Comprehensive Examination  
30 credit hours

## Master of Public Administration Degree Requirements

### I. Basic Core Curriculum

POLT 905 Introduction to Statistical Analysis  
POLT 906 Foundations & Theories of Public Administration  
POLT 909 Organization & Management in Public and Non-Profit Sectors  
POLT 908 Capstone  
    908A: 3 credits  
    908B: 6 credits&

### II. Advanced Core: Three of the listed courses

POLT 804 Policy & Program Evaluation  
POLT 808 Administrative Law  
POLT 907 Legal & Policy-making Environment in Public & Non-Profit Sectors  
  
POLT 911 Public Management Techniques, *or*  
POLT 812 Leadership Theory & Practice  
  
POLT 912 Human Resource Management in Public & Non-Profit Sectors, *or*  
POLT 915 Collective Bargaining & Labor Relations  
  
POLT 914 Financial Management & Budgeting in Public & Non-Profit Sectors

### III. 5 Electives/15 credits

Combination of 800/900 level public administration or related discipline curriculum, and up to six M.P.A. 1 credit seminars (Approval of M.P.A. adviser required for coursework outside of political science department)

### Total:

Twelve courses  
Credits:  
    36, 3-credit Capstone  
    39, 6-credit Capstone

## M.A. with Thesis Option Degree

Masters students must complete a minimum of 30 credits for the degree: eight courses and a 6-credit master's thesis. Of the eight courses, two are required seminars—Pro Seminar (POLT 900) and Introduction to Statistical Analysis (POLT 905)—to be taken during the student's first two semesters. Three courses are required electives totaling 9 credits: two courses in the student's major subfield (Comparative Politics, International Politics, Political Thought/Theory (limited availability, AY2010), and American Politics/Public Administration), and one course in the minor subfield.

Three courses (9 credits) must be completed at the 800 or 900 level from political science courses or related discipline courses. The M.A. program director or the student's adviser must provide approval if the course selected is a not a political science course.

Successful completion of a 6-credit master's thesis is required.

## M.A. Non-Thesis Option Degree

Master's degree students must complete a minimum of 30 credits for the degree: ten courses and a comprehensive exam. Of the ten courses, two are required: Pro Seminar (POLT 900) and Introduction to Statistical Analysis (POLT 905) to be taken during the student's first two semesters. There are required electives totaling 9 credits. They must include two courses in the student's major subfield (Comparative Politics, International Politics, Political

Thought/Theory (limited availability, AY2010), and American Politics/Public Administration). One course in a minor subfield is also required for this degree option.

Fifteen credits must be completed at the 800 or 900 level from political science courses or a related discipline. The M.A. program director or the student's adviser must provide approval if the course selected is not a political science course.

The comprehensive examination must be successfully completed in the student's final semester.

### **M.P.A. Degree Requirements**

Master of public administration students must complete a minimum of 36 or 39 credits for the degree.

Required courses include:

- Four basic core curriculum courses in foundations and theory, organization and management, statistical analysis, and the Capstone internship or project (POLT 905, 906, 909, and the 908 Capstone). 12-15 credits
- Three advanced core curriculum courses in finance and budgeting, human resources, labor relations, public or nonprofit management, administrative law, policy and program evaluation, leadership, or legal and policy-making environments (POLT 804, 808, 812, 907, 911, 912, 914, 915, 918). 9 credits
- Five electives in public administration, political science, or related discipline with adviser's approval. 15 credits
- Two of the five required electives will be waived for students who have successfully completed Level II of the New Hampshire Certified Public Manager Program.

The Capstone internship or project is the culmination of the student's graduate work, applying academic knowledge with practical experience. Students without prior public or nonprofit sector professional experience are required to complete the internship component of the Capstone.

### **Certificate in Sustainability Politics and Policy**

The graduate certificate in sustainability politics and policy is administered by the Department of Political Science Graduate Program, though it can include coursework from a number of other graduate programs. The certificate is designed to give current graduate students, alumni and others in the community training and analysis on issues connecting environmental and social sustainability, politics and policy making initiatives. Such training is increasingly valuable for careers in the public sector, in nonprofit organizations and in the private sector for both smaller and larger companies. For more information please visit the [Sustainability Politics and Policy website](#). Students interested in this certificate are encouraged to contact Professor [Stacy D. VanDeveer](#), graduate program director, at (603) 862-1750.

### **Applying**

In accordance with Graduate School requirements, the graduate certificate in sustainability politics and policy requires:

- Completed UNH Application for admission to a Graduate Certificate Program
- Personal statement on applicant's interest, and goals regarding sustainability
- Current resume
- Official transcripts from previous undergraduate education, and graduate education (if applicant has received graduate degree)
- Three letters of recommendation

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the graduate certificate program.

### **Certificate Requirements**

The course requirements focus the debates, in both the global North and the global South, on exactly what sustainability politics should (and/or should not) include. The goal is to connect global sustainability policy debates to those occurring at the local and national levels in New England, the United States and other countries.

This graduate certificate program requires 13 total credits.

### **Required courses:**

- POLT 995/996: Independent Study "Defining and Debating Sustainability" (1 credit)

The independent study will include a core list of readings on sustainability concepts and cases in wealthier and poorer societies – and methodological debates about how these concepts may be measured and assessed.

POLT 851: Comparative Environmental Politics and Policy (3 credits)

POLT 880: International Environmental Politics (3 credits)

Electives (any two of the courses listed below) (6 credits):

Students will be advised by the certificate program director and other participating faculty members about which electives might be most appropriate and consistent with their interests and career goals. The list of approved electives affords students opportunities to focus on particular areas of environmental or social policy, or to seek to acquire additional methodological skills and disciplinary approaches in areas such as policy analysis or economics.

POLT: 843, 862, 878, 912, 914, 918

ECON 807, 908

NR: 801, 818, 820, 824, 831, 838, 850, 884, 885

HIST: 818, 866

PHP: 907, 914, 930

RAM: 911

RECO: 856

SOC: 880, 894

## Courses

## Courses

Abbreviation	Course Number	Title	Credits
POLT	801	Courts and Public Policy	3
POLT	804	Policy and Program Evaluation	3
POLT	806	State and Local Government	3
POLT	808	Administrative Law	3
POLT	811	Public Opinion and Survey Research	3
POLT	812	Leadership Theory and Practice	3
POLT	815	Art of Negotiation	3
POLT	818	Special Topics - Public Administration	1
POLT	821	Feminist Political Theory	3
POLT	825	Politics and Literature	3
POLT	840	States and Societies in the Middle East	3
POLT	851	Comparative Environmental Politics and Policy	3
POLT	860	Theories of International Relations	3
POLT	862	International Political Economy	3
POLT	878	International Organization	3
POLT	880	International Environmental Politics, Policy and Law	3
POLT	899	Master's Thesis	3 TO 6
POLT	900	Political Science Pro-Seminar	3

POLT	897B	Seminar in American Politics	3
POLT	897C	Seminar in Comparative Politics	3
POLT	897E	Seminar in International Politics	3
POLT	897F	Seminar in Public Administration	3
POLT	897I	Seminar in Political Thought	3
POLT	898B	Seminar in American Politics	3
POLT	898C	Seminar in Comparative Politics	3
POLT	898E	Seminar in International Politics	3
POLT	898F	Seminar in Public Administration	3
POLT	898I	Seminar in Political Thought	3
POLT	908A	Capstone in Public Administration	3
POLT	908B	Capstone in Public Administration	6

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## Psychology (PSYC) ▼

» <http://www.unh.edu/psychology/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **Degree Offered: Ph.D.**

Department of Psychology offers a four- or five-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, can teach and communicate effectively, and 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 brain, behavior, and cognition; developmental psychology; or social psychology/personality. 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 up to five years. A low graduate student/faculty ratio provides opportunities to work closely with one or more faculty mentors. Graduates typically 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 while taking a yearlong seminar in the teaching of psychology, 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.

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 Center for Teaching Excellence 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, along with other standard application forms. The subject test in psychology is recommended. Scores must be current, within five years.

## Degree Requirements

### Ph.D. Degree Requirements

Required courses include first-year seminar (PSYC 904), three semesters of research methods and statistics (PSYC 905, 906, and 907 or 908), six advanced graduate seminars, and two semesters of the practicum and seminar in the teaching of psychology (PSYC 991-992). First-year students also participate in a noncredit graduate proseminar (PSYC 901-902), which introduces students to the research programs of the faculty. 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.

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 in 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.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
PSYC	894	Advanced Research	4 OR 8
PSYC	899	Master's Thesis	4 OR 8
PSYC	901	Graduate Pro-seminar	0
PSYC	902	Graduate Pro-seminar	0
PSYC	904	First-year Graduate Seminar	4
PSYC	905	Research Methodology and Statistics I	4
PSYC	906	Research Methodology and Statistics II	4
PSYC	907	Research Methods and Statistics III	4
PSYC	909	Advanced Seminar in Quantitative and Analytic Methods	4
PSYC	914	Advanced Seminar in Cognition	4
PSYC	917	Advanced Seminar in Sensory and Perceptual Processes	4

PSYC	933	Advanced Seminar in Physiological Psychology	4
PSYC	945	Advanced Seminar in Behavioral Analysis	4
PSYC	954	Advanced Seminar in Social Psychology	4
PSYC	974	Advanced Seminar in the History and Theory of Psychology	4
PSYC	982	Advanced Seminar in Developmental Psychology	4
PSYC	991	Practicum and Seminar in the Teaching of Psychology	6
PSYC	992	Practicum and Seminar in the Teaching of Psychology	6
PSYC	995	Reading and Research	1 TO 4
PSYC	998	Problems and Issues	4
PSYC	999	Doctoral Research	0

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## Public Administration (POLT) ▼

» <http://www.unh.edu/political-science/>

» [Click to view course offerings](#)

*This program is offered in Durham and in Manchester through [GSMC](#).*

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

The Department of Political Science at UNH offers two graduate degrees: the master of arts in political science and the master of public administration. Both provide advanced study in political science, public policy, and public administration for students interested in professions in the fields of government, public service, nonprofit management, electoral politics, education and research, or as preparation for Ph.D. programs. Our degree programs give students the flexibility to tailor their coursework to individual interests within a curriculum that ensures a strong foundation in research methodology, management, and other needed skills in the professions. Our faculty engage in teaching and research activities encompassing the fields of American politics, political thought, comparative/international politics, and public administration.

Both programs are offered to full- and part-time students. The M.A. program is offered in Durham. The M.P.A. program offers evening courses for working professionals at Durham and Manchester.

### Admission Requirements

Applicants are expected to have majored in political science or a related field, or have worked in government or the nonprofit sector and must possess a bachelor's degree from an accredited institution. Where undergraduate preparation has been insufficient, applicants may be admitted provided that they follow a program of study approved by the chairperson. The GRE general test is required for the M.A. M.P.A. applicants are strongly encouraged to include GRE test results with their application, but it is required only for those M.P.A. applicants requesting consideration for graduate assistant or tuition assistance awards.

### Degree Requirements

#### M.A. with Thesis Option Degree

Masters students must complete a minimum of 30 credits for the degree: eight courses and a 6 credit master's thesis. Of the eight courses, two are required seminars - Pro Seminar (POLT 900) and Introduction to Statistical Analysis (POLT 905) - to be taken during the student's first semester. There are required electives totaling 9 credits. They must include two courses in the student's major subfield (Comparative Politics, International Politics, Political Thought/Theory, and American Politics/Public Administration).

Nine credits must be completed at the 800 or 900 level from political science courses or related discipline courses. The M.A. program director or the student's adviser must provide approval if the course selected is a not a political science course.

Successful completion of a 6 credit master's thesis is required.

### **M.A. without Thesis Option Degree**

Master's degree students must complete a minimum of 33 credits for the degree: ten courses and a comprehensive exam. Of the ten courses, two are required - Pro Seminar (POLT 900) and Introduction to Statistical Analysis (POLT 905) - to be taken during the student's first semester. There are required electives totaling 9 credits. They must include two courses in the student's major subfield (Comparative Politics, International Politics, Political Thought/Theory, and American Politics/Public Administration). One course in a minor subfield is also required for this degree option.

Fifteen credits must be completed at the 800 or 900 level from political science courses or a related discipline. The M.A. program director or the student's adviser must provide approval if the course selected is a not a political science course.

The comprehensive examination must be successfully completed in the student's final semester.

### **M.P.A. Degree Requirements**

Master of public administration students must complete a minimum of 36 or 39 credits for the degree. Required courses include:

Four basic core curriculum courses in foundations and theory, organization and management, statistical analysis, and the Capstone internship or project (POLT 905, 906, 909, and the 908 Capstone). 12-15 credits

Three advanced core curriculum courses in finance and budgeting, human resources, labor relations, public or nonprofit management, administrative law, policy and program evaluation, leadership, or legal and policy-making environments (POLT 804, 808, 812, 897/898F, 907, 911, 912 914, 915). 9 credits

Electives in public administration, political science, or related discipline with adviser's approval. 15 credits

Two of the five required electives will be waived for students who have successfully completed Level II of the New Hampshire Certified Public Manager Program.

The Capstone internship or project is the culmination of the student's graduate work, applying academic knowledge with practical experience. Students without prior public or nonprofit sector professional experience are required to complete the internship component of the Capstone.

## **Courses**

### **Courses**

<b>Abbreviation</b>	<b>Course Number</b>	<b>Title</b>	<b>Credits</b>
POLT	801	Courts and Public Policy	3
POLT	804	Policy and Program Evaluation	3
POLT	806	State and Local Government	3
POLT	808	Administrative Law	3
POLT	811	Public Opinion and Survey Research	3
POLT	812	Leadership Theory and Practice	3
POLT	815	Art of Negotiation	3
POLT	818	Special Topics - Public Administration	1
POLT	821	Feminist Political Theory	3
POLT	840	States and Societies in the Middle East	3

POLT	851	Comparative Environmental Politics and Policy	3
POLT	860	Theories of International Relations	3
POLT	878	International Organization	3
POLT	880	International Environmental Politics, Policy and Law	3
POLT	899	Master's Thesis	3 TO 6
POLT	900	Political Science Pro-Seminar	3
POLT	905	Introduction to Statistical Analysis	3
POLT	906	Foundations and Theories of Public Administration	3
POLT	907	Legal and Policy-Making Environment on Public and Non-Profit Sectors	3
POLT	909	Organization and Management in Public and Non-profit Sectors	3
POLT	911	Public Management Techniques	3
POLT	912	Human Resource Management in Public and Non-profit Sectors	3
POLT	914	Financial Management and Budgeting in Public and Non-profit Sectors	3
POLT	915	Collective Bargaining and Labor Relations	3
POLT	918	Non-Profit Management	3
POLT	995	Reading and Research	1 TO 3
POLT	996	Reading and Research	1 TO 3
POLT	897B	Seminar in American Politics	3
POLT	897C	Seminar in Comparative Politics	3
POLT	897E	Seminar in International Politics	3
POLT	897F	Seminar in Public Administration	3
POLT	897I	Seminar in Political Thought	3
POLT	898B	Seminar in American Politics	3
POLT	898C	Seminar in Comparative Politics	3
POLT	898E	Seminar in International Politics	3
POLT	898F	Seminar in Public Administration	3
POLT	898I	Seminar in Political Thought	3
POLT	908A	Capstone in Public Administration	3
POLT	908B	Capstone in Public Administration	6

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## Public Health (PHP) ▼

» <http://www.shhs.unh.edu/hmp/gradhmp.html>

» [Click to view course offerings](#)

*This program is offered in Manchester through [GSMC](#).*

**Degree Offered: M.P.H.****Certificate Offered: Public Health**

The College of Health and Human Services offers an interdisciplinary curriculum leading to the master of public health (M.P.H.) or a public health certificate. The program is designed to provide students with an integrated, generalist M.P.H. degree. The M.P.H. program is accredited by the Council on Education for Public Health (CEPH).

The master of public health and public health certificate seek to enhance the capacity of working public health professionals to perform the 10 Essential Services of Public Health. The program is only offered at the University of New Hampshire Graduate School Manchester Campus (GSMC). Academic classes are offered in semester units and each course is eight weeks in length and offered one evening per week for four hours. Working professionals can complete the M.P.H. program on a part-time basis over two years but have up to six years to complete the degree requirements.

**Admission Requirements**

(Please note that since these are part-time programs, international applicants **are not** eligible to apply)

Admissions are done through the UNH Graduate School for both fall and spring semesters. The program encourages applications from persons who hold a baccalaureate degree from an accredited college or university. The Admission Committee uses previous academic records, current public health experience, responses to five essay questions regarding your interest in pursuing graduate education in public health, and recommendations from three individuals 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.

To apply for the M.P.H. degree, applicants must submit:

1. A completed UNH Graduate School Application Form
2. Responses to five essay questions regarding your public health interests, goals, and beliefs (see "Admissions Requirements" on the Graduate School's website)
3. Official transcripts from previous undergraduate and graduate education
4. Current résumé
5. Three letters of recommendation

**Degree Requirements****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 care systems (PHP 900), epidemiology (PHP 901), environmental health (PHP 902), biostatistics (PHP 903), and social and behavioral health (PHP 904)) the program requires that all students complete four additional courses: administration (PHP 905), economics (PHP 922), policy (PHP 907), and ethics (PHP 908). Students must also complete five elective courses. The M.P.H. curriculum 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 in a professional setting. The final course in the curriculum is an integrating seminar in which the students work in teams, bringing both their individual and joint perspectives and expertise, to address a particular public health problem for a New Hampshire-based public health entity.

Grades below the "B-" level in a graded course are considered failing grades for the purposes of determining academic standing. Repeating a course does not remove the original failing grade from the record. Students receiving failing grades in 6 or more credits either in two courses or in one course taken twice will be recommended by the M.P.H. program director to the Graduate School for dismissal from the M.P.H. or the Public Health Certificate Program.

Students must have a cumulative grade-point average of 3.0 (B-), or higher, in order to 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.

### **Public Health Certificate**

The Master of Public Health Program also offers a continuing education program. Continuing education program offerings include Public Health Certificate Program (PHC), an annual series of Public Health Grand Round lectures and workshops.

The Public Health Certificate Program provides a vehicle for individuals working in public or community health positions, with no formal academic background in public health, the opportunity to earn a graduate certificate in public health. To enter the graduate certificate program, an applicant must have a baccalaureate degree.

Similar to the M.P.H. program, the certificate program is only offered at UNH Graduate School Manchester Campus (GSMC). Classes are offered on weekday evenings. For more information please visit the [Public Health website](#) or contact [Chris Hamann](#) at (603) 862-2733.

### **Applying**

Admissions are done through the UNH Graduate School for both fall and spring semesters. Certificate program applicants must possess a baccalaureate degree from an accredited college or university. Students are expected to have experience in public health.

To apply for the certificate of public health, applicants must submit:

1. A completed UNH Graduate Certificate Program Application
2. Responses to five essay questions regarding your public health interests, goals, and beliefs
3. Official transcripts from previous undergraduate and graduate education
4. Current résumé
5. Three letters of recommendation

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the graduate certificate program.

### **Certificate Requirements**

The public health certificate is a 12-credit program that can be completed on a part-time basis over one calendar year. All courses (with the exception of workshops taken as part of PHP 996) must be taken at UNH. Students completing the Public Health Certificate Program can apply to enter the M.P.H. program. If accepted, certificate credits can be applied to the M.P.H. program. To earn the public health certificate, a student must successfully complete the following 12-credit curriculum consisting of following three required courses and one elective course.

PHP 900, Public Health Care Systems 3 cr.

PHP 901, Epidemiology 3 cr.

PHP 996, Applied Topics in the Essentials of Public Health 3 cr. (This course has a unique structure that allows students to tailor their learning experience about the Ten Essential Services of Public Health to their professional goals and interests. To learn more about this course design, please consult the Public Health Certificate Section of the [2010-2011 M.P.H. Student Handbook](#).)

One elective 3 cr. (Students can take any M.P.H. course as long as any prerequisites have been met. To see a complete listing of M.P.H. courses offered, see the [2010-2011 M.P.H. Student Handbook](#).)

### **Courses**

## Courses

Abbreviation	Course Number	Title	Credits
PHP	900	Public Health Care Systems	3
PHP	901	Epidemiology	3
PHP	902	Environmental Health	3
PHP	903	Biostatistics	3
PHP	904	Social and Behavioral Health	3
PHP	905	Public Health Administration	3
PHP	906	Public Health Finance and Budgeting	3
PHP	907	Public Health Policy	3
PHP	908	Public Health Ethics	3
PHP	912	Public Health Law	3
PHP	914	Public Health Policy Analysis	3
PHP	920	Social Marketing	3
PHP	922	Public Health Economics	3
PHP	924	Policy and Practice of Community Health Assessment	3
PHP	926	Evaluation in Public Health	3
PHP	928	Principles of Toxicology	3
PHP	930	Climate Change and Health	3
PHP	932	Disease Ecology	3
PHP	934	Work Environment Policy and the Health of Workers	3
PHP	936	Global Public Health	3
PHP	938	Health Education and Promotion	3
PHP	940	Health and the Built Environment	3
PHP	964	Applied Epidemiology	3
PHP	966	Health Information Systems and Technology	3
PHP	990	Field Study	3
PHP	995	Independent Study	1 TO 3
PHP	996	Applied Topics in the Essentials of Public Health	3
PHP	998	Integrating Seminar	3
PHP	985A	Special Topics in Policy and Management	1 TO 3
PHP	985B	Special Topics in Public Health Ecology	1 TO 3

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Recreation Management and Policy (RMP) ▼

» <http://www.unh.edu/rmp/index.shtml>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### **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 National Recreation and Park Association (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**

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 scores (within five years) from the general test of the GRE, three references, a written personal statement, 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. Students who wish to apply for a graduate assistantship should contact the department's graduate coordinator for an application. Admission to the program is selective and limited, so it is in the applicant's best interest to apply early.

### **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) and for New Hampshire State Licensure. 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.

### **Both Options**

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.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
RMP	800	Concepts of Recreation and Leisure	3
RMP	805	Management and Policy in Therapeutic Recreation	3
RMP	806	Recreation Administration and Organizational Behavior	3
RMP	811	Recreation Resource Management	3
RMP	830	Camp Administration and Leadership	3
RMP	870	Management and Design of Recreation and Park Facilities	3
RMP	872	Law and Public Policy in Leisure Services	3
RMP	897	Master's Project	3
RMP	899	Master's Thesis	3
RMP	912	Non-Profit Administration and Leadership	3
RMP	924	Grantwriting and Fund Development	3
RMP	964	Graduate Internship	3
RMP	970	Teaching Practicum	3
RMP	980	Independent Study	1 TO 3
RMP	995	Colloquium Seminar	3
RMP	998	Special Topics	2 TO 4

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## Resource Administration and Management (RAM) ▼

» <http://envecon.unh.edu/graduate>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: M.S.

The Department of Natural Resources and the Environment 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. Applicants must submit current scores (within five years) from the general test of the GRE.

## Degree Requirements

### M.S. Degree Requirements

The master of science degree in resource administration and management is conferred upon successful completion of a program amounting to not less than 34 credits including the following course requirements or equivalent:

NR 903, Approach to Research  
 Quantitative methods or analytical techniques  
 RAM 911, Natural and Environmental Resource Management  
 Advanced course in environmental policy  
 RAM 898, Directed Research, 4-6 cr., or RAM 899, Thesis, 6-10 cr.;  
 Final oral and/or written examination

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
RAM	805	Ecotourism: Managing for the Environment	4
RAM	877	Topics in Community Planning	4
RAM	896	Investigations	2 TO 4
RAM	898	Directed Research	4 TO 6
RAM	899	Master's Thesis	1 TO 10
RAM	900	Resource Administration and Management Internship	4
RAM	911	Natural and Environmental Resource Management	4
RAM	993	Natural and Environmental Resources Seminar	2

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## Resource Economics (RECO) ▼

» <http://envecon.unh.edu/graduate>

» [Click to view course offerings](#)

*This program is offered in Durham.*

**Degree Offered: M.S.**

The Department of Natural Resources and the Environment 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. Applicants must submit current scores (within five years) from the general test of the GRE.

**Degree Requirements****M.S. Degree Requirements**

The master of science degree in resource economics is conferred upon successful completion of a program amounting to not less than 30 credits including the following course requirements or equivalent:

RECO 993, Seminar  
 NR 903, Approach to Research or equivalent  
 ECON 926, Econometrics I, or ECON 927, Econometrics II  
 RECO 808, Environmental Economics, or RECO 856, Rural and Regional Economic Development  
 ECON 976, Microeconomics I, or equivalent  
 RECO 898, Directed Research, 2-4 cr., or RECO 899, Master's Thesis, 6-10 cr.  
 Final oral and/or written examination

**Courses****Courses**

Abbreviation	Course Number	Title	Credits
RECO	800	Marketing Communications Research: Methodological Foundations	4
RECO	808	Environmental Economics	4
RECO	856	Rural and Regional Economic Development	4
RECO	895	Investigations	2 TO 4
RECO	898	Directed Research	4 TO 6
RECO	899	Master's Thesis	1 TO 10
RECO	911	Natural and Environmental Resource Management	4
RECO	993	Natural and Environmental Resources Seminar	1

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Social Work (SW) ▼

» <http://www.shhs.unh.edu/sw/index.html>

» [Click to view course offerings](#)

*This program is offered in Durham and in Manchester through [GSMC](#).*

**Degree Offered: M.S.W.**

### **Certificate Offered: Leadership in Children's Health and Disability**

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; the part-time program is available in Durham or Manchester. The Manchester academic classes are delivered in a weekend model. All students complete a foundation-year course of study, and then elect a second-year concentration either in direct/clinical practice or community/administrative practice. Both concentrations require classroom work and two yearlong field internships. Field internship hours are typically completed during normal business hours. In addition, the Departments of Social Work and Kinesiology offer a dual degree program, which consists of a master in social work (M.S.W.), as well as a master of science (M.S.) in kinesiology with a concentration in outdoor education.

Additionally, a graduate certificate in leadership in children's health and disability is offered.

### **Admission Requirements**

The department encourages applications from persons who hold a baccalaureate degree from an accredited college or university; have attained an overall grade-point average of "B" or better in undergraduate coursework; have completed courses in a broad range of liberal arts and science disciplines; have acceptable recommendations from three individuals, one of whom must be a member of an academic faculty; and have completed a personal statement of interest in pursuing graduate education in the field. Although 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 B.A. from an accredited S.W./B.S.W. program with a minimum overall grade-point average of 3.2 (4.00 point scale). 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.

Students applying to the dual degree program must meet the application requirements for both the Departments of Social Work and Kinesiology. See kinesiology for their admission requirements.

The M.S.W. program concentrates on strengths and empowerment models that encourage individuals and families and communities and organizations 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 developmentally 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.

### **Degree Requirements**

## **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 1,240 hours in the field. Grades below the B- level in a graded course or a "fail" in a credit/fail course are considered failing grades for the purposes of determining academic standing. Repeating a course does not remove the original failing grade from the record. Graduate students receiving failing grades in 6 or more credits, received either in two courses or in one course taken twice, will be dismissed from the M.S.W. program.

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.

Advanced 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.

Dual degree students take classes simultaneously over the course of two and a half years in both social work and kinesiology: outdoor education and complete a minimum of 77 credits for graduation. This includes two internships, one during their first year of study, and a second specialized block placement internship over the summer following their second year of study, which concentrates on the utilization and application of adventure therapy in an agency setting. This block placement internship may occur in New England or in other appropriate settings across the U.S.

Students are required to also complete either a master thesis or an advanced studies project during their last year of study which is supervised by faculty in kinesiology: outdoor education.

## **Certificate in Leadership in Children's Health and Disability**

This graduate certificate is part of a partnership with the New Hampshire LEND Program and the Seacoast Child Development Clinic. Accepted LEND trainees are eligible to apply for the Graduate Certificate for Leadership in Children's Health and Disability from the University of New Hampshire (separate application process through the UNH Graduate School). The websites listed are for the New Hampshire Lend Program and the Seacoast Child Development Clinic. For more information please contact Elizabeth Humphreys at the [New Hampshire LEND Program](#) at (603) 862-0561.

### **Applying**

Please visit the [Graduate School PBACC site](#) for detailed instructions about applying to the graduate certificate program. In addition to the standard application requirements this department requires that applicants submit a letter of intent.

### **Certificate Requirements**

The Leadership in Children's Health and Disability Certificate consists of 9 credit hours of required courses, 3 credit hours of an elective and 3 credit hours of independent study related to the graduate certificate program of study.

Students must take one of two introductory courses in developmental disabilities: EDUC 850, Introduction to Exceptionality, or SW 812, Social Work and Developmental Disabilities (3 cr).

Students must complete both fall and spring semesters of HHS 898, Topics in Neurodevelopmental and Related Disabilities (6 cr total). This course is also a requirement for trainees in the Leadership Education in Neurodevelopmental Disabilities (LEND) but is open to all students.

Students must complete an approved elective (3 cr) from any department at the University of New Hampshire with a focus on children, special health care needs, and disabilities.

Students must complete an independent study that focuses on a leadership activity to support children with special health care needs, disabilities, and families (3 credits).

Coursework must be completed within 3 years.

**Applying:** Please contact the LEND program for details about applying for the certificate.

## Courses

## Courses

Abbreviation	Course Number	Title	Credits
SW	801	Women and Aging	3
SW	805	Child and Adolescent Risks and Resiliency: Program, Policy and Practice	3
SW	810	Computer Utilization in Social Work	3
SW	812	Understanding Developmental Disabilities	3
SW	814	Introduction to Addiction: Assessment and Intervention	3
SW	815	Practice with Gay, Lesbian, Bisexual, and Transgender People	3
SW	820	Social Welfare Policy I	3
SW	830	Social Work Practice I	3
SW	831	Social Work Practice II: Practice in Small Groups and Community Organizations	3
SW	840	Implications of Race, Culture, and Oppression for Social Work Practice	3
SW	850	Human Behavior and the Social Environment I	3
SW	851	Human Behavior and the Social Environment II	3
SW	860	Research Methods in Social Work	3
SW	873	Intervention with Groups	3
SW	880	Field Internship I	3
SW	881	Field Internship II	3
SW	882	Therapeutic Applications of Adventure Programming	4
SW	885	Study Abroad: Comparative Social Welfare Systems	3
SW	897	Special Topics in Social Work and Social Welfare	3
SW	900	Advanced Standing Practice and Field Seminar	3
SW	926	Social Welfare Policy II	3
SW	932	Direct Practice III: Clinical Assessment and Intervention	3
SW	933	Direct Practice IV: Advanced Clinical Assessment and Intervention	3
SW	936	Community and Administrative Practice III: Community Organization and Political Strategies	3
SW	937	Community and Administrative Practice IV: Management of Human Service Organizations	3
SW	952	Human Behavior and the Social Environment III	3

SW	957	Program and Resource Development in the Social Service Arena	3
SW	962	Research II Statistics	3
SW	965	Research III: Program and Practice Evaluation	3
SW	974	Social Work Supervision	3
SW	975	Theory and Practice of Family Therapy	3
SW	979	Social Work and the Law	3
SW	982	Field Internship III	4
SW	983	Field Internship IV	4
SW	992	Special Projects and Independent Study	1 TO 3

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## Sociology (SOC) ▼

» <http://www.unh.edu/sociology/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degrees Offered: M.A., 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 for intensive study and examination. There are five major substantive areas for possible specialization: crime and conflict, family, social stratification, health and illness, and community and environment. 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

In addition to meeting the general Graduate School requirements, applicants must submit current scores (within five years) from the general test of the GRE.

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 applicants who plan to continue for the Ph.D. as well as students planning for the M.A. only.

### Degree Requirements

#### M.A. Degree Requirements

Students must complete 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), Sociological Methods II (902), Sociological Theory I (911), three elective graduate seminars, and 6-10 credits of Master's Thesis work (899). Successful completion of the thesis constitutes the capstone experience for the M.A. degree.

## Ph.D. Degree Requirements

Students must complete a minimum of three years in residence and take a minimum of sixteen 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, II, III, and IV (901, 902, 903, 904), four courses in a major area, and five elective courses. Students must pass written examinations in the major area of sociological specialization and in advanced theory and methodology, and write and defend the doctoral dissertation.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
SOC	815	Criminological Theory	4
SOC	820	Sociology of Drug Use	4
SOC	825	Social Demography	4
SOC	830	Communities and the Environment	4
SOC	835	Sociology of Community	4
SOC	840	Sociology of Mental Health	4
SOC	842	Sociology and Social Policy	4
SOC	845	Race, Ethnicity, and Inequality	4
SOC	873	Sociology of Childhood	4
SOC	876	Family Violence Research Seminar	4
SOC	880	Social Conflict	4
SOC	894	Evaluation of Social Programs	4
SOC	897	Special Topics	4
SOC	899	Master's Thesis	1 TO 10
SOC	900	Pro-seminar	2
SOC	901	Sociological Methods I: Intermediate Social Statistics	4
SOC	902	Sociological Methods II: Research Design	4
SOC	903	Sociological Methods III: Advanced Social Statistics	4
SOC	904	Sociological Methods IV: Qualitative and Historical Research Methods	4
SOC	911	Sociological Theory I	4
SOC	912	Sociological Theory II	4
SOC	921	Crime and Conflict	4
SOC	975	Sociology of the Family	4
SOC	980	Social Stratification	4
SOC	988	Medical Sociology: Health, Healing, and Society	4
SOC	990	Teaching Sociology Seminar	4

SOC	995	Reading and Research	2 TO 8
SOC	996	Reading and Research	2 TO 8
SOC	997	Advanced Special Topics	2 OR 4
SOC	999	Doctoral Research	0

## Spanish (SPAN) ▼

» <http://www.unh.edu/lrc/index.cfm?id=8DC5474D-D70F-8FE6-BC6C518419AB50E1>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### 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 Cultural Studies.

### Admission Requirements

Applicants shall have received a bachelor's degree from an accredited institution with an undergraduate major in Spanish or its equivalent. The Personal Statement for the Graduate Application should be written in Spanish. Two of the three letters of recommendation should come from a current or former professor. GREs are not required.

### Degree Requirements

To obtain the degree, the candidate must complete a minimum of 30 credits. To satisfy the course requirements, the candidate must successfully complete ten graduate courses, eight of which should be from the offerings of the Spanish program. Two of the ten courses can be taken in allied fields approved by the department. All candidates must take Spanish 901, a 3-credit course dealing with bibliography and methods of research. Preparation of a bibliographical essay in this course is the final requirement for graduation. Graduate assistants teaching in the department must take Spanish 903, a 3-credit course in applied linguistics. Both 901 and 903 count toward the ten courses required to complete the degree.

### Courses

#### Courses

Abbreviation	Course Number	Title	Credits
SPAN	833	History of the Spanish Language	3
SPAN	872	Latin American Novel	3
SPAN	881	Summer Study Abroad in Mexico	8
SPAN	882	Summer Seminar for Spanish Teachers	3
SPAN	890	Grammatical Structure of Spanish	3

SPAN	897	Special Studies in Spanish Language and Literature	3
SPAN	898	Special Studies in Spanish Language and Literature	3
SPAN	901	Bibliography and Methods of Research	3
SPAN	903	Applied Linguistics	3
SPAN	995	Independent Study	1 TO 3
SPAN	997	Graduate Seminar	3

## Systems Design (ENGR) ▼

» <http://www.unh.edu/mechanical-engineering/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

### Degree Offered: Ph.D

#### Ph.D. Systems Design

The systems design doctoral degree is an interdepartmental program that addresses contemporary engineering and scientific technical 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.

The area coordinator is Professor Barry K. Fussell.

#### 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. Applicants must submit current scores (within five years) from the general test of the GRE. 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 College of Engineering and Physical Sciences (CEPS) faculty member to serve as their adviser.

#### Degree 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 technical research that will require at least one additional year of full-time study.

## Courses

### Courses

Abbreviation	Course Number	Title	Credits
ENGR	891	Engineering Fundamentals I	4
ENGR	892	Engineering Fundamentals II	4
ENGR	999	Doctoral Research	0

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## Zoology (ZOOL) ▼

» <http://zoology.unh.edu/>

» [Click to view course offerings](#)

*This program is offered in Durham.*

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

The Department of Biological Sciences offers M.S. and Ph.D. degrees in zoology.

### 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 current Graduate Record Examination scores (within five years) from the general test.

### Degree Requirements

#### 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 UNH.

#### 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, will serve as the basis of the doctoral dissertation. After the approval of the proposal, students who wish to be admitted to doctoral candidacy must demonstrate, in a qualifying examination, a broad basic knowledge of their major and minor fields and their ability to carry out basic research in zoology. 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 (EOS), UNH Center for Coastal and Ocean Mapping (CCOM), the Joint Hydrographic Center, and the Ocean Processes Analysis Laboratory (OPAL). There are five marine laboratories: Jackson Estuarine Lab, Judd Gregg Marine Research Complex, Anadromous Fish and Aquatic Invertebrate Research Lab (AFAIR), the Aquaculture Research Center (ARC) and Shoals Marine Lab (SML).

In addition, the Center for Freshwater Biology (CFB) jointly administers (with the UNH Cooperative Extension) the Lakes Lay Monitoring Program, which is dedicated to the preservation and sound management of lakes through citizen-based monitoring and research. The Hubbard Center for Genomic Studies 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

#### Courses

Abbreviation	Course Number	Title	Credits
ZOOL	810	Ichthyology	4
ZOOL	811	Zooplankton Ecology	4
ZOOL	812	Mammalogy	4
ZOOL	813	Animal Behavior	4
ZOOL	817	Lake Ecology	4
ZOOL	819	Field Studies in Lake Ecology	4
ZOOL	825	Marine Ecology	4
ZOOL	832	Lake Management: A Multidisciplinary Approach	4
ZOOL	833	Behavioral Ecology	4
ZOOL	845	Biology and Diversity of Insects	4
ZOOL	850	Biological Oceanography	4

ZOOL	872	Fisheries Biology	3
ZOOL	873	Physiology of Fish	4
ZOOL	877	Neurobiology and Behavior	4
ZOOL	895	Advanced Studies	1 TO 4
ZOOL	899	Master's Thesis	1 TO 10
ZOOL	902	Writing and Publishing Science	2
ZOOL	997	Seminar	1 TO 2
ZOOL	998	Seminar	1 TO 2
ZOOL	999	Doctoral Research	0

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### UNH GSMC ▼

*The UNH Graduate School Manchester Campus*

#### **Master of Arts in Teaching**

[Secondary Education](#)

#### **Master of Education**

[Counseling](#)

[Elementary Education](#)

[Secondary Education](#)

[Teacher Leadership](#)

#### **Master of Business Administration**

[Business Administration](#)

#### **Master of Public Administration**

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#### **Master of Public Health**

[Public Health](#)

#### **Master of Science**

[Information Technology](#)

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#### **Master of Social Work**

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#### **Education Specialist**

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#### **Certificate Programs**

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## Graduate Course Catalog 2011-2012

### Admission and Registration ▼

» <http://www.gradschool.unh.edu/>

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 the Registrar's Office if you need further clarification. We will be happy to answer your questions regarding University procedures and policy.

- » [Applying for Admission](#)
- » [Applicants from Foreign Countries](#)
- » [Application Deadlines](#)
- » [Incomplete Applications](#)
- » [Application Review](#)
- » [Admission Categories](#)
- » [Regular Admission](#)
- » [Provisional Admission](#)
- » [Conditional Admission](#)
- » [Deferred Admission](#)
- » [Accelerated Master's--University of New Hampshire Seniors](#)
- » [Additional Information](#)
- » [Registration](#)
- » [Nonregistration](#)

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## Graduate Course Catalog 2011-2012

### Admission and Registration ▼

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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 the 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.

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 two years before being destroyed.

Application procedures, including deadlines and program-specific requirements, are available at the Graduate School, <http://www.gradschool.unh.edu/apply.html>.

Applicants to programs that lead to the master of science for teachers (M.S.T) degree in chemistry, English, or mathematics 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.

### Applicants from Foreign Countries

All applicants from non-English-speaking countries must, in addition to all of the above, provide Test of English as a Foreign Language (TOEFL) scores. A minimum TOEFL score of 550 paper-based (213 computer-based or 80 Internet-based) is required for admission. TOEFL scores are valid for only two years. The International English Language Testing System (IELTS) may be accepted on a case-by-case basis. A financial declaration on official University forms is also required should you be admitted. A four-year baccalaureate degree is normally the minimum academic certification required for admission.

Applications from residents of foreign countries will be considered only for regular full-time admission.

### Application Deadlines

Application deadlines for admission and financial aid vary by program. These are updated on an annual basis and may be found on the Graduate School website.

International 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. International 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 at the University during the period of deferment.

### **Accelerated Master's--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 admission to the accelerated master's program.

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

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

Not all graduate programs participate; each program's faculty retain discretion regarding, whether their program admits students under the accelerated master's program, and the maximum number of graduate credits permitted (not exceeding 12), (e.g., some programs will accept one course, others two). Applicants are strongly recommended to meet with the graduate coordinator in the program's faculty to discuss specifics.

Dual-credit forms must be completed and approved by the dean of the Graduate School at the beginning of the semester for which dual credit is sought.

## **Additional Information**

### **Non Degree Students**

Individuals holding baccalaureate degrees may register for graduate courses through Continuing Education, or through the Center for Graduate and Professional Studies at the University of New Hampshire in Manchester. These individuals are designated as "non degree students." Non degree students are not required to file an application for admission to the Graduate School and are not candidates for a graduate degree. Non degree students are not normally permitted to register as full-time students (i.e., 9 or more credits). Please note policy on transfer of credits (internal and external) in academic regulations and degree requirements.

### **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 are available at <http://www.unhinfo.unh.edu/registrar>.

### **Continuous Registration Policy**

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).

\* Ed.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 Continuing Enrollment (GRAD 800) each summer until their degree is formally awarded. Students who do not maintain continuous enrollment will have their degree status discontinued and will need to petition for reinstatement or readmission in order to return to their program.

### **Master's Continuing Research (Grad 900--Full-time Status, 0 credits)**

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 (Grad 900).

### **Continuing Enrollment (GRAD 800)**

All continuing graduate students who are not enrolled for course credits, thesis credits, Doctoral Research (999) or Master's Continuing Research (GRAD 900), and are not in residence, are required to register for GRAD 800 each semester of the academic year (or each summer for students in Math MST, English MST programs and College Teaching M.S.T.). Students registered for GRAD 800 are considered part-time, 0 credits.

### **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.

**Reinstatement**

Students who have their degree status discontinued for failing to maintain continuous enrollment may petition the Graduate School for reinstatement as long as the term that the degree status was discontinued has not ended. Such a petition requires a reinstatement fee, plus payment of current semester charges and any late fees that may have accrued. If the term in which the student's degree status was discontinued has ended, the student must then petition the Graduate School for readmission. Both forms can be found on the Graduate School's forms page at <http://www.gradschool.unh.edu/forms.html>.

**Full-Time Students** Graduate students registered for 9 or more credits, Master's Continuing Research (Grad 900), or Doctoral Research (999) 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 (Grad 900), or Doctoral Research (999) 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 at [www.unh.edu/registrar](http://www.unh.edu/registrar).

**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. Change of name/address forms can be found at <http://www.unh.edu/registrar/regforms/registrarforms.html>. Students are also advised that their UNH e-mail address is the official means of electronic communication with UNH. Billing, registration notices, reminders, as well as the majority of correspondence from the Graduate School will be communicated through the UNH e-mail account.

**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/](http://www.learn.unh.edu/).

**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 extenuating 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 [www.gradschool.unh.edu/forms.html](http://www.gradschool.unh.edu/forms.html), 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 in the allotted time frame will have their degree status discontinued.

### **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. 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.

### **Administrative Separation for Reasons of Health-Related Behaviors**

The dean of students, or the associate dean of the Graduate School, or designee, in consultation with Health Services, and/or Counseling Center, Disability Student Services, Behavioral Intervention Team, and Affirmative Action and Equity Office (ADA Compliance) may temporarily separate a student for reasons relating to seriously impaired mental/physical health when such student's health-related behaviors (1) pose a significant risk of substantial harm to health, safety or property of him or herself or other members of the University community, (2) and/or when the student's health-related behaviors significantly disrupt the ability of other University community members to fulfill the University's mission.

Examples of such behaviors include but are not limited to (a) continuing disruptive behaviors after being told by a University official to stop (b) behaviors that indicate the student may be out of touch with reality or unaware of the consequences or effects of his or her behaviors, (c) threat of or harm to self or others.

Administrative withdrawal is not intended to be a substitute for other procedures as found in the Code of Conduct or Academic Policies. Such action may not be used as a means of excluding qualified students with disabilities. The dean of students or associate dean of the Graduate School or designee shall provide the student with a written statement of reasons for the temporary separation and invite the student to meet.

The purpose of this meeting shall be to provide the student with an opportunity to challenge the separation and request reconsideration. The dean of students or associate dean of the Graduate School or designee may require documentation of readiness to return from a licensed attending medical authority and/or licensed psychologist, and consult with the appropriate University official(s) before lifting the separation. The student may be accompanied at the meeting by a member of the University community.

The student must schedule a meeting within ten (10) calendar days of receiving the written statement. If the student fails to request a meeting with the dean of students or associate dean of the Graduate School within ten (10) calendar days of beginning the temporary separation, or if the temporary separation is upheld either at the meeting and the student fails to appeal, or upheld upon appeal, the temporary separation shall be changed to an administrative withdrawal.

Within three (3) calendar days of the conclusion of this meeting the dean of students or associate dean of the Graduate School shall send a letter to the student; informing him/her of the outcome. The student may appeal the determination to the vice president for student and academic services, the dean of the Graduate School, or his/her designee. The appeal request must be received by the vice president for student and academic services by no later than five (5) calendar days after the student receives the letter from the dean of students or associate dean of the Graduate School.

Students who withdraw for health reasons, whether voluntarily or are separated by administrative action, must apply for readmission through the Office of Undergraduate Admissions or the Graduate School. Readmission shall be contingent upon receipt by the appropriate director(s) or their agents, of documentation regarding readiness to return from a licensed attending medical authority, and/or licensed psychologist; to the extent the withdrawal was for a condition that requires ongoing treatment, readmission may also be contingent upon documentation of the prescribed treatment course and the plan for implementation thereof. Readmission may also include a personal interview with either the vice president or dean of the Graduate School or his/her designee.

For graduate students, the dean of the Graduate School will make the final decision based on the information received, in consultation with the appropriate University official(s). (*University Senate, April 26, 1976, updated by the*

*dean of students, June 2009.)*

**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 [www.gradschool.unh.edu/forms.html](http://www.gradschool.unh.edu/forms.html). 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.

**Change in Degree**

Students who wish to pursue a degree program other than the one for which admission was originally granted 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 at [www.gradschool.unh.edu/forms.html](http://www.gradschool.unh.edu/forms.html). The dean of the Graduate School will notify the student of the decision after consulting with the appropriate departments.

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## Graduate Course Catalog 2011-2012

### Fees and Financial Support ▼

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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. You can find more details at <http://financialaid.unh.edu/>.

- » [Residency](#)
- » [New England Regional Student Program](#)
- » [Sub-Degree Exchange Program](#)
- » [Tuition and Fees](#)
- » [Mandatory Fees](#)
- » [Fee Structure](#)
- » [Exceptions](#)
- » [Authority](#)
- » [Special Fees](#)
- » [Other Charges and Fees](#)
- » [Scholarships and Fellowships](#)
- » [Graduate Appointments 2011-2012](#)
- » [Federal Financial Aid](#)
- » [Veterans Benefits](#)
- » [Satisfactory Academic Progress](#)

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« [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. You can find more details at <http://financialaid.unh.edu/>.

### 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

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 any of their home state/public institutions. Inquiries and requests for further information may be directed to the Graduate School or to the New England Board of Higher Education, <http://www.nebhe.org>. This tuition rate does not apply to students who are eligible for New Hampshire resident tuition rates.

### 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 website. 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. Mandatory fee charges are based on registration status--full- or part-time fees, depending on number of credit hours. Students enrolled in predesignated evening-only programs do not pay the health and counseling fee. Students enrolled in 4 credits or less pay the technology fee only. Please see the [Student Rights, Rules, & Responsibilities Handbook](#) section 11.2 for more information about Mandatory Fees.

Tuition and fees are due by the published deadline, and students are not considered registered until they have paid. UNH no longer sends bills through the mail--students receive bills through Webcat, a part of MyUNH (Blackboard), the student portal. E-mails are sent to students' UNH-assigned e-mail address when new bills are posted. Payment may be made online or mailed--check, credit card, cash or wire is accepted. Late fees may be assessed on balances remaining unpaid by mid-semester.

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 Graduate School Manchester Campus should consult the relevant publications for information regarding tuition and fees.

## Mandatory Fees

The University of New Hampshire assesses mandatory fees to support expenses associated with the participation in an academic community. Mandatory fees are defined as fees that all students are assessed as a prerequisite for registration unless specifically exempt. Mandatory fees are assessed because the services made available through such fees benefit the overall educational experience of the students, including academic, co-curricular, health-related, and recreational programs. It is recognized that not all students will use the benefits and privileges made available by fee-supported activities to an equal extent. The services and facilities supported by fees are available to all. The special circumstances of part-time and graduate students are reflected in the University's fee structure.

## Fee Structure

Full mandatory fees are assessed to undergraduate (registered for 12 or more credits) and graduate students (registered for 9 or more credits), national student exchange students, doctoral research and master's continuing research students. Undergraduate students registered for 5-11 credits and graduate students registered for 5-8 credits are assessed one-half of the cost. Students registered for 1-4 credits are assessed only the technology fee. Students enrolled in Manchester campus programs pay Manchester mandatory fees. Students enrolled as non-degree full-time special students (13 or more undergraduate credits or 9 or more graduate credits) pay full mandatory fees.

### The mandatory fees include:

- Memorial Union fee for the use and administration of the student union
- Recreational fee for support of recreational facilities
- Athletic fee to provide support for athletic programs
- Health and counseling fee to provide general health care through University Health Services
- Technology fee to provide electronic tools to students both on and off campus
- Transportation fee to provide student transportation services, including select infrastructure improvements, transit service, pedestrian and bicycle facilities, and ride services
- SHARPP fee to support the University's efforts to address issues of sexual and domestic violence
- Deferred Maintenance fee to address maintenance needs of the University's physical plant

Students who withdraw or drop to part-time status after classes begin are eligible for a partial refund of fees. (One hundred percent will be refunded before the first day of classes; 75 percent during the first week of the semester; 50 percent after one week and within 30 days; and none thereafter.)

## Exceptions

Students enrolled as majors in the Graduate School Manchester Campus are assessed the Manchester mandatory fees.

Students participating in a UNH Study Abroad Program or internship outside the immediate geographic area (50-mile radius) for a semester may petition for a waiver of mandatory fees, with the exception of the technology fee and for

undergraduates, the deferred maintenance fee.

Students taking online courses only and who reside outside the immediate geographic area (50 mile radius) may petition for a waiver of mandatory fees, with the exception of the technology fee and for undergrads, the deferred maintenance fee.

All graduate students are exempt from the student activity fee, athletic fee, and deferred maintenance fee. Graduate students enrolled in weekend/executive programs on the Durham campus are exempt from mandatory fees except the technology fee.

Graduate students enrolled in predesignated evening-only programs, as approved by the provost and vice president for academic affairs or his/her designee, are exempt from the Health Services and Counseling fees.

Doctoral students who have achieved candidacy may petition for a waiver of the mandatory student fees. A waiver will be granted under the following circumstances:

The student must be advanced to candidacy and enrolled only in 999 prior to the beginning of classes.

The student cannot be on an assistantship or fellowship, unless such support covers research that is being conducted out of the geographic area (50 miles).

The student has recently relocated and/or permanently resides out of the immediate geographic area (50 miles) prior to the beginning of classes. The 50-mile radius may be waived if the student is not receiving University support, has met the one-year residency requirement, is working full-time and will only be on campus sporadically to meet with his or her adviser, or if the student has completed all requirements for the degree prior to the end of the drop/add period (end of the third week).

The student is temporarily out of the region (50 miles) for at least one semester, conducting research related to his or her dissertation.

The student has a family emergency, illness, or has provided the dean of the Graduate School other information to warrant an exception. (Information will be provided with the petition as appropriate.)

Students who meet the above conditions and are within the immediate geographic area must confirm in writing that they will not be using the campus services covered by mandatory fees.

Students must submit petitions each semester to waive fees.

## Authority

Any conflicts resulting from this procedure will be adjudicated by the Provost and Vice President for Academic Affairs and the Vice President for Finance and Administration or his/her designee.

## Special Fees

### Differential Tuition

Students majoring in accounting, computer science, economics, and engineering 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.

### Continuing Enrollment Fee

Students registered for Continuing Enrollment (GRAD 800) will pay a continuing enrollment fee. 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 a continuing research fee plus full mandatory fees.

### Doctoral Research Fee

Doctoral students in residence and registered for Doctoral Research (999) will pay a doctoral research fee 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 for a waiver of the mandatory fees.

## 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 thirty 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. Late fees are also charged on accounts remaining unpaid by mid-semester.

### **Reinstatement Fee**

A 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 when 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 Health Benefits Plan**

Health insurance is required as a condition of enrollment for full-time degree students at the University of New Hampshire. Students will have the option of waiving this requirement if they present proof of adequate coverage; alternatively, students can acquire an affordable health benefits plan sponsored by the University. The Health Services website has information about the University's Student Health Benefits Plan <http://www.unh.edu/health-services/shbp>. Students with F-1 or J-1 visas are required to enroll in the UNH Student Health Benefits plan. They are not eligible to waive coverage.

### **Refunds**

Tuition and mandatory fees are refundable during the academic year in accordance with the calendar published by the Registrar's Office (UNH Academic 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.

### **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 awards six scholarships annually to recognize the outstanding contributions of both master's and doctoral students for their teaching and scholarship. 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.

### **Graduate Fellowships**

The Graduate School offers a number of fellowships to entering students to assist programs in recruiting a high-quality and diverse student body. Availability and criteria for these fellowships are announced annually by the Graduate School. Students are nominated by their respective program coordinators.

### **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.

## **Graduate Appointments 2011-2012**

### **UNIVERSITY OF NEW HAMPSHIRE**

#### **GRADUATE APPOINTMENTS AY 2011-2012 ([Graduate Appointments AY 2012-2013 PDF](#))**

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 post-baccalaureate 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 performance, as well as performance in carrying out the responsibilities of the appointment, is satisfactory.

**Graduate Assistants:** Graduate assistants are students who provide instructional or administrative support as specified by the appointing department and are normally supported by University funds.

**Graduate Part-time Lecturers:** Graduate part-time lecturers are students who because of their specific expertise are appointed to teach one or two 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 Supplemental Appointments:** Graduate students on appointment in one of the above categories may petition to supplement their regular appointment for up to an average of 10 hours per week when school is in session unless precluded from doing so by the terms of their appointment. **F-1 and J-1 students on full assistantships may not accept additional appointments while school is in session.** All students, including F-1 and J-1, may supplement their regular appointments for up to 20 hours per week when school is not in session (12/19/2011 – 1/23/2012 and 3/10/2012 – 3/18/2012). Such appointments may be processed as stipends or hourly. Assistants who serve as TA's during the January term receive a supplemental appointment if the workload exceeds the 20 hours they are normally expected to work.

**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 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 above categories. Students on summer appointments may work for up to forty 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.

**International students (F-1 and J-1)** must consult the Office of International Students and Scholars to confirm employment eligibility.

**Stipends: Level 1 - \$14,800** all masters' students and Ph.D. students with a bachelor's degree who have less than two years experience as a GA or RA at UNH; **Level 2 - \$15,800** Ph.D. students with a master's degree or Ph.D. students with a bachelor's degree who have two years experience as a GA or RA at UNH; **Level 3 - \$16,800** Ph.D. students at candidacy. Departments may pay a higher base stipend for assistants to meet the recruitment needs of the program. Graduate part-time lecturers normally receive a stipend equal to the instructor rate but no less than the adjunct rate appropriate to their program. Graduate fellows, trainees, and interns receive a stipend in accordance with the terms of their award.

**Appointment Dates:** The **beginning and ending dates for the 11-12 Academic Year** are August 22, 2011, to May 18, 2012. The corresponding semester dates are August 22, 2011, to January 4, 2012; and January 5, 2012, to May 18, 2012. Appointment dates for graduate part-time lecturers hired to teach on a course-by-course basis for a semester or term are August 29, 2011, to December 17, 2011; January 3, 2012, to January 20, 2012; and January 23, 2012, to May 18, 2012.

**Workload:** Students on full assistantships are involved in **assistantship** activities for **20 hours a week** during the academic year. The workload for students on stipend only and hourly appointments is specified at the time of appointment. The workload for students in both of these categories is less than 20 hours per week.

**Registration:** All graduate students holding appointments **must be enrolled** as students in order to hold an appointment during the academic year. Assistants, fellows, or graduate part-time lecturers must register for a minimum of 6 course/thesis credits, Master's Continuing Research or Doctoral Research during each semester in which they hold their appointments. Interns/trainees must register according to terms specified in their contracts. Students holding a stipend only or hourly appointment must register for course/thesis credits (no minimum), Master's Continuing Research, or Doctoral Research. **Students registered for Continuing Enrollment (GRAD 800) are not eligible to hold an appointment.** Students holding summer appointments have no required enrollment unless specified by their appointment.

**Tuition Waivers:** Students appointed as assistants, fellows, and graduate part-time lecturers receive **tuition waivers** in addition to their stipends during the period of their appointment. Waivers will be prorated for students who hold less than a full appointment. Assistants and fellows on AY or spring only appointments receive **tuition waivers for the January term**. Graduate part-time lecturers receive tuition waivers for the January term only if they are teaching during that term. Students on stipend only and hourly appointments do not receive a waiver. Such students may be eligible for tuition scholarships. Graduate assistants, research assistants, and fellows receive **tuition waivers for summer courses** offered through the Graduate School (GRAD) related to academic programs in College Teaching and Research Ethics. Summer waivers are prorated for students who had less than a full academic year appointment. Such waivers are provided through the Graduate School. Graduate assistants, research assistants, and fellows may receive tuition waivers for summer courses offered outside of the Graduate School if approved by their funding source. Such waivers are provided by the hiring unit. **Waivers cover only coursework that is directly related to a student's academic program.**

**Student Health Benefits Plan (SHBP):** Students appointed as assistants, fellows, and graduate part-time lecturers for the full academic year receive a waiver for the University's **Student Health Benefits Plan (SHBP)** during the period of their appointment. Students on a **fall only** appointment and continuing in the graduate school for the spring semester full time receive a waiver for the **SHBP** for the fall and will be responsible for the spring portion of the plan costs. Students on a **fall only** appointment and continuing in the Graduate School for the spring semester on a part-time basis receive a waiver for the **SHBP** for the fall, have the option of continuing on the plan for the spring, and will be responsible for the spring portion of the plan costs. Students on a **spring only** appointment will receive a waiver for the **SHBP** for the spring.

**Mandatory Fees:** Students appointed as assistants, fellows, and lecturers receive a fee waiver for the technology fee during the period of their appointment. Course fees are also covered by the waiver. The Health Services and Counseling fee, the Memorial Union fee, the Student Recreation fee and the Transportation fee **are not** covered by waivers, although scholarships maybe awarded to individual students to cover these fees.

**FICA taxes** will generally be withheld from wages paid to any graduate student registered for less than 1/2 time (less than 5 credits per semester during the academic year; or less than 3 credits per session in the summer). Note:

Students registered for Doctoral Research (999) or Master's Continuing Research (GRAD 900) are full-time and will not have FICA taxes withheld. In summer students enrolled for 3 or more credits of "899" or "independent study" will generally not have FICA withheld.

**Federal income taxes** will be withheld from wages paid to graduate students based on information supplied to USNH Payroll on IRS Form W-4. The value of the SHBP waiver is considered a scholarship and may be reportable to the IRS and subject to tax withholding for foreign students. Both wages and scholarships may be exempt from withholding if the student is from a foreign country with tax treaty provisions that exempt these payments. The appropriate IRS Form 8233 or W-8BEN must be on file in USNH Payroll in order for a foreign student to claim these exemptions.

**Criminal background checks** are conducted for all graduate students appointed as a teaching assistant (TA), research assistant (RA), graduate assistant (GA) or graduate part-time lecturer, graduate fellow, or graduate intern/trainee. Graduate students on stipend only or hourly appointments may also be required to undergo a background check depending on the nature of their appointment. These investigations are mandated by University policy requiring a pre-employment background review for all appointees who commence their duties after July 1, 2008. A standard background review consists of a criminal history review; sex and violent offender registry review; social security trace and verification; and, if required by the nature of the appointment, a Department of Motor Vehicle record search. International students whose visas and/or authorization to work in the United States were obtained after the Patriot Act was implemented on October 12, 2001, are exempt from a criminal history check.

### **REAPPOINTMENT, NON-REAPPOINTMENT AND TERMINATION**

**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 nonreappointment, and the appeal procedure is not available.

**Termination:** A hiring unit may 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 initiate an appeal using the following procedure, s/he 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.

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 graduate dean. As soon as possible after receiving this request, the hiring unit will reconsider the decision and notify the student and the graduate dean of the results of the deliberations in writing.

Step 2: If the student is not satisfied with the decision reached in Step 1, s/he may request that the graduate dean review the decision. The student's request should be in writing and must stipulate the reasons for his/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.

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### **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 may 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). You can

complete the application on-line at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). The UNH priority deadline for applying for financial aid is March 1. This is the date by which the FAFSA Application must be received by the Federal processor. However, students applying after March 1<sup>st</sup> will still be considered for the Federal Direct Loan, which is not subject to the priority deadline.

All Graduate students applying for financial aid must also complete the Graduate Student Credit and Aid Verification Form". The Graduate Student Credit and Aid Verification Form will show as a requirement on your webcat account once we have received your FAFSA. This form is completed electronically. 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 Unsubsidized Direct Loan is available to graduate students regardless of financial need.

Federal Direct Graduate PLUS Loan is a loan in the student's name for graduate and professional studies. In order for a graduate or professional student to receive a Federal Direct PLUS Loan they must file the Free Application for Federal Student Aid (FAFSA). Filing the FAFSA enables the student to be considered for the unsubsidized Federal Direct Loan. Approval for the Direct PLUS Loan is based on good credit and the student being enrolled at least half-time in a graduate or professional degree program.

Please feel free to visit the UNH Financial Aid website (<http://financialaid.unh.edu/>) for further information.

**Veterans Benefits**

Veterans and their dependents should investigate their eligibility for veterans benefit payments. Questions may be addressed to any local Veterans Administration office, The VA Education Benefits toll free number: 888-442-4551 (888-GIBill1), their website [www.gibill.va.gov](http://www.gibill.va.gov), or the UNH veterans coordinator, Registrar's Office at (603) 862-2066.

**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 UNH Financial Aid Office at <http://financialaid.unh.edu/>.

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## Graduate Course Catalog 2011-2012

### Research and Scholarship ▼

» <http://www.gradschool.unh.edu/>

The University is a land-, sea-, and space-grant institution and is ranked among the top 125 research universities. In recent years graduate students at the University have been awarded a number of highly competitive fellowships from EPA, Ford, Fulbright, Merck, NASA, NIH, NOAA, and NSF.

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 and are expected to be familiar with the policies and procedures that govern their research activities at the University. For more information, visit the Compliance and Safety pages of the Research Office website:

[www.unh.edu/research/compliance-safety](http://www.unh.edu/research/compliance-safety)

- » [Research at UNH](#)
- » [Centers and Institutes](#)
- » [Office of the Senior Vice Provost for Research](#)
- » [Office for Research and Partnerships and Commercialization](#)

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[www.unh.edu/research/compliance-safety](http://www.unh.edu/research/compliance-safety)

### Research at UNH

<http://www.unh.edu/research/>.

For an overview of all research news and activities at the University, including resources for graduate students, visit this website.

### Centers and Institutes

<http://www.unh.edu/research/centers-institutes>

Research and educational activities are conducted not only in individual departments but also in multidisciplinary research centers and institutes. Visit this website for an annotated list of University centers and institutes, which includes links to their individual sites.

### Office of the Senior Vice Provost for Research

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

The Office of the Senior Vice Provost for Research (Research Office) provides leadership and services to support UNH faculty, students, and staff in their research, scholarship, and creative activities; facilitates cooperation between UNH and the business community; and communicates and promotes the breadth and depth of UNH research and discovery and its resulting impacts both within and beyond the University. Research is conducted according to ethical principles provided by professional associations and by 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.

The University prides itself on extensive research endeavors and the involvement of graduate students in research projects. The University, therefore, has an obligation to teach and actively promote integrity in research and scholarship. As a graduate student here, it is your responsibility to be familiar with University policies that govern your research activities at the University. For more information, visit the Compliance and Safety pages of the Research Office website:

[www.unh.edu/research/compliance-safety](http://www.unh.edu/research/compliance-safety)

## Office for Research and Partnerships and Commercialization

<http://www.unh.edu/research/support-units/research-partnerships-commercialization>

The University of New Hampshire Office of Research Partnerships and Commercialization advocates for, manages, and promotes UNH's intellectual property; promotes partnerships between UNH and the business community; and is responsible for licensing UNH technologies and creating start-up companies based on innovations created at UNH. ORPC also hosts the NH Innovation Research Center.

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## Graduate Course Catalog 2011-2012

### Academic and Support Services ▼

» <http://www.gradschool.unh.edu/>

- » [Library](#)
- » [Information Technology \(IT\)](#)
- » [Graduate Student Housing](#)
- » [Dining Services](#)
- » [Campus Recreation](#)
- » [Memorial Union Building](#)
- » [Off-Campus and Commuter Services](#)
- » [The Office of Student Involvement and Leadership](#)
- » [Health Services](#)
- » [Counseling Center](#)
- » [Center for International Education](#)
- » [Disability Services for Students](#)
- » [Inclusive Excellence](#)
- » [International Students and Scholars](#)
- » [Office of Multicultural Student Affairs \(OMSA\)](#)
- » [President's Commissions](#)
- » [Sexual Harassment and Rape Prevention Program](#)
- » [UNH Transportation Services](#)
- » [University Police](#)
- » [Veterans Information](#)

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## Graduate Course Catalog 2011-2012

### Academic and Support Services ▼

» <http://www.gradschool.unh.edu/>

« [Academic and Support Services](#)

### Library

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

The UNH Library consists of the main Dimond Library and four branch libraries specializing in biological sciences, chemistry, physics, and computer science, mathematics, and engineering. The Dimond Library offers seating for 1,200, three grand (quiet study) reading rooms, Zeke's Café, and the Dimond Academic Commons (DAC), a 'one-stop' shop for information needs including reference assistance, IT help, rich media equipment (with video and audio equipment to borrow), collaborative work spaces, 149 computers including 125 workstations and 24 laptops that can be borrowed for use in the Library. Wi-Fi and data ports are available throughout the building. Eight study rooms can be reserved for groups of four to twenty-five.

The Biological Sciences Library is located in Kendall Hall, the Chemistry Library is in the newly renovated Parsons Hall, the Engineering/Mathematics/Computer Science Library is in Kingsbury Hall, and the Physics Library is in the recently renovated DeMeritt Hall. All science libraries have reserve materials, reference and circulating collections, periodicals, and electronic resources specific to their fields.

In addition to more than 2 million volumes and access to 50,000 periodical subscriptions, the library has extensive collections of government documents, maps, sound recordings, CDs, videos, DVDs, and a Special Collections and Archives section with rare books, manuscripts, and University publications and papers. The UNH Library offers extensive electronic resources including Refworks, e-books, digital collections, indexes in many subject areas, statistical data sets and databases supplying full-text periodical and newspaper articles. Library faculty and staff in all five libraries provide expert service to people seeking information or research assistance. Graduate students have additional privileges including access to graduate carrels on Level Four (please visit the Circulation Desk for the code) and extended borrowing.

Through the UNH Library's membership in the Boston Library Consortium (BLC), UNH community members are entitled to visit any of the other 18 research institutions (including MIT, Tufts, Williams, and Wellesley) or request material through a virtual catalog from a combined collection totaling more than 34 million volumes. Requestors will be notified by e-mail when the material arrives. In addition, journal articles and books not available on site or through the BLC can be delivered from libraries world-wide through interlibrary loan. Most journal articles are received within 24 hours. The UNH Library is a member of the Boston Museum of Fine Arts – free passes are available at the Circulation Desk.

For more information on Dimond and the science libraries, visit [www.library.unh.edu](http://www.library.unh.edu) <<http://www.library.unh.edu/>>

### Information Technology (IT)

#### Computer Access: Student Computing Clusters

All students have access to networked computing resources on campus. UNH has five microcomputer clusters, which offer more than 220 Dell Pentium and Apple Macintosh computers as well as high-speed laser printing. All clusters are completely networked and offer a suite of software; access to the Internet via the World Wide Web; and are staffed by student consultants. Two clusters are available 24 hours/day.

<http://it.unh.edu/acs>

**Computer Purchase: UNH Computer Store**

UNH faculty, staff, and students may purchase computers at the UNH Computer Store conveniently located in the MUB. They sell Apple and Dell computers, printers, supplies, peripherals, and software at educational pricing to members of the UNH academic community.

<http://computerstore.unh.edu> | (603) 862-1328

**Computer Repair: Computer Repair Services (CRS)**

CRS is located in MUB 213, provides hardware and software repairs for UNH faculty, staff, and students. CRS technicians are certified to perform warranty repairs on certain Dell, Apple, and Hewlett Packard products.

<http://tps.unh.edu/crs> | (603) 862-4242

**Technology Support (via phone): UNH IT Service Desk**

The UNH IT Service Desk provides UNH and USNH faculty, students, and staff assistance on questions and reporting problems with supported software and hardware. The Service Desk will resolve the issue and help clients maximize their use of applications or equipment, or distribute the call to the appropriate staff.

<http://it.unh.edu/helpdesk> | (603) 862-4242

**Technology Support (in person): Dimond Academic Commons IT Support Center**

The IT Support Center (ITSC) is one component of the Dimond Academic Commons (DAC) located on Level 3 (Main Level), Dimond Library. DAC provides "one-stop shopping" for students to get help with their academic work including using library resources and consulting help with computers and communications. Friendly ITSC staff help UNH students with virus and spyware cleaning, wireless connections, computer account issues, Blackboard how-to, and more.

<http://it.unh.edu/dac-itsc>

**Technology Reference: Student IT Guide**

The Student IT Guide is a great reference for UNH Students to help identify and access various campus computing resources.

<http://itguide.unh.edu>

**Graduate Student Housing**

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

**Babcock Hall and Forest Park Apartments**

Babcock Hall is a community of 180 graduate, international, and nontraditional students. Six-story Babcock Hall combines social, educational, and cultural opportunities with the convenience of on-campus living. All rooms are single occupancy, simply furnished, and are wired for telephone, cable television, and Internet access. Each floor has a kitchenette and several study and television lounges available for residents' use. The building has table tennis, a piano, a fireplace, and laundry facilities located on the lobby level.

Family housing at the Forest Park Apartment Complex provides campus housing for married students, students with dependent children, single graduate students and newly appointed faculty members. The community at Forest Park is diverse, with students and faculty members from all over the world. The three-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 97 apartments. These include studio (efficiency), one-bedroom, and two-bedroom apartments.

Following acceptance to the Graduate School, any student interested in on-campus housing should contact the University's Department of Housing.

**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 housing is listed on the Web at

[www.unhmub.com/housinglist](http://www.unhmub.com/housinglist).

## Dining Services

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

At UNH Dining Services we provide our guests with a variety of healthy, tasty options at almost any hour of the day or night. Our family of more than 300 chefs, servers, managers, student employees, and others serve up dining options that range from classics like wood-fired pizza to homemade soups and vegan dishes. Our retail locations throughout campus offer grab-and-go foods and convenience items. A variety of meal plans are available to all UNH community members or cash, credit, Cat's Cache (UNH debit program) and Dining Dollars are accepted. With eight retail and three dining hall locations and a variety of payment options we have something to fit any appetite or budget.

## Campus Recreation

<http://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, a bouldering wall, indoor pool (located in the Field House), and several grass and three 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, yoga and pilates.

The intramural sports program consists of 26 different sports and activities offered through co-rec and to men's and women's teams. There are also 32 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 and an outdoor pool located on Edgewood Ave.

## Memorial Union Building

[www.unhmub.com](http://www.unhmub.com)

The "Heart of Campus" is the Memorial Union Building (MUB). The original building was a gift from UNH alumni and is the official state war memorial. It is the location for lectures, cultural programming, and a large number of free or inexpensive entertainment programs and activities.

The MUB was the first building on campus to have complete wireless capabilities in all public spaces and meeting rooms. Key areas of the MUB are the Information Center, two state-of-the-art movie theaters including 3-D capability, Games Room with both billiards and electronic games, the UNH Copy Center, the UNH Bookstore, the UNH Computer Store, the Ticket Office, and specific lounge/study space for both nontraditional and graduate students. On the second floor, student mailboxes are available for free for graduate students at Granite Square Station. Close by, mailing and shipping services are also available at Granite Square Shipping. Computing and Information Services provides a computer cluster. The Food Court offers expanded dining options, and limited drinks and popcorn are also available at "The Notch" on the third floor. More than 60 student organizations have office space in the MUB.

The Office of Student Involvement and Leadership (OSIL), a division of the Memorial Union, is responsible for service to more than 200 student organizations and assists students with the mandatory registration and recognition process.

## Off-Campus and Commuter Services

[www.unhmub.com/off-campus](http://www.unhmub.com/off-campus)

Found within the Leadership Center, located in the Memorial Union Building, Room 122, UNH Commuter Student Services provides resources, services, and programs for all students living off campus. Resources available include listings for off-campus housing, tenants' rights information, and the UNH Community Guide that has both community and UNH information (available as a PDF on our website). We also host programs such as Commuter and Transfer Survival Day (an orientation program for all new UNH students held before classes begin each semester), Good

Morning Commuters, Graduate Student Stress Relief Socials, Non-Traditional Student events, and many others. The Commuter Connection is a great weekly resource--an e-mail containing UNH events, activities, and programs--subscribe at [www.unhmub.com/off-campus/](http://www.unhmub.com/off-campus/). In addition, specific programming and support is offered for student veterans and nontraditional students. Visit our website, e-mail [off-campus@unh.edu](mailto:off-campus@unh.edu), or call 603-862-0303 for additional information or assistance.

## The Office of Student Involvement and Leadership

[www.unhmub.com/leadershipcenter](http://www.unhmub.com/leadershipcenter)

Located in Memorial Union Building (MUB), Room 122, the Office of Student Involvement and Leadership is the home of Student Organizations, Leadership Development Programs, Greek Life, and Off-Campus and Commuter Services. We are the place to help you get involved on campus! Find information ranging from student organizations, fraternities and sororities, sample apartment sublet agreements, staying connected to campus, and much more.

## Health Services

### Health Services

The University has a nationally accredited health and wellness program.

[www.unh.edu/health-services](http://www.unh.edu/health-services)

### Medical Services

Health Services provides comprehensive, student-focused, primary medical care through a team approach. The clinical staff consists of board-certified physicians, nurse practitioners, nurses, and medical assistants who are committed to prevention and holistic care. Primary medical care is provided for a large variety of common concerns.

<http://www.unh.edu/health-services/index.cfm>

### Office of Health Education and Promotion

The Office of Health Education and Promotion coordinates health promotion activities on campus. Services provided include educational programs/workshops, individual and group counseling and support to promote healthy lifestyle choices. <http://www.unh.edu/health-services/services/index.html>

### Student Health Benefits Plan

Health insurance is required as a condition of enrollment for full-time degree students at the University of New Hampshire. Students have the option of waiving this requirement if they present proof of adequate coverage; alternatively, students can acquire an affordable health benefits plan sponsored by the University. For more information about the University's Student Health Benefits Plan, <http://www.unh.edu/health-services/shbp/>

### 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. It is the student's responsibility to complete the forms before the beginning of classes. Any student failing to complete these requirements may not be cleared to register for future classes. For more information on the requirements, <http://www.unh.edu/health-services/requirements.html>

## Counseling Center

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

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, 24 hours a day, seven days a week. All information about a student's visits to the Counseling Center is confidential and cannot be released without the written permission of the student.

The staff comprises licensed psychologists, predoctoral interns, postdoctoral fellows, and a consulting psychiatrist. 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.

## Center for International Education

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

The Center for International Education (CIE) is the clearinghouse for international activities on campus. It administers the dual major in international affairs, undergraduate study abroad, and annual scholarship competitions for the Student Fulbright Program and the National Security Education Program. Each semester, CIE also offers international enrichment opportunities through its New Hampshire International Seminar series and Faculty International Development Grants on a competitive basis.

## Disability Services for Students

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

The University of New Hampshire is committed to providing students with documented disabilities a living and learning experience that assures equal access to programs and facilities. The University will make reasonable accommodations, as supported by documentation, to promote maximum independence and access to the full range of college activities at UNH.

All students with disabilities who anticipate the need for academic and nonacademic accommodations and services should self-identify and provide written documentation to [Disability Services for Students \(DSS\)](#). Please see their website for the [timeline to requesting accommodations](#). The office is located in Smith Hall, Room 201, (603) 862-2607 (Voice/TTY), or e-mail [disability.office@unh.edu](mailto:disability.office@unh.edu) as soon as possible after acceptance, to assure accommodation of disability and smooth coordination of available services. All disability related documentation is strictly private and remains in the DSS office.

## Inclusive Excellence

<http://www.unh.edu/inclusive>

### Inclusive Excellence Initiatives

Through educational programming, staff training opportunities, and academic research, our goal is to make the University of New Hampshire a more diverse, respectful community--one that communicates to all of its members that they are respected and that their contributions are valued.

### Commitment to Diversity and Inclusive Excellence

Diversity is a community value at the University of New Hampshire. We are committed to supporting and sustaining an educational community that is inclusive, diverse, and equitable. The values of diversity, inclusion, and equity are inextricably linked to our mission of teaching and research excellence, and we embrace these values as being critical to development, learning, and success. We expect nothing less than an accessible, multicultural community in which civility and respect are fostered, and discrimination and harassment are not tolerated. We will ensure that underrepresented groups and those who experience systemic inequity will have equal opportunities and feel welcome on our campus. We accept the responsibility of teaching and learning in a diverse democracy where social justice serves as a bridge between a quality liberal education and civic engagement.

## International Students and Scholars

[www.unh.edu/oiss](http://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 that 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 immigration advising, non-academic counseling, information on University policies, administrative support, and referral services. A variety of social and educational programming activities is 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.

## Office of Multicultural Student Affairs (OMSA)

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

OMSA creates opportunities for people to participate in an inclusive community and to explore and understand diversity, social justice, inclusion, and equity via programs, trainings, retreats, brown-bag discussions, etc. We serve all members of the UNH community through these various opportunities and beyond.

Our work is grounded in understanding diversity that includes people of all abilities, ages and ethnicities, genders, nationalities, races, religions/spiritual traditions, socioeconomic classes, and sexual orientations.

Providing support, advising and development opportunities for African American/Black, Hispanic/Latino/a, Native American/First Nations, Asian/Asian American, Pacific Islanders, Multiracial, Arab/Middle Eastern and Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning students is at the heart of our work.

We are located in the Memorial Union Building (MUB), Room 327. We look forward to serving you.

## President's Commissions

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

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

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.

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

[www.unh.edu/cspc](http://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 fostering diversity on campus and ensuring that the environment is supportive of the minority populations. The commission is located in Thompson Hall, Room G14, (603) 862-1058.

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

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

The mission of the President's Commission on the Status of People with Disabilities is to promote empowerment and inclusion of students, faculty and staff and guests with disabilities at the UNH. The commission acknowledges that people with disabilities are a diverse group that includes individuals with visible and non-visible disabilities. The commission shall provide a forum for discussion and assessment of disability-related issues and opportunities that are relevant for the campus and larger community. The mission is motivated by the belief that people with disabilities are assets to our community, adding value and diversity to our living, working and learning environment.

For information and resources on disability issues, visit the University's Inclusive Excellence website, <http://www.unh.edu/inclusive>. Other University resources include the Affirmative Action and Equity Office, <http://www.unh.edu/affirmativeaction>, and the Institute on Disability, <http://www.iod.unh.edu>.

### **President's Commission on the Status of Women**

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

Each of the four commissions comprises faculty, staff, and students (undergraduate and graduate).

### **Sexual Harassment and Rape Prevention Program**

[www.unh.edu/student-life/sharpp](http://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 support line as well as in person and on line advocacy services to respond to the needs of survivors of sexual assault, sexual harassment, childhood sexual abuse, relationship abuse, and stalking. SHARPP also provides support and crisis services for those who are impacted by abuse experienced by someone they are close to. Additionally, SHARPP presents a wide range of educational programs to the University community and serves as a campus-wide resource on issues relating to sexual and relationship violence. For more information about SHARPP. Please visit [www.unh.edu/sharpp](http://www.unh.edu/sharpp).

### **UNH Transportation Services**

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

UNH Transportation Services administers visitor parking; parking for faculty, staff, and students; and University mass transit. Other services offered by Transportation Services are Cat Courier, Guaranteed Ride Home, and Safe Rides and the Bike Program.

#### **Wildcat Transit**

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.**

The Campus Connector provides free service for students and visitors throughout the campus and the town of Durham.

#### **Wildcat Access**

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](http://www.unh.edu/upd)

The nationally accredited University Police Department's mission is to support the University community in creating a safe environment that is conducive to higher education by protecting life and property while supporting the rights and dignity of all persons. Specific educational programs are provided by professionally trained police officers including drug and alcohol abuse. Rape Aggression Defense (RAD) is taught to female students, staff, faculty or community members and a walking patrol provides escort services for students, faculty and staff. Sign up for free emergency notifications, crime alerts and safety bulletins at <https://alert.unh.edu>.

### **Veterans Information**

The UNH veterans coordinator, located in the Registrar's Office, 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) 862-2066 or e-mail Lon Sattler at [UNH.Veterans@unh.edu](mailto:UNH.Veterans@unh.edu).

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## Graduate Course Catalog 2011-2012

### Academic Regulations and Degree Requirements ▼

» <http://www.gradschool.unh.edu/>

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.

- » [Academic Honesty](#)
- » [Graduate Courses](#)
- » [800- and 900-Level Courses](#)
- » [700-Level Courses](#)
- » [Graduate Grading](#)
- » [Academic Standards](#)
- » [Dismissal for Failure to Make Satisfactory Academic Progress](#)
- » [Transfer of Credits](#)
- » [External to UNH](#)
- » [Internal to UNH](#)
- » [Continuing Education Units](#)
- » [Master's Degree Requirements](#)
- » [Dual Degrees](#)
- » [Educational Specialist Degree](#)
- » [Doctoral Degree Requirements](#)
- » [Graduation](#)
- » [Commencement](#)

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### 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 honesty policy can be found in the *Student Rights, Rules, and Responsibilities* handbook <http://www.unh.edu/student/rights/>.

### Graduate Courses

Graduate credits may be earned in courses numbered from 800 through 999, or under limited circumstances in courses numbered at the 700 level.

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 graduate students or nondegree students with a minimum of a bachelor's degree. 800-level courses may be colisted and cotaught with advanced-level undergraduate courses.

### 700-Level Courses

These are advanced undergraduate courses. Graduate credit will not be given for any courses that have freshmen or sophomores enrolled. The Graduate School monitors those advanced-level undergraduate courses that are colisted and cotaught with 800-level graduate courses to insure that only advanced-level undergraduates are enrolled. Up to 12 credits earned in 700-level courses may be petitioned for graduate credit by a graduate degree student, provided the credits are taken in a program other than the one in which the student is seeking the degree and provided such courses are approved by the student's adviser, graduate program coordinator, and the dean of the Graduate School. Such courses must be taken for a letter grade. Petition forms are available at <http://www.gradschool.unh.edu/forms.html>.

### 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 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.

**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:** Graduate courses cannot be taken pass/fail. A graduate student 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 courses only; midsemester deadline for 400-, 500-, 600-, and 700-level courses). If extraordinary circumstances arise, a petition requesting additional time may be submitted. The petition, listing a specific deadline for completion must be approved by the instructor, the student's adviser and graduate program coordinator, before being submitted to the Graduate School. An extension will be granted by the dean only under unusual circumstances and will usually not exceed one calendar year from the end of the semester in which the course was originally taken. An incomplete grade becomes an "F" if not resolved or if a petition for an extension is not approved within the allotted 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. If the course numbers and/or titles do not match exactly, graduate students must obtain written permission of their adviser, graduate program coordinator, and the endorsement of the Graduate School dean before the adjustment will be made. 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. Only repeated courses taken at UNH will alter the cumulative grade-point average.

## 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 enrolled under the early admission program receiving any grade below "B-" in a graduate course while in dual status can be dismissed and have their admission to the Graduate School withdrawn.

Graduate students will have a maximum of two opportunities to successfully complete final examinations for the master's or Ed.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.

Graduate students MUST have a cumulative GPA of 3.0 or higher in order to graduate.

\* 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.

## **Dismissal for Failure to Make Satisfactory Academic Progress**

### **Policy and Appeals Procedure for Graduate Students Dismissed for Failure to Make Satisfactory Academic Progress or Professional, Ethical, or Behavioral Misconduct.**

The process by which a student can be dismissed for violations of academic standards or violations of professional, ethical, and/or behavioral expectations of the program is outlined below along with the process by which such decisions can be appealed.

#### **Dismissal for Failure to Make Satisfactory Academic Progress**

(Note: This procedure is not available to graduate students who have received failing grades in 9 or more credits).

A department chairperson or a graduate program coordinator, upon the recommendation of the appropriate faculty committee, may recommend dismissal for a student who is failing to make satisfactory academic progress in their program. This recommendation shall be forwarded in writing to the associate dean of the Graduate School with a copy to the affected student. The associate dean of the Graduate School will act on the faculty recommendation and inform the student and the graduate program coordinator or department chair of the action taken. 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. If the recommendation to dismiss is changed at this point, the associate dean will be notified and after review will notify the student of the decision. If the decision to dismiss stands, a student wishing to enter a formal appeal shall follow the procedure outlined below. A student who has been dismissed for failure to make satisfactory academic progress 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.

#### **Dismissal for Professional, Ethical, or Behavioral Misconduct**

Graduate students shall conduct themselves in a manner consistent with the norms and practices of their program and/or discipline.

A department chairperson or graduate program coordinator, upon the recommendation of the appropriate faculty committee at the department/ program level, may recommend dismissal for a student who is failing to meet the professional, ethical, and behavioral expectations of the program or otherwise fails to act in ways that are consistent with the norms and standards of the profession or discipline. This recommendation shall be forwarded in writing to the associate dean of the Graduate School with a copy to the affected student. The associate dean of the Graduate School shall act on the faculty recommendation and inform the student and the graduate program coordinator or department chair of the action taken. 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. If the recommendation to dismiss is changed at this point, the associate dean will be notified and after review will notify the student of the decision. If the decision to dismiss stands, a student wishing to enter a formal appeal shall follow the procedure outlined below. A student who has been dismissed for professional, ethical, or behavioral misconduct 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.

#### *Appeals Process for Graduate Students Dismissed for Failure to Make Satisfactory Academic Progress or Professional, Ethical, or Behavioral Misconduct.*

**Step 1:** The student shall request that the faculty member or committee making the original recommendation reconsider their decision, generally within 10 working days after the receipt of the official decision from the Graduate School. The student's request shall be written and shall contain any information which the student feels warrants a reconsideration of the decision. A copy of the request shall 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. If the original recommendation is reversed at Step 1, the associate dean will review the new material and act on the recommendation and inform all parties involved.

**Step 2:** If the student is not satisfied with the decision reached in Step 1, he or she may request that the chairperson

of the appropriate department or program convene a meeting of all graduate faculty members in the department or program to review the decision. The student's request shall be in writing, and a copy shall 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. If the recommendation to dismiss is reversed by the graduate faculty, the associate dean will again review the case, act on the recommendation and inform all parties involved.

**Step 3:** If the student is dissatisfied with the decision reached in Step 2, he or 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 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 student and the appropriate faculty and the associate dean to discuss the case. After these meetings and after reviewing any other information deemed 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 will be communicated 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 to state their case during the review of the 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. Students shall not be present during deliberations.

## Transfer of Credits

A maximum of 12 credits taken by a student prior to matriculation (internal and external combined) can be applied to a degree program.

### External to UNH

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.

### Internal to UNH

A maximum of 12 credits completed by a nondegree student in UNH graduate courses (800 or 900 level) at UNH or UNHM may, upon approval of the dean of the Graduate School, be applied to a student's degree program. Each program's faculty retain discretion regarding the maximum number of graduate credits that will be recommended for approval (not exceeding 12).

## Continuing Education Units

The Continuing Education Unit (CEU) is a nationally recognized method of quantifying the time spent in the classroom during professional development and training activities. Ten hours of instruction = 1.0 CEU. One hour of instruction = 0.1 CEU. CEUs are not transferable as graduate credit.

## Master's Degree Requirements

- » [Credits](#)
- » [Residency](#)
- » [Capstone Experience](#)
- » [Capstone – Non-thesis Option](#)
- » [Capstone-Thesis Option](#)
- » [Thesis Credit](#)
- » [Thesis Committee](#)
- » [Submission of Thesis](#)
- » [Time Limit](#)

## Dual Degrees

The Graduate School allows UNH students to pursue two degrees at UNH and count credits toward both degrees under the circumstances detailed below. Such credit will be granted only for graded coursework completed with a grade of "B-" or higher. Application of such credit toward a student's program for a second degree is subject to departmental recommendation and approval by the Graduate School. Dual degrees should be interpreted to include separate majors within the same degree, or a combination of two different degrees. Students will receive separate diplomas for each degree program. **Note: No dual degrees will be awarded retroactively.**

**1. Five-year Bachelor's/Master's Degrees (Accelerated Masters).** 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 12 credits of graduate-level courses prior to completing their bachelor's degree. Such courses may, upon recommendation of the department and approval of the Graduate School, count toward both a bachelor's and master's degree.

**2. Consecutive Master's Degrees.** Enrollment in consecutive master's degrees refers to admission and matriculation in a second master's degree program at the University of New Hampshire after the completion of the requirements for a first master's degree earned at The University of New Hampshire. A student may apply up to 12 credits earned in the first master's degree awarded at The University of New Hampshire toward a second master's degree with approval of the student's graduate advisory committee and/or graduate program coordinator in the second master's program. Thesis or research credits from the first program may not be counted toward the requirements of the second program.

**3. Concurrent Dual Degrees.** Enrollment in concurrent dual degrees occurs when a student is admitted to and matriculated in two graduate degree programs at the University of New Hampshire simultaneously. A student may pursue concurrent degrees only with approval of the appropriate graduate program coordinator(s) and the dean of the Graduate School. With approval of the student's graduate advisory committee(s) and/or the graduate program coordinator(s), a student may apply up to 12 credits of University of New Hampshire credits earned in one master's degree toward the requirements for a second master's degree. A student must complete the capstone requirements for both programs. Completion of degree requirements for the two programs need not be at the same time.

**4. Integrated Dual Degrees.** Integrated dual degrees occurs when two graduate programs have formalized a program of study which creates an integrated program linking the two disciplines, while continuing to award separate degrees. Students must be admitted to both programs and complete the requirements for both degrees. Integrated dual degree programs may include a single admissions process, submission of a single thesis or capstone experience, and a single advisory committee composed of members from both programs. The number of required credit hours for integrated dual degrees must not be less than 80 percent of the total minimum hours required to complete each degree separately. Integrated dual degree programs must be approved by the Graduate Council and the dean of the Graduate School.

All standard policies relating to time to degree, residency requirements, academic standards, and minimum GPA required to graduate apply to any dual-degree arrangement.

If the student withdraws from one of the participating programs, the dual-degree arrangement is automatically nullified.

If a student's tuition is funded by one or more units, it is up to the funding unit to decide if tuition may cover courses taken solely for completion of the second program.

## Educational Specialist Degree

Requirements for completion of the educational specialist degree (Ed.S.) are found under the program descriptions of the Department of Education. A student can petition to count a maximum of 12 credits, not previously applied to a degree program, and taken prior to admission to the Ed.S. towards a Ed.S. program.

All graduate work for the Ed.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.

#### *Responsible Conduct of Research*

As a land-grant institution, the University of New Hampshire (UNH) is accountable to New Hampshire residents and to the University community to ensure the ethical and safe conduct of research and scholarly activity. As an institution of higher education that prides itself on extensive research endeavors and the involvement of undergraduates and graduate students in research projects, UNH has an obligation to teach and actively promote integrity in research and scholarship.

To fulfill its obligations, UNH has embarked on a program on the responsible conduct of research and scholarly activity (RCR) to:

- Raise the consciousness of faculty, staff, and students regarding the ethical and responsible conduct of research and scholarly activity,
- Establish a knowledge base that defines normative and/or professional behavior to assist faculty, staff, and students in making ethical and responsible decisions in the conduct of research and scholarly activity, and
- Foster an institutional culture of integrity in research and scholarly activity.

To support these efforts the Graduate Council has mandated that all incoming Ph.D. students complete RCR training approved by the Graduate School by the end of their first semester. For more information, visit the RCR website, <http://www.unh.edu/research/responsible-conduct-research-scholarly-activity>.

- » [Residency](#)
- » [Credits](#)
- » [Doctoral Research \(999\)](#)
- » [Guidance Committee](#)
- » [Qualifying Examination](#)
- » [Language/Research Proficiency](#)
- » [Degree Candidacy](#)
- » [Doctoral Committee](#)
- » [Time Limit](#)
- » [Dissertation](#)
- » [Final Defense](#)
- » [Submission of Dissertation](#)

## **Graduation**

Graduation occurs three times a year in September, December, and May. All students MUST file an intent-to-graduate form by the appropriate deadline specified on the Graduate School Calendar <http://www.gradschool.unh.edu/calendar.html>. Student's must file this form online through their MyUNH Web site. More information on this process is available on the Graduate School's Web site at <http://www.gradschool.unh.edu/home/graduation/>.

All coursework completed prior to the official conferral of the degree will be applied only to that degree program. Graduate students MUST have a cumulative GPA of 3.0 or higher in order to graduate.

## **Commencement**

The annual commencement ceremony is held in May. Students who have completed their degree requirements in the preceding September and December are invited to participate in commencement ceremonies in May.

Master's and Ed.S. students who expect to complete their degree program in May, as well as those who expect to complete their programs at the end of the summer term following the commencement ceremony (September), are eligible to participate in May commencement. Students who file their intent-to-graduate online for either May or September by the last deadline for filing for May will be listed in the commencement book.

To participate in the May ceremony, doctoral students must have completed all requirements for the Ph.D. by the published deadlines. Only those candidates who have completed their program are listed in the commencement book.

For more information on how to register for commencement go to [www.unh.edu/presidentialevents/commencement](http://www.unh.edu/presidentialevents/commencement).

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## Graduate Course Catalog 2011-2012

### 2013-2014 Online Graduate Course Descriptions ▼

Use the [Searchable Class Schedule](#) or select the course subject below

Quick-find tip: Select course subject. Type Ctrl-F (PC) or Apple-F (Mac) and enter search term. Make sure pop-ups are enabled.

For specific course details, please consult the individual course instructor for your section.

[About the Catalog](#)

**View course descriptions for a different catalog:** [2013-2014](#)

[Accounting \(ACFI\)](#)  
[Animal and Nutritional Science \(ANSC\)](#)  
[Animal Science \(ANSC\)](#)  
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[Business Administration \(ADMN\)](#)  
[Chemical Engineering \(CHE\)](#)  
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[Civil Engineering \(CIE\)](#)  
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[Economics \(ECON\)](#)  
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[Electrical Engineering \(ECE\)](#)  
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[Family Studies \(FS\)](#)  
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[Geospatial Science](#)  
[Health and Human Services \(HHS\)](#)  
[Health Management and Policy \(HMP\)](#)  
[History \(HIST\)](#)  
[Information Technology \(IT\)](#)  
[Integrated Applied Mathematics \(IAM\)](#)  
[Justice Studies \(JUST\)](#)  
[Kinesiology \(KIN\)](#)  
[Languages, Literatures, and Cultures \(LLC\)](#)  
[Liberal Studies \(LS\)](#)  
[Life Sciences and Agriculture \(LSA\)](#)  
[Management of Technology \(MOT\)](#)  
[Materials Science \(MS\)](#)  
[Mathematics and Statistics \(MATH\)](#)  
[Mechanical Engineering \(ME\)](#)  
[Microbiology \(MICR\)](#)  
[Molecular, Cellular, and Biomedical Sciences \(MCBS\)](#)  
[Music \(MUSI\)](#)

[Music Education \(MUED\)](#)  
[Natural Resources \(NR\)](#)  
[Natural Resources and Earth Systems Science \(NRES\)](#)  
[Nursing \(NURS\)](#)  
[Nutritional Sciences \(NUTR\)](#)  
[Occupational Therapy \(OT\)](#)  
[Ocean Engineering \(OE\)](#)  
[Painting \(ARTS\)](#)  
[Physics \(PHYS\)](#)  
[Plant Biology \(PBIO\)](#)  
[Political Science \(POLT\)](#)  
[Psychology \(PSYC\)](#)  
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[Public Health \(PHP\)](#)  
[Recreation Management and Policy \(RMP\)](#)  
[Resource Administration and Management \(RAM\)](#)  
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[Zoology \(ZOOL\)](#)

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## Graduate Course Catalog 2011-2012

### About the Catalog ▼

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 & Academic Services and the Office of the Provost and Vice President for Academic Affairs. The annual student publication, *Student Rights, Rules, and Responsibilities* (<http://www.unh.edu/student/rights>), also contains University regulations and policies regarding student conduct.

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.

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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, gender identity or expression, sexual orientation, marital status, or disability in admission or access to, or treatment or employment in, its programs, services, or activities. Inquiries regarding discriminatory harassment (including sexual harassment) should be directed to Donna Marie Sorrentino, Director of Affirmative Action and Equity, Room 305 Thompson Hall, 105 Main Street, Durham, N.H. 03824, phone (603) 862-2930 (Voice/TTY), fax (603) 862-2936; or to the Office for Civil Rights, U.S. Department of Education, 8th Floor, 5 Post Office Square, Boston MA 02109-3921, phone (617)289-0111, fax (617)289-0150.

There are various grievance procedures to provide for the resolution of complaints under this policy. Information may be obtained at the Affirmative Action and Equity Office or e-mail [affirmaction.equity@unh.edu](mailto:affirmaction.equity@unh.edu).

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