



# COLLEGE OF ARTS AND SCIENCES

- Art Conservation
- Art History
- Biological Sciences
- Biomechanics and Movement Science (Interdisciplinary Program)
- Chemistry and Biochemistry
- Communication
- Computer and Information Sciences
- English
- Fine Arts and Visual Communications
- Foreign Languages and Literatures
- Foreign Languages and Pedagogy
- Geography and Climatology
- Geology
- History
- Liberal Studies
- Linguistics
- Mathematical Sciences
- Music
- Physical Therapy
- Physics and Astronomy and the Bartol Research Institute
- Political Science and International Relations
- Preservation Studies
- Psychology
- Sociology and Criminology
- Theatre
- Winterthur Program in Early American Culture

The College of Arts and Sciences offers a number of Master's and Ph.D. degree programs administered by the department with which they are affiliated. Virtually all faculty members in the college are qualified to supervise graduate-level programs. More details about these faculty and the degrees they hold will be found in the faculty lists for individual departments. For more information, please see <http://www.udel.edu/catalog/current/facstaff>

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## ART CONSERVATION

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Telephone: (302) 831-3489

For more information, please visit the department web site at <http://www.udel.edu/artcons>

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## THE WINTERTHUR/UNIVERSITY OF DELAWARE M.S. PROGRAM IN ART CONSERVATION

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### PROGRAM OVERVIEW

The program offers a three-year interdisciplinary curriculum leading to a degree of Master of Science in Art Conservation. The program was established in the spring of 1974 as a cooperative effort between Winterthur and the University. The program is designed to educate and train conservation professionals who can carry out the examination, stabilization and treatment of art and artifacts, are

versed in general principles of collection care, and have a broad academic background in science and the humanities to assure enlightened decision making. The following subjects are to be studied: materials science, history of art, archaeology, art and artifact technology, craft skills, cultural context, preventive maintenance, art care treatment techniques and conservation history, ethics and philosophy. Major conservation specialty areas include: textiles, wood, paper, photographs, library materials, paintings, painted and decorative surfaces, natural science collections, and anthropological, historical, decorative and art objects of all materials.

### REQUIREMENTS FOR ADMISSION

Only applicants who are accepted as Fellows in Conservation are admitted to the program. Positions will be awarded to college graduates who have completed coursework in art history, archaeology, studio art and chemistry, and the minimum of 400 hours of pre-program experience in conservation, and who can demonstrate academic and independent work in manual and studio skills. Applicants who wish to major in Furniture Conservation must also demonstrate a solid competency in traditional woodcraft as related to conservation treatment and assessment. Specific course requirements are available from the department office. Applications to the program must be filed by February 1. Applicants are expected to obtain a GRE score of 1050 or better (verbal plus quantitative). Admission is selective and competitive based on the number of well qualified applicants and the limits of available faculty and facilities. Those who

meet stated minimum academic requirements are not guaranteed admission. Prospective applicants must contact the Art Conservation department for application materials.

### FINANCIAL AID

The fellowships are awarded annually. A full grant covers tuition for each semester and carries an annual stipend. Funding for professional development and research travel is also available by application.

### REQUIREMENTS FOR THE M.S. DEGREE

Courses carrying an ARTC designation are generally open only to art conservation graduate students. (Permission of instructor is required for other students.) There is no thesis or language requirement in the program. A research/technical study paper is done in the second year. Comprehensive examinations are given at the end of the first and second years, and a portfolio of third-year work and a final oral presentation and oral examination are required before graduation. Two 8-week summer work projects are part of the required curriculum.

Students are permitted one 3-credit elective per semester for the first two years of study (a total of 12 elective credits within the 68 credits required for graduation). Elective course work should focus on the following topics: (1) history of the technology of cultural property; (2) connoisseurship and provenance studies; (3) reconstruction studies in studio arts and crafts; (4) museum studies. Elective courses may include course offerings in Art Conservation and other relevant departments/programs including Art History, Anthropology, Art, Museum studies and the Winterthur Program in Early American Culture or courses offered via cooperative agreements arranged by the Art Conservation Department or other University departments with other higher education institutions. Independent study topics may be negotiated between faculty and students. Independent study topics may not duplicate the content of existing University of Delaware courses. A total of six credits of independent study may be permitted during the first two years of study.

### FIRST-YEAR ACADEMIC PROGRAM

#### Summer

Orientation to museum collections, conservation photography, examination techniques, preventive conservation, and microscopy

#### Fall Semester

ARTC 615	Properties and Structure of Art Materials I	3
ARTC 654	Examination and Treatment of Art Objects I	3
ARTC 670	Chemical and Physical Techniques Used in the Examination of Art Materials I	3

One elective course. Elective courses include course offerings in Art Conservation or in other relevant departments/programs.

#### Spring Semester

ARTC 616	Conservation Research Methods	3
ARTC 655	Examination and Treatment of Art Objects II	3
ARTC 671	Chemical and Physical Techniques Used in the Examination of Art Materials II	3

One elective course. Elective courses include course offerings in Art Conservation or in other relevant departments/programs.

Comprehensive examination

### SECOND-YEAR ACADEMIC PROGRAM

#### Summer

Summer Work Project - 8 weeks

#### Fall Semester

ARTC 650	Seminar in Art Conservation	1
ARTC 658	Topics in Advanced Apprenticeship and Research in Art Conservation I	6
ARTC 672	Chemical and Physical Techniques Used in the Examination of Art Materials III	3

One elective course. Elective courses include course offerings in Art Conservation or in other relevant departments/programs.

#### Spring Semester

ARTC 650	Seminar in Art Conservation	1
ARTC 659	Topics in Advanced Apprenticeship and Research in Art Conservation II	6
ARTC 673	Chemical and Physical Techniques Used in the Examination of Art Materials IV	3

One elective course. Elective courses include course offerings in Art Conservation or in other relevant departments/programs.

Qualifying examination

### THIRD-YEAR ACADEMIC PROGRAM

#### Summer

Summer Work Project - 8 weeks

#### Fall Semester

ARTC 870	Internship in Conservation	9
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#### Spring Semester

ARTC 870	Internship in Conservation	9
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Final portfolio, oral presentation and oral examination.

### ART HISTORY

Telephone: (302) 831-8415; Fax: (302) 831-8243

For more information, please visit the department web site at [www.udel.edu/ArtHistory](http://www.udel.edu/ArtHistory)

### PROGRAM OVERVIEW

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy. The department offers studies in the history of art from ancient to modern times, with special strength on the graduate level in American art and in European art from the Renaissance through the modern eras. Cooperative arrangements with Bryn Mawr College and the University of Pennsylvania permit students to take courses at both institutions. Other arrangements with various institutions enable students to work with original objects and documents and to arrange, under faculty and museum staff supervision, exhibitions on a variety of subjects. The University Gallery, located on the campus, has a collection of about 6,000 objects for teaching and student research as well as providing opportunities for organization of exhibitions. The collections of Gertrude Käsebier photographs and Abraham Walkowitz paintings and drawings, e.g., are the largest in existence. The University Gallery has received the Paul R. Jones Collection of African American Art, the Frederick and Lucy S. Herman Native American Art Collection, and the Mabel and Harley McKeague Alaskan Inuit Collection. Periodically, art history graduate seminars have contributed to the research for, and organization of, exhibitions at such museums as the Metropolitan Museum of Art, the Whitney Museum of American Art, the Hirshhorn Museum and Sculpture Garden, the Delaware Art Museum, and the Pennsylvania Academy of the Fine Arts, as well as the University Gallery.

Resources of the department include an extensive slide collection, the Decimal Index of the Art of the Netherlands, the "Illustrated Bartsch," and the Wayne Andrews photographic archive of American architecture, a cumulative index of dissertations and theses in American art. The University Library includes the Esther I. Schwartz Collection in the American Decorative Arts and special collections of books on museology and the conservation of works of art, as well as the George M.A. Hanfmann Professional Library of Ancient Art, the E.P. Richardson Library, and the Lloyd and Edith Havens Goodrich-Albert Pinkham Ryder Archive. There is also a collection of books and ephemera on Italian Futurism.

Another university resource is the Center for Historic Architecture and Design (CHAD), a multidisciplinary research and public service group exploring the evolution of historic architecture, engineering, and the built environment. Based in the College of Human Services, Education and Public Policy, CHAD is cosponsored by the departments of Art History, History, and Geography, the College of Engineering, and the Museum Studies Program, and the Winterthur Program in Early American Culture. CHAD is the first American university center in this field recognized by the Department of the Interior. Graduate students in art history may pursue a graduate specialization both in architectural history and in historic preservation and may qualify for CHAD grants, internships, and research assistantships.

The Department of Art History enjoys a longstanding relationship with the Center for Material Culture Studies, a dynamic collaboration of individuals, programs, and departments engaged in the documentation, interpretation, and preservation of the objects and images that have shaped American life. The Center builds on our collective national reputations and extraordinary strengths in well-established academic, research, and public service programs in the fields of material culture, historic preservation, museum studies, and historical archaeology. The Center for Material Culture Studies capitalizes on institutional partnerships with the Winterthur and Hagley museums, Historical Society of Delaware, and Delaware Division of Historical and Cultural Affairs. The Center offers an interdisciplinary minor and internships for undergraduates, competitive graduate student research assistantships, new and developing courses in design history and visual culture, and an exciting teaching and learning environment for faculty, staff, and students. The Center's programs reach into its University constituencies ranging from the humanities to the performing and studio arts, and reaching out to larger public and scholarly communities.

The Winterthur Museum Library, open to graduate students in art history, is especially strong in American art and in sources of design and both social history and British artistic backgrounds. It also contains the Waldron Phoenix Belknap, Jr., Research Library of American Painting and the Joseph Downs Manuscript Collection.

The nearby Delaware Art Museum includes a comprehensive collection of American paintings, sculpture, and prints from about 1800 to the present day, the Samuel and Mary R. Bancroft English Pre-Raphaelite Collection, the John Sloan Collection, the Howard Pyle Collection, and the N.C. Wyeth papers.

#### REQUIREMENTS FOR ADMISSION

Graduates of the program have entered careers in college and university teaching, museum curatorship and administration, national and state arts agencies, architectural preservation and historic sites, librarianship, and research. Although it is desirable for candidates to have majored in the history of art, well-qualified applicants from other fields will be considered. Applicants are required to take the Aptitude Test of the Graduate Record Examination.

Applications for admission in the fall semester must be in the Office of Graduate Studies by January 1. Students requesting fellowships or assistantships beginning in the fall semester must have their completed applications in the Office of Graduate Studies prior to January 1. See also the chapter "Graduate Admissions" in this catalog.

Students are admitted to the graduate program in Art History on the basis of consideration of a combination of all of the following materials: a writing sample; a personal statement; letters of recommendation; undergraduate and, if relevant, graduate records; and Graduate Record Examination (GRE) scores. Normally, for admission the minimum combined score for the verbal and quantitative portions of the GRE is 1050, and the minimum undergraduate grade point average (GPA) is 3.00. However,

achievement of that minimum score and GPA does not by any means guarantee admission, as the majority of admitted students have considerably higher scores and averages. On the other hand, under special or unusual circumstances, other strengths may obviate the need to meet one or both of those stated minima.

#### FINANCIAL AID

Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog.

#### REQUIREMENTS FOR THE DEGREES

Requirements for the Master of Arts degree consist of a minimum of 24 hours of course work, a master's thesis (research essay), and a language examination (either French, German, or Italian). Individual programs will be arranged according to each student's needs in consultation with a faculty adviser. With the adviser's consent, students may substitute a limited number of courses in such related fields as anthropology, history, literature, urban affairs, and philosophy. Normally, the degree requirements may be completed in two years of full-time study.

Students will normally complete all requirements of the M.A. degree before applying for candidacy to the Ph.D. program by Jan. 2 of their fourth semester. Students who are accepted with an M.A. degree from an accredited art history program may enter the Ph.D. program directly. One major field and one minor field, in which students will be examined after completing 24 hours of course work, will be chosen from the following areas: Ancient, Medieval, Italian Renaissance, Northern Renaissance, Seventeenth and Eighteenth Century, Nineteenth and Twentieth Century, and American, with additional minors available in the History of Photography, Decorative Arts, Graphic Arts, History of Book Illumination, and History of Architecture. Upon petition, minor fields may be tailored to the student's special interests. Candidates for the Ph.D. must pass written examinations in German and either French or Italian. Candidates then produce a dissertation, which is defended in an oral examination.

#### RELATION TO THE M.A. IN EARLY AMERICAN CULTURE

At the University of Delaware, there are two avenues to the historical study of the visual arts: (1) The M.A. and Ph.D. program in the Department of Art History; and (2) the M.A. in Early American Culture sponsored by the Winterthur Program, a multidisciplinary graduate course of study offered cooperatively by the University and the Henry Francis du Pont Winterthur Museum. Students interested primarily in studying American decorative arts in a material culture context should consider the Winterthur Program in Early American Culture described in this catalog. The Department of Art History is concerned with the fine arts (painting, sculpture, and architecture) and with the decorative arts in that context, with study of the decorative arts at the Ph.D. level especially encouraged.

At the Ph.D. level, the department offers specialization in the decorative arts through courses at Winterthur, and students may take their minor field examination and elect to write their dissertations in this area. These students have access to the collections and teaching staff at Winterthur. Master's theses may also be written on the subject.

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#### BIOLOGICAL SCIENCES

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Telephone: (302) 831-1841

Email: danders@udel.edu

For more information, please visit the Department of Biological Sciences web site at <http://www.udel.edu/bio>

#### PROGRAM OVERVIEW

The Department of Biological Sciences offers Master of Science and Doctor of Philosophy degrees in the fields of animal physiology;

cancer biology, cell and extracellular matrix biology; developmental biology; ecology and evolution; microbiology and virology; and molecular biology and genetics. Formalized Graduate Tracks have been established to provide students with customized research and career mentorship. Financial aid is available to all graduate students in the form of assistantships. The stipend level for 2005-2006 is \$19,000 per 12 months for M.S. and pre-candidacy Ph.D. students, and \$20,000 per 12 months for post-candidacy Ph.D. students. In addition, all graduate assistants in Biological Sciences receive a full tuition scholarship from the University of Delaware.

### RESEARCH FACILITIES

The Department of Biological Sciences occupies Wolf Hall and much of the McKinly Laboratory building and has modern well-equipped laboratories for research and teaching. The buildings are adjacent and located on the main campus mall. Resources include facilities with automated DNA sequencing and gene array analysis, cell culture and hybridoma core laboratories, fluorescence and confocal microscopes, newly-renovated animal research space with a staffed transgenic mouse facility, constant temperature rooms and growth chambers, ultracentrifuges, liquid scintillation and gamma spectrometers, and access to scanning and transmission electron microscopes. Other research resources are readily available through collaborations with scientists in other departments at the University of Delaware and at the Delaware Biotechnology Institute, a new venture supported by the State, the University and local industry, and at the Alfred I. DuPont Hospital for Children.

### REQUIREMENTS FOR ADMISSION

Graduate admission criteria of the Department include a recommended minimum scholastic index (grade point average on a 4.0 point scale) of 3.0 overall and 3.0 in the sciences. The Graduate Record Examination (GRE) General test (Verbal and Quantitative) is required. Competitive scores are approximately 550 (Verbal), and 650 (Quantitative).

Admission to the graduate program in Biological Sciences requires demonstrated academic excellence and the following (or the equivalent): two years of biological sciences; one semester of mathematics, preferably calculus or statistics; one year of college physics; one year of inorganic (general) chemistry; and one course in organic chemistry. Any deficiency in undergraduate training must be made up (without graduate credit) during the first year of graduate study.

Applications must include three letters of recommendation (sent directly to the University of Delaware Office of Graduate Studies) from persons able to judge the applicant's ability to pursue graduate study. If you would like an information packet mailed to you, please e-mail [danders@udel.edu](mailto:danders@udel.edu) or, preferably, application can be made electronically to the University's Office of Graduate Studies. Applications normally are considered only for fall entrance, but applicants who are U.S. citizens or permanent residents may request permission to enroll during the spring or summer semester. Application materials must be complete by October 1 in order to be considered for spring admission. International applicants are considered only for fall admission. Complete applications received by January 15 have optimal consideration for fall admission and financial aid; April 15 is the final Departmental deadline. In exceptional circumstances, we can consider late applications from U.S. citizens until June 15.

Applicants who are not U.S. citizens must complete the Test of English as a Foreign Language (TOEFL) with a score of 600 or higher on the paper-based test, or 250 or higher on the computer-based test, in accordance with University of Delaware regulations for graduate assistantship eligibility. Foreign applicants also are strongly encouraged to complete the Test of Spoken English (TSE) with a score of 45 or higher. These tests, as well as the GRE, are

administered through the Educational Testing Service. Previous education, training or residence in the U.S. does not exempt foreign nationals from these requirements. Requests for a waiver of the language test requirements (for example, for students from English-speaking countries outside of the U.S.) must be approved by the University of Delaware Office of Graduate Studies.

Admission to the graduate program in Biological Sciences is competitive. Those who meet the stated minimum requirements are not guaranteed admission, nor are those who fail to meet all those requirements necessarily precluded from admission if they offer other appropriate strengths.

### REQUIREMENTS FOR THE DEGREES

The Master of Science program requires a minimum of 30 credits that include 16 hours of graduate courses, 6 hours of thesis and successful completion of the preliminary examination. Primary emphasis is on research that culminates in a written thesis and the oral defense of that thesis.

For the Ph.D. degree, 16 hours of graduate courses, successful completion of the preliminary and qualifying examinations and the defense of a written research proposal and dissertation are required. Two semesters of experience in the teaching of undergraduates is required of all doctoral candidates. The preliminary examination is administered after two semesters of study are completed and is designed to identify the student's strengths and weaknesses and suitability for further graduate study. The doctoral qualifying examination is an in-depth examination of the student's research specialty and is administered after six semesters of enrollment. It is expected that a significant portion of the dissertation will be suitable for publication.

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### BIOMECHANICS AND MOVEMENT SCIENCE

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Telephone: (302) 831-1543

For more information, please visit the program web site at <http://www.bmsc.udel.edu>

### PROGRAM OVERVIEW

The Biomechanics and Movement Science (BIOMS) program offers programs leading to master's and doctoral degrees. It is an interdisciplinary program that combines faculty and physical resources from several different units including the Department of Mechanical Engineering, the Department of Physical Therapy, the Department of Health, Nutrition and Exercise Sciences, the Department of Electrical and Computer Engineering and the Center for Biomedical Engineering Research. By implementing an interdisciplinary approach, the availability of faculty members with backgrounds in sport biomechanics, physical therapy, applied physiology, engineering, and computer science, affords students a much more diverse educational environment. In addition, the collective research laboratories of the participating units provide exposure to outstanding facilities. The laboratories of the Sports Science Lab, the Department of Physical Therapy, the Department of Mechanical Engineering, the Center for Biomedical Engineering Research and others present an array of equipment for both upper and lower extremity biomechanics and movement studies.

### REQUIREMENTS FOR ADMISSION

Applicants to the BIOMS program should meet the minimum recommended GRE requirements of 1050 on combined quantitative and verbal scores, and an undergraduate grade point index of 3.0. They are expected to have course experience in the areas of math (through calculus), anatomy/physiology, physics (2 semesters), and chemistry (2 semesters). See the Graduate Admissions chapter in this catalog for additional information.

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those applicants who meet the stated minimum academic requirements for admission are not guaranteed admission, nor are those applicants who fail to meet those minimum requirements necessarily precluded from admission if they offer other appropriate strengths.

Applicants will be directed to faculty with appropriate expertise. Applicants will be considered for admission to the BIOMS program provided that they 1) meet all admission requirements of the Office of Graduate Studies and the BIOMS program, and 2) are successful in securing a faculty advisor.

#### FINANCIAL AID

Financial assistance for students in the BIOMS program is obtained from a variety of external sources and will therefore vary in form and availability. Assistance will be awarded on a competitive basis to applicants best fitting the needs of the granting agencies and sponsoring faculty. Students receiving full stipends will be expected to work up to 20 hours per week on faculty projects, and are expected to maintain full-time status. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for more information.

#### REQUIREMENTS FOR THE DEGREES

Programs of study are created to serve the interests of both the student and sponsoring faculty member. Core courses for all areas of study include 2 (M.S.) or 3 (Ph.D.) semesters of BIOMS seminar, an experimental design/statistics course, a course in computing, laboratory instrumentation or engineering applications, and two courses outside the principal area of study.

The Master's degree program requires 24 credit hours of coursework (including BMSC 865 and BMSC 868) plus 6 credit hours of thesis. The student is expected to submit a planned program of study by the end of the first semester, created with their primary advisor. This program of study must be reviewed and approved by the BIOMS Graduate Committee. The thesis committee must consist of at least three BIOMS faculty members, and at least one of the committee members must be from a different department than that of the advisor. Prior to conducting the thesis research, the student must successfully defend the thesis proposal before the BIOMS faculty. The final thesis defense must then be approved by the thesis committee.

The Ph.D. program requires 33 credit hours of coursework (including BMSC 865 and BMSC 868) beyond the Master's degree plus 9 credit hours of dissertation. A student entering the Ph.D. program without a Master's degree must complete a minimum of 63 credit hours of coursework plus 9 credit hours of dissertation. As with the Master's degree, the student's program of study should be created by the student and his/her advisor by the end of the first semester. This program of study must then be reviewed and approved by the BIOMS Graduate Committee. The dissertation committee must consist of at least three BIOMS faculty members one of whom must be from a department different than that of the advisor, and one committee member from outside the BIOMS program. Please refer to the program policy statement for more specific details regarding dissertation committee membership. Prior to conducting the dissertation, the student must successfully defend the dissertation proposal. The defense of the dissertation proposal constitutes the qualifying examination for candidacy into the Ph.D. degree program. Candidacy is completed when the student successfully defends the dissertation.

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#### CHEMISTRY AND BIOCHEMISTRY

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Telephone: (302) 831-1247

For more information, please visit the department web site at [http://www.udel.edu/chem/grad/graduate\\_studies.htm](http://www.udel.edu/chem/grad/graduate_studies.htm)

#### PROGRAM OVERVIEW

The Department of Chemistry and Biochemistry offers programs leading to the Ph.D., M.S., and M.A. degrees. Financial support for Ph.D. students is available in the form of teaching assistantships, research assistantships, and fellowships. The thesis for the Master of Science degree or the doctoral dissertation may be in analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, or physical chemistry. Certain courses offered in other departments may be taken for credit for advanced degrees in chemistry if these fit logically into the proposed course of study and have the approval of the candidate's advisor.

Four major state-of-the-art facilities support the research of faculty and students. These laboratories are operated by Ph.D.-level scientists who provide analytical service and training courses. The Blue Hen NMR Complex houses eight liquid- and solid-state FT-NMR spectrometers and one FT-ESR spectrometer. Graduate students routinely use these instruments in their research. The departmental mass spectrometry laboratory encompasses instruments that provide service in electrospray ionization (ESI), matrix-assisted laser desorption ionization (MALDI), fast-atom bombardment (FAB), chemical ionization (CI), and electron ionization (EI) mass spectrometry. GC/MS, LC/MS, and MALDI instruments are available for routine student use. The X-ray laboratory includes a state-of-the-art diffractometer for small molecule crystallography. Our department also houses the university-wide Surface Analysis Facility, which provides analytical capabilities in scanning probe microscopy (SPM), including scanning tunneling microscopy (STM) and atomic force microscopy (AFM), Auger electron spectroscopy (AES), X-ray photoelectron spectroscopy (XPS or ESCA) and time-of-flight secondary ion mass spectrometry (TOF-SIMS).

A research facility to perform macromolecular crystallography is also housed in the department. A wide variety of equipment is available in individual research laboratories. The department maintains electronics, machine, and glass-blowing shops as well as a chemistry reference library. Further information regarding research areas and resources can be found at the departmental web site <http://www.udel.edu/chem/>

#### REQUIREMENTS FOR ADMISSION

Admission to the graduate program in the Chemistry and Biochemistry Department is evaluated on the basis of the applicant's GRE scores and undergraduate records including the transcript and letters of recommendation. TSE and TOEFL scores are required for foreign applicants for whom English is not the first language. Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

#### REQUIREMENTS FOR THE DEGREES

##### M.A. IN THE DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

A minimum of 30 credit hours of graduate-level courses is required with an overall B average (3.00). A minimum of 18 credit hours must be course work at the 600 level or above (excluding pre-candidacy study, research, thesis or dissertation credits) as specified



in the Ph.D. requirements listed below. A maximum of 12 credit hours, 500 level or greater, may be taken in other departments toward the 30 credit hour requirement. No thesis is required. The M.A. degree requires successful completion of a series of cumulative examinations.

#### M.S. IN THE DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

A minimum of 30 credit hours of graduate-level courses is required with an overall B average (3.00). A minimum of 18 credit hours must be course work at the 600 level or above (excluding pre-candidacy study, research, thesis or dissertation credits) as specified in the Ph.D. requirements listed below. A maximum of 12 credit hours, 500 level or greater, may be taken in other departments toward the 30 credit hour requirement.

First year-graduate students are required to take a non-credit one-hour special seminar, CHEM-865-010 (new student seminar) and CHEM-601, Introduction to Laboratory Instruction. Graduate students must also register for one of the topical seminar series (CHEM-865-XXX - Biochemistry Seminar, Organic/Inorganic Seminar, Physical/Analytical Seminar), as well as Colloquia (CHEM-865-XXX). A thesis is required. Thesis must not represent more than six credit hours. Thesis and/or research must represent a minimum of 6 and a maximum of twelve credit hours toward the 30 credit hour requirement.

#### PH.D. IN THE DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

First year-graduate students are required to take a non-credit one-hour special seminar, CHEM-865-010 (new student seminar) and CHEM-601, Introduction to Laboratory Instruction. Graduate students must also register for one of the topical seminar series (CHEM-865-XXX - Biochemistry Seminar, Organic/Inorganic Seminar, Physical/Analytical Seminar), as well as Colloquia (CHEM-865-XXX). The Ph.D. degree requires successful completion of a series of cumulative examinations. The Ph.D. degree requires a thesis based on original research and a final public oral defense of the dissertation.

The department course requirements are a minimum of eighteen credit hours in graduate level courses (600-level or higher) excluding research and dissertation (CHEM-868 and CHEM-969). At least nine of these must be taken outside the student's division. Specific course requirements for each division are listed below. Scientific courses offered by other Departments may be counted as courses outside the student's division, if approved by the faculty in the student's division. The student must achieve at least a cumulative grade point average of 3.00 in the courses that fulfill this requirement. The course requirements, including the division's requirements, should be satisfied within four semesters of entering the program with a bachelor's degree.

**Analytical Chemistry:** Six credit hours of graduate analytical courses plus three additional credit hours of graduate coursework designated by the research advisor. The three additional credit hours can be selected from graduate level analytical courses, other graduate level courses in the Chemistry and Biochemistry Department, or graduate level courses in other departments. Courses in other departments must be approved by the analytical faculty. Analytical courses which can satisfy this requirement include:

- CHEM-620 Analytical Spectroscopy
- CHEM-621 Chemical Separations
- CHEM-622 Electroanalytical Chemistry
- CHEM-623 Chemometrics
- CHEM-624 Principles of Mass Spectrometry
- CHEM-625 Chemical Ionization Mass Spectrometry
- CHEM-626 Instrumental Methods in Mass Spectrometry
- CHEM-627 Practical Mass Spectrometry

CHEM-820 Special topics in analytical chemistry (may be repeated for credit when topics vary)

**Biochemistry:** At least 6 credits in graduate-level biochemistry courses. The Biochemistry Division or the student's research advisor must approve the courses used to satisfy the departmental course requirement of 18 credits in graduate level courses.

- CHEM-641 Biochemistry
- CHEM-642 Biochemistry
- CHEM-643 Intermediary Metabolism
- CHEM-644 Mechanisms of Enzyme Catalysis
- CHEM-645 Protein Structure and Function
- CHEM-646 DNA-Protein Interactions
- CHEM-647 Biochemical Evolution
- CHEM-648 Membrane Biochemistry
- CHEM-649 Molecular Biophysics
- CHEM-840 Modern Topics in Biochemistry (may be repeated for credit when topics vary)

**Inorganic Chemistry:** Nine credit hours from the following courses:

- CHEM-651 Advanced Inorganic Chemistry I
- CHEM-652 Organometallic Chemistry
- CHEM-653 Bioinorganic Chemistry
- CHEM-654 Advanced Inorganic Chemistry II

#### Organic Chemistry:

- CHEM-633 Advanced Organic Chemistry: Physical
- CHEM-634 Advanced Organic Chemistry: Synthesis and Reactivity

Two additional courses (6 credit hrs) with a CHEM-63X or CHEM-83X designation (one of these courses may be audited)

It is strongly recommended that the courses taken outside of Organic Chemistry should be chosen from the following list:

- CHEM-641 Biochemistry
- CHEM-642 Biochemistry
- CHEM-651 Advanced Inorganic Chemistry I
- CHEM-652 Organometallic Chemistry
- CHEM-654 Advanced Inorganic Chemistry II

If a student wishes to take other courses than these outside of Organic Chemistry, then each of these courses must be approved: (a) at the Fall and Spring advisements for first-year graduate students by the representative from the Organic Chemistry Division on the Graduate Curriculum Committee and (b) at other times by the Organic Chemistry Faculty.

**Language Requirement:** Any modern foreign language is acceptable and proficiency may be established by any one of the following:

- a. Two full years of college-level courses in one of the specified languages with an average grade of C or better. An equivalent undergraduate background may be accepted, upon request to GCC.
- b. Submission of evidence of satisfactory performance (a score greater than 500 or one above the 50th percentile) on the ETS Graduate School Foreign Language Test for one of the specified languages. Students will make arrangements to take these examinations directly with ETS.
- c. Satisfactory performance in a departmental reading examination in one of the specified languages. Responsibility for determining the frequency and content of these examinations, as well as their grading, will rest with each of the five divisions of the Department (analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry), and the examinations program will be administered by the appropriate Divisional Secretary. The use of a dictionary will be permitted throughout each examination.

A student wishing to use options (a) or (b) should consult with the Executive Secretary of the Department of Chemistry and Biochemistry who will verify grades or test scores. A student wishing to use option (c) should consult with the division secretary who will arrange for an examination and communicate the result to the Executive Secretary of the Department of Chemistry and Biochemistry who will see that it is recorded in the student's file.

**Physical Chemistry:** A minimum of three courses from among the following:

- CHEM-671 Quantum Chemistry
- CHEM-672 Advanced Quantum Chemistry
- CHEM-674 Chemical Dynamics
- CHEM-677 Chemical Thermodynamics

One may substitute for one of these three courses from related three-credit courses outside physical chemistry upon the approval of the research advisor.

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## COMMUNICATION

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Telephone: (302) 831-8041

For more information, please visit the department web site at [www.udel.edu/communication/index.html](http://www.udel.edu/communication/index.html)

### PROGRAM OVERVIEW

The Department of Communication offers a program leading to a Master of Arts degree in communication. A student may elect to pursue a general graduate communication degree or may specialize within one of the department's areas of study: organizational communication, mass communication, or interpersonal communication. The program is designed to produce competent consumers of empirical research and theory in preparation for Ph.D. studies or for a career as a communication specialist if this is a terminal degree. The program is not broadcast or production oriented.

### REQUIREMENTS FOR ADMISSION

To be considered for admission, all applicants are evaluated on the following criteria: (1) undergraduate academic work; both total GPA and major GPA are considered (a 3.0 in both categories is the generally accepted minimum); (2) GRE scores; TOEFL scores; applicants must obtain a minimum score of 550 on each section of the GRE; foreign students must have a minimum score of 600 on the TOEFL; (3) three letters of recommendation; and (4) a statement written by the applicant addressing his or her interest in seeking graduate education in communication. These data are carefully considered in relation to the strengths of the department to determine if it can give the applicant the graduate education desired.

Admission to the M.A. program in Communication is selective and competitive, based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

### FINANCIAL AID

A limited number of teaching assistantships are available and are awarded competitively in the spring of each year. The application deadline is March 1. Teaching assistants are expected to attend a number of training sessions in the month prior to their enrollment. Those who fail to attend these sessions will forfeit their financial aid.

### REQUIREMENTS FOR THE DEGREE

Upon entering the program, students are given a temporary advisor. By the completion of nine hours of graduate work, students

are expected to have chosen their major advisor with whom they can work closely. Students are expected to maintain a 3.0 GPA or better. A thesis or comprehensive exam is required of all M.A. candidates. There is an oral portion of the comprehensive examination as well as an oral examination of the M.A. thesis by the candidate's committee after each member of this committee has had time to review the project thoroughly.

#### M.A. in Communication with a Thesis:

COMM601	Epistemology and Theory in Communication	3
COMM603	Communication Research Methods - Procedures	3
COMM604	Communication Research Methods - Analysis	3

Two of the following three theory courses:

COMM610	Organizational Communication Theory	3
COMM630	Interpersonal Communication Theory	3
COMM670	Mass Communication Theory	3

COMM869	Master's Thesis	6
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Three elective Courses:

One course must be taken in Communication

Two courses (or six credits) may be taken outside the Communication Department in a related area, if approved by the graduate student's committee

#### M.A. in Communication with Comprehensive Exams

COMM601	Epistemology and Theory in Communication	3
COMM603	Communication Research Methods - Procedures	3
COMM604	Communication Research Methods - Analysis	3

Two of the following three theory courses:

COMM610	Organizational Communication Theory	3
COMM630	Interpersonal Communication Theory	3
COMM670	Mass Communication Theory	3

Five Elective Courses:

Three courses must be taken in Communication

Two courses (or six credits) may be taken outside the Communication Department in a related area, if approved by the graduate student's committee

Comprehensive Exams in three areas.

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## COMPUTER AND INFORMATION SCIENCES

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Telephone: (302) 831-2712

For more information, please visit the department web site at <http://www.cis.udel.edu>

### PROGRAM OVERVIEW

The Department of Computer and Information Sciences offers programs leading to the Ph.D. and M.S. degrees. Computer Science is a vigorous and exciting field of research and study that continues to grow in importance. Computer science programs are broad in scope and deal with software and hardware technology, the theory of computation, scientific computing, and their applications. Departmental research strengths include artificial intelligence (machine learning, multiagent systems, planning and problem solving), bioinformatics, computational theory (computational learning theory, design and analysis of algorithms, recursive function theory), compiler optimization and compilation for parallel machines, natural-language processing, networks and parallel computing (distributed computing, transport layer protocols, mobile and wireless networks, algorithm and architecture design for massive parallelism, networks management, performance modeling, simulation), graphics and computer vision, rehabilitation engineering (augmentative communication, speech recognition and enhancement), software engineering (program analysis and testing), and symbolic mathematical computation (algebraic algorithms, parallelization, rewrite systems).

The CIS graduate program provides a solid foundation in the fundamental areas of computer science and, in addition, provides numerous advanced courses and seminars to acquaint the student

with current computer science research. The main difference in objectives between the M.S. and Ph.D. programs is that the Ph.D. is designed to prepare students to conduct advanced research.

### REQUIREMENTS FOR ADMISSION

Graduate admission requirements originate at two levels: the University and the CISC Department. The University-level requirements may be found in the Graduate Admissions chapter of this catalog.

Applicants must also satisfy the following general departmental requirements for admission to the CISC graduate program:

1. The equivalent of a bachelor's degree at the University of Delaware. A minimum grade average of 3.2 in the major field of study and an overall cumulative index of 3.0 is required.
2. Scholarly competence in mathematics and computer programming. Applicants are expected to know the material covered by at least one undergraduate course in each of the following topics:
  - structured high-level language programming,
  - data structures,
  - computer architecture,
  - operating systems,
  - analysis of algorithms.

Additionally, applicants must have completed the equivalent of at least four undergraduate courses in the following list:

- calculus,
  - discrete mathematics,
  - probability and statistics,
  - mathematical logic,
  - comparable formal subjects, such as Theory of Computation.
3. Strong applicants lacking prerequisites are occasionally admitted provisionally on the condition that they complete specified undergraduate courses with a B or better in addition to the normal degree requirements. Students without formal course work covering the prerequisites who have gained equivalent knowledge through work or other experience should submit appropriate evidence.
  4. Minimum scores of 550, 650 and 4.0 on the verbal, quantitative, and analytical writing sections, respectively, of the Graduate Record Examination Aptitude Test.
  5. If the applicant has completed graduate courses in computer science beyond the bachelor's degree, the grades earned in these courses will be reviewed and considered in the admission decision. A minimum grade of 3.0 (B) in each of these courses is required.
  6. For applicants whose first language is not English, and who have not received a degree at a U.S. college or university, a TOEFL score of 550 or better (213 on the computer-based TOEFL) for admission without financial aid is required by the University. For applicants who seek a teaching assistantship appointment, a TOEFL score of 600 or better (250 on the computer-based TOEFL) is required. In addition, for applicants who have not graduated from an institution whose principal language of instruction is English, the Test of Spoken English is highly recommended.
  7. Three letters of recommendation from professors (preferably), employers, or others who are able to assess your potential for success in graduate studies. Use the University of Delaware recommendation form whenever possible. Any attached letter should be a signed original and, preferably, on colored letterhead from the author's institution.
  8. It is suggested, but not required, that students provide official documentation of their relative ranking within their class.

Note: Admission to the graduate program is competitive. Those who meet stated minimum requirements are not guaranteed admission, nor are those who fail to meet all of those requirements necessarily precluded from admission if they offer other appropriate strengths.

### FINANCIAL AID

A number of fellowships, research assistantships and teaching assistantships are awarded each year to full-time graduate students in the Department. Additionally, a few fellowships are awarded by the University to particularly outstanding students. Both entering and continuing graduate students are eligible to apply for financial aid.

If awarded financial aid and if satisfactory academic progress is maintained along with satisfactory performance of assistantship duties (when applicable), students entering with a bachelor's degree are normally supported up to two years for the M.S. degree, or up to five years for the Ph.D. degree. Students entering with a master's degree are normally supported up to three years.

To maintain satisfactory academic progress beyond the second year, those students entering with a bachelor's degree are expected to take and pass the Ph.D. preliminary examination after no more than three semesters of study. Students entering with an M.S. degree in Computer and Information Sciences (or a related area) are expected to take and pass the Ph.D. preliminary examination after one semester of study.

Students who receive financial aid midway in their studies should speak to the CIS Graduate Committee Chair regarding their expected length of support. With regard to financial aid, Ph.D. students are those who have passed the Preliminary Exam.

Admission to the graduate program does not automatically entitle an applicant to financial aid. Aid is awarded on a competitive basis from the pool of admitted applicants. Usually awards are made in March-May for the fall semester, and in December for the spring semester.

### REQUIREMENTS FOR M.S. DEGREE

In addition to satisfying the general requirements of the University, candidates for the Master of Science degree must satisfy both the departmental general requirements and the computer science course requirements.

An Application for Advanced Degree for the Master of Science degree should be filed with the Departmental Graduate Committee no later than the beginning of the semester in which the degree is expected. Application forms are available from the Office of Graduate Studies.

#### A. DEPARTMENTAL GENERAL REQUIREMENTS

The Departmental General Requirements include:

1. At least 9 credits of the 30 credits used to satisfy the degree requirements must be 800-level CISC courses. Credits for independent study, research and master's thesis do not count towards this requirement.
2. A minimum grade average of 3.0 is required in the graduate courses used to satisfy the degree requirements. The University also requires a minimum GPA of 3.0 in all graduate courses taken including any not used towards the required 30 credits. Students are encouraged to explore graduate courses (600 level or higher) in other areas such as electrical engineering, mathematics, linguistics, statistics, and business and economics. Graduate courses outside of Computer and Information Sciences to be used towards meeting degree requirements require written approval of the Graduate Committee.
3. Students are encouraged to participate in the research activities of the Department by taking CISC 666, CISC 866—Special Problems and Independent Study or CISC 868—Research. This is especially true of potential Ph.D. students. No more than



three credits of CISC 666, CISC 866 or CISC 868 (combined) may be applied toward meeting the degree requirements or used in satisfying the required minimum grade average without prior written approval from the Graduate Committee. (Exception for master's thesis students—see later section.)

4. **Each semester** all graduate students must explicitly register for CISC 890 – Colloquium and sign up and satisfactorily participate in one of the Department's special research interest groups. One faculty member for each group will be responsible for overseeing satisfactory participation for each student on an individual basis (e.g., simply attending, giving a presentation) and will assign a pass/fail grade accordingly. Each MS student needs 3 semesters of passed CISC 890 to graduate. Special arrangements for part-time students and those who finish in less than 3 semesters will be made.

### 3. COMPUTER SCIENCE COURSE REQUIREMENTS

Breadth requirement courses:

#### Systems

- Computer Architecture (CISC 662)
- Operating Systems (CISC 663)
- Computer Networks (CISC 650)

#### Software

- Computer Graphics (CISC 640)
- Advanced Compiler Construction (CISC 672)
- Artificial Intelligence (CISC 681)

#### Theory

- Theory of Computation (CISC 601)
- Logic (CISC 604)
- Analysis of Algorithms (CISC 621)

1. All students must take a graduate course in either algorithm design and analysis (e.g., CISC 621) or in theory of computation (e.g., CISC 601).
2. All students must take four breadth courses, including at least one in each of the three areas.
3. A grade of B- or better is required in each of the four breadth courses taken to meet the breadth requirement.
4. Substitutions or satisfaction through courses taken at another university are permitted, but require written approval by the Graduate Committee.

### 4. MASTER'S THESIS

A master's thesis is optional; successful completion requires a combination of six credits of CISC 868 and CISC 869, which are included in the thirty credits needed for the M.S. degree. Students with a high GPA and/or motivation and ability to perform research are strongly encouraged to get involved in a research project. One way to do this is to write an M.S. thesis.

Each student working on a master thesis, with the advice of the master's thesis advisor, needs to establish an advisory committee. The committee consists of 2-3 members of the faculty approved by the S Graduate Program Committee. The committee chair is a faculty member in the CIS department, and the thesis advisor. At least one other member should be a faculty member in the CIS department. The proposed advisory committee must be submitted to the Graduate Program Committee for approval. Upon completion of the master's thesis, a final oral examination must be passed, consisting of a defense of the master's thesis. The final oral examination is directed and evaluated by the student's advisory committee.

Admission to the master's degree program does not guarantee that a student can pursue a thesis since more students may desire to do a thesis than there are faculty available to guide them. A thesis student may obtain three credits of CISC 666, CISC 866, CISC 868 in addition to the six credits of CISC 868 and/or CISC 869 applied toward the M.S. thesis only if the areas of study do not overlap, as approved by the CISC Graduate Committee. The M.S. thesis student must still satisfy all other Department requirements.

### REQUIREMENTS FOR THE PH.D. DEGREE

In addition to satisfying the general requirements of the University, candidates for the Doctor of Philosophy degree must satisfy several departmental requirements. One objective of these requirements is to provide flexibility in designing an appropriate plan of study. The Ph.D. is an individualistic degree. As soon as possible in the program, each candidate should find a faculty member to act as adviser and be in charge of the candidate's research.

The candidate and advisor design a plan of study that satisfies the University and Department requirements. The Department requirements as listed below specify a minimum amount of necessary work. It is expected that additional course work will normally be required by the adviser. A minimum set of requirements provides a large degree of flexibility for each individual candidate.

#### A. DEPARTMENTAL GENERAL REQUIREMENTS

The Departmental requires the following:

1. **Course Work.** Each candidate must complete all requirements of a University of Delaware M.S. degree in Computer and Information Sciences. Candidates with a similar degree from another institution of higher education may be exempted from part or all of this requirement with the written approval of the Graduate Committee.

A candidate with a master's degree in a related field (e.g., EE, Math) must put together a program that meets the CISC Graduate Committee's approval. Using courses taken for the related graduate degree plus courses taken at Delaware, the candidate must satisfy the Computer Science course requirements for the M.S. degree, and show the equivalent of the 30 credit M.S. degree offered by the CISC Department.

Each candidate is required to complete a minimum of 6 additional credits beyond the master's degree. The 6 additional credits do not include the following courses: CISC 666, CISC 866, CISC 868, CISC 969. Normally, in meeting the University's requirement for a major area, a candidate will be required by the adviser to complete more than 6 credits.

2. **Research Ability.** Ph.D. candidates are strongly encouraged to get involved in research as early as possible in their program. As part of the process of finding an adviser, and as early as possible, candidates must demonstrate the potential to perform research. Demonstration may be in the form of independent study (CISC 666, CISC 866), research (CISC 868), working as a research assistant, or writing an M.S. thesis.
3. **Preliminary Examination.** Each candidate must pass a preliminary examination that tests a person's breadth of knowledge of computer science. This exam, normally offered annually in January, is based on subject matter usually included in a CISC undergraduate major and in one year of full-time graduate study including the core areas of the M.S. program. The detailed composition of the preliminary exam, within the constraint of testing breadth of CISC knowledge, is based upon a reading list of textbooks determined by the Graduate Committee with faculty approval. Candidates are encouraged to take the preliminary exam as early as possible. Students entering with a Bachelor's degree should normally take the preliminary exam by the end of their third semester; and those with a Master's degree should normally take it by the end of their first semester. The preliminary exam may be taken at most two times.
4. **Advisory Committee.** Each candidate, with the advice of the Ph.D. advisor, needs to establish an advisory committee (usually following the successful completion of the preliminary exam). In accordance with the University requirements, the committee consists of 4-6 members of the faculty nominated and approved by the CISC Department faculty. The committee chair is the faculty member in charge of the candidate's research.

and dissertation. At least two members represent the area of proposed research. At least one member must be from outside the CISC Department. The proposed advisory committee must be submitted to the Graduate Committee for approval. It must then be approved by the CISC faculty.

5. **Qualifying Examination.** Each candidate must pass a qualifying exam. The advisory committee prepares an examination (oral and/or written) testing a candidate's knowledge in the area of proposed research. Part of the examination includes an oral presentation of a candidate's proposed dissertation research. A student passes the qualifying exam as long as there is no more than one negative vote.

Prior to taking the qualifying exam, candidates must submit a dissertation proposal and a written plan describing their background and research interests. The proposal and plan are submitted to the advisory committee and are considered as input to the qualifying examination. Copies of "Discussion on Ph.D. Thesis Proposals in Computing Science" are available in the CIS Department Office.

The qualifying exam is normally taken one year after passing the preliminary exam. During this year a student should actively investigate research possibilities and select a dissertation topic.

6. **Dissertation.** Each candidate must complete a dissertation demonstrating results of original and significant research written in a scholarly and competent manner worthy of publication. Upon completion of the dissertation, a final oral public examination must be passed, consisting of a defense of the dissertation and a test of the mastery of a candidate's research area. The final oral examination is directed and evaluated by the student's advisory committee.
7. **Facility of Expression in English.** As part of satisfying the University's requirement that Ph.D. graduates demonstrate an ability to orally express themselves clearly and forcefully, each candidate must present his or her research results in a departmental colloquium, or one of the Department's special research interest groups within six months of the defense.
8. **Foreign Language.** There is no foreign language requirement.

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## ENGLISH

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Telephone: (302) 831-2363

For more information, please visit the department web site at [http://www.english.udel.edu/grad\\_program/](http://www.english.udel.edu/grad_program/).

### PROGRAM OVERVIEW

The Graduate Program in English offers a Master of arts and a Doctor of Philosophy degree program. The program's main objective is to prepare students to be productive scholars and excellent teachers of English studies. To achieve this goal, we offer an ambitious range of courses in English, American and Anglophone literature, literacy theory, cultural studies, film studies, theatre history, rhetoric and composition, and the history of the English language. Our students receive rigorous training in the methods of literary research and are encouraged to publish their work in scholarly and professional journals as part of their studies. They also receive pedagogical training in the teaching of writing and literature, which prepares them to teach a variety of courses. The department has a large number of full-time faculty (54), five of whom hold named chairs. Graduate students and faculty meet to share work outside the classroom in a rich array of student-faculty colloquia, scholarly lectures, and readings. The department also offers a certificate program in Business and Technical Writing.

### REQUIREMENTS FOR ADMISSION

An applicant for the M.A. program is expected to have an undergraduate major in English consisting of approximately 30 credit hours in English and American literature above the freshman level. The average in this work should be at least A-/B+ (3.5 on a scale of 1 to 4). The applicant must take the Graduate Record Examinations and is expected to score at least 1100 in the combined Verbal and Analytical tests, and at least 500 in the Advanced Test in English and American literature. Three letters of recommendation and a writing sample (a critical paper) are required.

Students with a B.A. who seek to enter the Ph.D. program must first gain admission to the M.A. program. Students who distinguish themselves in the M.A. program may then apply to enter the Ph.D. program.

Transfer students with M.A.s from other institutions may also apply for the Ph.D. program. They are expected to have an academic index of at least 3.75 in their M.A. courses, a combined score of at least 1200 in the Verbal and Analytical tests, at least 600 in the GRE Advanced Test in literature, and excellent recommendations from their graduate professors. Their writing samples should evidence strong analytical abilities.

Students are admitted into the graduate program for the Fall semester only. For students applying for funding as well as admission to the graduate program, all application materials must be postmarked by **February 15**. For those seeking admission without funding, all application materials must be postmarked by May 1. In recent years, during which the number of applicants has made the competition for admission increasingly rigorous, most of the admissions for the Fall semester have been determined by April 15.

Admission is selective and competitive based on the number of well qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other relevant strengths.

### FINANCIAL AID

The Department of English funds approximately 50 students each year, reserving awards for first-year M.A. through third-year Ph.D. students, contingent upon satisfactory progress. Funded students are granted one of the following awards: a fellowship; a teaching, research, editorial, or administrative assistantship; or a teaching assistantship in the University Writing Center. All students on stipend receive tuition scholarships and have the opportunity to purchase, at low cost, coverage under the University's Graduate Student Accident and Sickness Insurance Plan.

Teaching assistants in the classroom normally teach one section of freshman composition in one semester and two in the other semester. Experienced teaching assistants have opportunities to teach other composition and literature courses. Students who serve as research, editorial, or administrative assistants and those who teach in the Writing Center work 15-20 hours per week each semester. Students with fellowships have no teaching or other duties, depending on the nature of the fellowship held.

### REQUIREMENTS FOR THE DEGREES

The M.A. in English is granted when the following requirements have been met: (1) at least ten courses (30 credit hours), or eight courses (24 credit hours) plus thesis (ENGL 869, 6 credits); (2) demonstrated ability to work in a foreign language.

The Certificate Program in Business and Technical Writing requires five courses in the Department and two electives to prepare participants for careers in a number of professional writing specialties.

The Ph.D. is granted when the following requirements have been met: (1) at least eight courses (24 credit hours) beyond those taken for the M.A.; (2) full-time study in two consecutive semesters; (3) demonstrated ability to work in a second foreign language or advanced ability in one foreign language; (4) passing an oral comprehensive Examination; (5) passing an oral Specialty Examination; (6) writing a dissertation; (7) passing an oral examination on the dissertation and related topics.

## FINE ARTS AND VISUAL COMMUNICATIONS

Telephone: (302) 831-2244

For more information, please visit the department web site at <http://seurat.art.udel.edu>

### PROGRAM OVERVIEW

The Department of Fine Arts and Visual Communications offers individually planned programs leading to the Master of Fine Arts and the Master of Arts degrees. A program with studio concentrations is available to outstanding candidates in the areas of ceramics, painting, photography, printmaking, and sculpture. The M.F.A. program is offered to students preparing for professional careers in a studio field. The expectation is for students to attend full-time over a two-year period. Application requires presentation of a comprehensive portfolio in addition to general admission procedures. Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who do not meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

### REQUIREMENTS FOR ADMISSION

Applicants should send the completed application, transcripts, and application fee, resume, personal statement, and three letters of recommendation to the Office of Graduate Studies. In addition, the applicant should send 15 to 20 slides of their most recent work to the Department of Fine Arts and Visual Communications, Graduate Admissions Committee, University of Delaware, 104 Recitation Hall, Newark, DE 19716. Plastic slide sleeves are encouraged. (Include a self-addressed, stamped envelope in which to return the slides.) The department's application deadline is February 15 with decisions regarding admission generally made by March 15. In order for applicants to be considered for competitive fellowships and scholarships, application materials must be received by February 1. See also the chapter Graduate Admissions in this catalog.

### FINANCIAL AID

Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog.

### REQUIREMENTS FOR THE DEGREES

A minimum of 30 credits in an approved program of study, a public exhibition and a thesis are required for the M.A. degree.

A minimum of 60 credits, a public exhibition and a supporting paper are required for the M.F.A. degree. The 60 graduate credit hours required for the M.F.A. degree are distributed in the following manner:

REQUIREMENTS	CREDIT HOURS
Concentration (max 36 credits)	24 (minimum)
Thesis	9
Public Exhibition	9
Studio Electives	6
Graduate Seminar in Art	6
M.A. Supporting Paper	3
M.A. Exhibition	3
<b>TOTAL</b>	<b>60</b>

In some instances, the Department's Graduate Admissions Committee may establish additional requirements to be met by the individual student. Near the conclusion of 24-30 credit hours of graduate study, the M.F.A. candidate's progress will be reviewed by a committee to recommend any course adjustments it deems appropriate.

## FOREIGN LANGUAGES AND LITERATURES

Telephone: (302) 831-2591/2592

For more information, please visit the department web site at <http://www.flit.udel.edu/grad>

### PROGRAM OVERVIEW

The department offers two Master of Arts programs, the M.A. in Foreign Languages and Literatures and the M.A. in Foreign Languages and Pedagogy. Graduate students in French, German, and Spanish have the opportunity to spend a semester or a year abroad in Caen, Bayreuth, or Granada.

### APPLICATION FOR ADMISSION

The Department of Foreign Languages and Literatures recognizes the University application deadlines of July 1 for the Fall semester and December 1 for the Spring semester. However, students are encouraged to apply much earlier. The Department observes a policy of rolling admissions. For funding, applications should be received by February 1, as the initial round of funding decisions will be made in mid-February. Students who miss the February 1 deadline may still be considered for any teaching assistantships or graduate scholarships not assigned in February.

### FINANCIAL AID

The Department of Foreign Languages and Literatures has two principal types of awards: teaching or graduate assistantships and tuition scholarships. Teaching Assistants teach six hours per week. Students may be assigned to the classroom (6 classroom hours per week), the Media Center (20 hours per week) or to individual faculty to serve as research or administrative assistants (20 hours per week). Graduate students who teach are assigned as team-teachers of elementary or intermediate foreign language courses. Experienced instructors take the MWF portion of the 5 day-a-week course, while graduate students are responsible for the TR portion.

### STUDY ABROAD OPPORTUNITIES

Exchange programs with the Universities of Caen (France), Bayreuth (West Germany), and Granada (Spain) offer graduate students an opportunity to spend a semester or a year abroad.

## M.A. IN FOREIGN LANGUAGES AND LITERATURES

This degree program offers students a choice of several options in the study of foreign languages and literatures: a single-major plan (30 credits), a major-minor plan (36 credits), and a double-major plan (42 credits). Major fields are French, German, and Spanish. Minor fields are French, German, Spanish, Latin, Italian, Russian, Applied Linguistics/Pedagogy, and related disciplines.

### REQUIREMENTS FOR ADMISSION

The requirements for admission are:

1. B.A. or equivalent in the target language/literature, or in another appropriate discipline.
2. Undergraduate Grade Point Average of 2.9 overall, and 3.25 in the proposed M.A. major subject.
3. GRE General Test for all students. A minimum score of 1050 on the verbal/quantitative or verbal/analytical parts of the GRE is

normally required. Low GRE scores could, however, be balanced by high grades and strong letters of recommendation.

4. TOEFL for international students (550 minimum for admission to the program; 600 minimum for teaching assistantship).
5. Three letters of recommendation.
6. Applicants must submit a writing sample of at least 1000 words (this may be a paper written for an undergraduate class). In addition, candidates applying for a teaching assistantship will have a brief personal or telephone interview conducted in English and the target language.

Admission to the M.A. in Foreign Languages and Literatures is competitive. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet one or more requirements necessarily precluded from admission if they offer other appropriate strengths.

#### REQUIREMENTS FOR THE DEGREE

Depending on the option chosen, between 30 and 42 credits are required, including at least 24 in the major languages and literatures.

Candidates must pass a written and oral comprehensive examination based on reading lists in the major literature, as well as a reading competency examination in a second foreign language.

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#### M.A. IN FOREIGN LANGUAGES AND PEDAGOGY

This degree program permits students to complete all requirements for reciprocal certification, except for student teaching, in French, German or Spanish. It also allows in-service teachers to improve and perfect their language skills and to keep up to date with pedagogical advances. This degree program also offers students a choice of several options in the study of foreign languages and literatures and pedagogy: a single-major plan (30 credits), a major-minor plan (36 credits), and a double-major plan (42 credits). Major fields are French, German, and Spanish. Minor fields are French, German, Spanish, Latin, Italian, Russian, Applied Linguistics/Pedagogy, and related disciplines.

#### REQUIREMENTS FOR ADMISSION

The requirements for admission are:

1. B.A. or equivalent in the target language/literature, or in another appropriate discipline.
2. Undergraduate Grade Point Average of 2.9 overall, and 3.25 in the proposed M.A. major subject.
3. GRE General Test for all students. A minimum score of 1050 on the verbal/quantitative or verbal/analytical parts of the GRE is normally required. Low GRE scores could, however, be balanced by high grades and strong letters of recommendation.
4. TOEFL for international students (550 minimum for admission to the program; 600 minimum for teaching assistantship).
5. Three letters of recommendation.
6. Applicants must submit a writing sample of at least 1000 words (this may be a paper written for an undergraduate class). In addition, candidates applying for a teaching assistantship will have a brief personal or telephone interview conducted in English and the target language.

Admission to the M.A. in Foreign Languages and Pedagogy is competitive. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet one or more requirements necessarily precluded from admission if they offer other appropriate strengths.

#### REQUIREMENTS FOR THE DEGREE

Depending on the option chosen, between 30 and 42 credits are required, including at least 15 in the major languages and literatures and 9 in foreign language pedagogy. Course work for students planning to seek teacher certification as well as the degree consists of

34 credits, including 15 in the major language, 9 in foreign language pedagogy, and 10 in Education (EDUC 613, 614, 619, 430); these students must also pass a teacher competency test as established by the University Council on Teacher Education and must student teach. Candidates must pass a written and oral comprehensive examination based on reading lists in the major literature and in foreign language pedagogy.

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#### GEOGRAPHY AND CLIMATOLOGY

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Telephone: (302) 831-2294

For more information, please visit the department web site at <http://www.udel.edu/Geography>. Inquiries may be directed to [info@geog.udel.edu](mailto:info@geog.udel.edu)

#### PROGRAM OVERVIEW

The department offers programs leading to the Master of Arts and Master of Science degrees in geography and the Ph.D. degree in climatology. The graduate program provides the opportunity for students to interact frequently with a staff whose interests touch upon one of two particular themes: climatology, and human geography.

The climatology program emphasizes physical, synoptic, dynamic, and water budget climatology, as well as glaciology and climatic geomorphology. Climate research is directed toward solving numerous human and environmental problems.

The human geography program covers a broad range of themes approached from cultural-historical, socio-economic and humanistic perspectives. The study of landscapes, geographic ideas, perceptions and attitudes in a cross-cultural context (including philosophic and literary aspects) is another area of the program. Interdisciplinary work with other departments and colleges is encouraged.

#### RESEARCH CENTERS

A University Center for Climatic Research has been established in the department, which also houses the Office of the State Climatologist for Delaware. Facilities include laboratories for cartography, climatology, and computer analysis. Graduate students have ready access to the University's Unix cluster with a variety of high-end machines. Departmental facilities include a smaller Unix cluster and PCs. Locally supported software includes: ArcInfo and ArcView GIS, and the McIDAS/Gempak weather analysis system. All of the department's computing facilities are fully integrated into the campus and worldwide networks. The department also is well-equipped with instrumentation for microclimatic studies and possesses an abundance of digitally stored weather and climate data, principally for large scale investigations.

#### REQUIREMENTS FOR ADMISSION

General admissions requirements are an undergraduate index of 2.75 or more and combined GRE scores of at least 1050. Admission is selective and competitive based on the number of well qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths. The department will consider qualified applicants without previous background in geography, although additional preliminary work may be required.

#### FINANCIAL AID

Teaching assistantships, research assistantships and University fellowships are available to graduate students at the M.A., M.S., and Ph.D. levels. In addition, this department regularly assists students in finding fellowships via outside programs, such as NASA or American Meteorological Society fellowships. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.



## REQUIREMENTS FOR THE MASTER'S DEGREES

Students in either master's program complete (with a B average or better) a total of 24 course credits as well as a thesis (6 credits). In general, students in the human geography area will work toward the Master of Arts degree, while climatology students will pursue the Master of Science. Course work programs are tailored to the student's research interest, and each student's work is periodically reviewed. There is no special examination or language requirement.

It is the responsibility of the student in consultation with the thesis adviser to complete the thesis and to obtain acceptance by the thesis committee. A public presentation of the thesis to the department also is required.

## REQUIREMENTS FOR THE PH.D. DEGREE

Applicants to the Ph.D. program in climatology are expected to have completed a master's degree in geography-climatology, meteorology, or a related discipline. Students in this program must also have completed mathematics through ordinary differential equations (MATH 302) and must demonstrate a knowledge of at least one higher level computer programming language. Ph.D. students are expected to obtain an in-depth knowledge of two areas. One of these must be topical, such as bioclimatology, physical climatology or urban climatology, and the other must be methodological such as statistical methods, mathematics or computer science.

Students are also expected to have a broad knowledge of climatology and to demonstrate a high level of professional competence by passing a written qualifying examination, an oral examination and an oral dissertation defense. A description of the Ph.D. program in climatology can be obtained by contacting the Geography Department.

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## GEOLOGY

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Telephone: (302) 831-2569 or 831-8750

For more information, please visit the department web site at <http://www.geology.udel.edu/>

### PROGRAM OVERVIEW

The University of Delaware offers academic and research programs leading to Master of Science and Doctor of Philosophy degrees in geology to qualified students who hold bachelor's degrees in the field of geology or related science and engineering disciplines. The Department of Geology offers both field-oriented and laboratory-oriented research programs that take advantage of the University's geographic proximity to Appalachian, Atlantic Coastal Plain, and coastal terrains. Major research emphases are quaternary geology, environmental geophysics, stratigraphy and geomorphology.

The Department of Geology has cooperative programs with several nearby institutions, including the Delaware Geological Survey, and Lamont-Doherty Earth Observatory. Departmental research is frequently carried out in cooperation with other departments and with the College of Marine Studies, which has a marine field station in Lewes, Delaware, and a seagoing oceanographic research vessel, Cape Henlopen.

The department owns an x-ray diffractometer, paleomagnetic equipment, diverse computer capability including Sun Workstations, largescale digitizer, gas and liquid chromatographs, ground penetrating radar, multichannel seismic equipment, various coring and drilling equipment, laser theodolite surveying system, and has ready access to nearly all other commonly used tools of geological and geophysical research. The University of Delaware GIS computer laboratory is located in the Geology Department. The department has a stable graduate program with approximately 15. Recent graduates have found positions in environmental consulting firms, academic institutions, and federal and state geological surveys.

## REQUIREMENTS FOR ADMISSION

Admission to the graduate program in the Department of Geology is evaluated on the basis of the applicant's GRE scores, undergraduate record, three letters of recommendation and research interests. Applicants should have a combined verbal and quantitative GRE score of at least 1050. A minimum TOEFL score of 600 is required for foreign applicants for whom English is not the first language. Admission to the graduate program in the Department of Geology is selective and competitive based on the number of qualified applicants and the availability of faculty and facilities. Students who meet the minimum academic requirements are not guaranteed admission.

## REQUIREMENTS FOR THE DEGREES

Requirements for the Master of Science degree include 30 credits of graduate study (6 of which are thesis credits) and the research, preparation, and defense of a thesis. Requirements for the Doctor of Philosophy degree include a Master of Science degree, an oral and written comprehensive exam, a course program developed with the student's dissertation committee (including 9 credits of dissertation research), and the research, preparation, and defense of the dissertation. All graduate students are required to register for GEOL 601 (Geological Sciences at Delaware) during their first fall term at the University. GEOL 605 (Stratigraphy) is also required of all graduate students. For both the M.S. and Ph.D. degrees, course programs are otherwise developed on an individual basis to meet the specific needs of the student. The program of study and research is formed by student consultation with the advisor and thesis or dissertation research committee. Because of the value of the teaching experience, Ph.D. candidates are expected to teach a course or laboratory section for at least one semester.

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## HISTORY

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Telephone: (302) 831-8226

For more information, please visit the department web site at <http://www.udel.edu/History/hist/text/gradframe.html>

### PROGRAM OVERVIEW

The Department of History offers M.A. and Ph.D. programs in American history, European history, and the history of technology. In conjunction with these, it has special programs focusing on the history of industrialization and on American social and cultural history, and provides an opportunity for students to earn a certificate in Museum Studies. The Department offers more limited graduate study in Ancient, African, Asian, Latin American, and Middle Eastern history, as well as courses in history education.

Graduates from its programs hold professional positions in government, schools, museums, and historical agencies, as well as academic positions in colleges and universities.

### THE UNIVERSITY OF DELAWARE - HAGLEY PROGRAM

This program offers a core curriculum focused on the history of industrialization, with an emphasis on social, cultural, and comparative perspectives. Prospective students with interests in the history of technology, consumption, business and work may apply for fellowships for M.A. and Ph.D. work. Students may also earn a certificate from the University's Museum Studies Program.

### HISTORY OF AMERICAN CIVILIZATION

The Department of History in cooperation with the Winterthur Museum sponsors a Ph.D. program in the History of American Civilization. Based on the multidisciplinary study of American social and cultural history, the Program is distinguished by its emphasis on American material culture.



## MUSEUM STUDIES

An M.A. or Ph.D. candidate from any of the History graduate programs may qualify for a certificate in Museum Studies upon satisfactory completion of twelve credits in the Museum Studies Program. The University of Delaware is a recognized leader in education for museum careers; its graduates now staff scores of museums and historical/archival agencies across the country.

## ACCESS TO SPECIAL RESOURCES

Students who do not seek admission to the Hagley or American Civilization programs may still take the courses that these programs feature. All history programs are enriched by the University's affiliation with the Hagley and Winterthur museums and by the proximity of museums and archival collections nearby in the mid-Atlantic region.

Courses in historical editing, archaeology, archival management, and visual approaches to history are offered on a regular basis.

## REQUIREMENTS FOR ADMISSION

Programs at both the M.A. and Ph.D. levels are offered. Master's Degree applicants should have a combined verbal and quantitative GRE score of at least 1050, an overall undergraduate average of 3.0, an undergraduate history average of 3.0, and must submit 3 letters of recommendation and a history seminar paper or its equivalent. Ph.D. track applicants should have a combined GRE score of 1250, an overall undergraduate/graduate average of 3.0, an undergraduate/graduate history average of 3.5, and must submit 3 letters of recommendation and a history seminar paper or its equivalent. Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated academic requirements are not guaranteed admission nor are those who fail to meet those requirements necessarily precluded from admission, if they offer other appropriate strengths. The History Department normally admits students to all History programs for the fall semester only. The deadline for application is January 15, but early application is strongly encouraged. Students considering graduate work in history should write to the department for its bulletin "Guidelines to Graduate Programs in History."

## FINANCIAL AID

Teaching Assistantships, Stewart Fellowships, tuition scholarships, and University Fellowships are available to graduate students at the M.A. and Ph.D. levels. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.

## REQUIREMENTS FOR THE DEGREES

Candidates for the M.A. degree are required to complete 30 hours of course work, of which 21 hours must be in history. The history credits must include one of the department's five basic historiography courses, 4 reading seminars, 2 research and writing seminars or 1 research and writing seminar and a 6-credit M.A. thesis. Additionally, the Chair of the Graduate Studies Committee will review the record of each M.A. student after he or she has completed three full semesters (or 21 credits) of graduate study. On the basis of this review, the Graduate Chair will inform the student whether he or she is making satisfactory progress toward the M.A. degree.

The Ph.D. degree recognizes the candidate's command of specific fields of history as well as the ability to conceive and execute a Ph.D. dissertation. The following specific requirements must be met: completion of 30 credits of graduate work of which at least 24 must be in history; the history credits must include 2 of the Department's 5 basic historiography courses, 4 reading seminars, and 2 research and writing seminars; demonstration of reading

competence in a foreign language (faculties in certain specialties require additional language or skill requirements); passage of major and minor field exams; a defense of the dissertation prospectus within six months of passing exams, and a presentation of a dissertation-based research paper to a departmental assembly of faculty and graduate students within a year of passing exams. After the preceding requirements have been met, the candidate must finish a dissertation and defend it in an oral exam.

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## LIBERAL STUDIES

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Telephone: (302) 831-6075

For more information, please visit the department web site at <http://www.udel.edu/mals/index.html>

## PROGRAM OVERVIEW

Designed primarily for adult, vocationally established individuals, the M.A.L.S. degree offers interdisciplinary graduate education centered in the humanities. The M.A.L.S. program emphasizes the history of ideas and the connections between fields of learning, encouraging a multidisciplinary approach to knowledge.

## REQUIREMENTS FOR ADMISSION

Requirements for admission differ from the traditional graduate programs offered at the University. The requirements include an official transcript of previous undergraduate and graduate studies, three supporting letters (not the form from the Graduate Studies Office) from individuals who can discuss the applicant's strengths and capabilities, and a short essay of about three pages describing the applicant's intellectual interests and how the applicant thinks these can be developed in the M.A.L.S. program. After preliminary screening, promising applicants will be invited to an interview after which the final admission decision will be made.

Admission is selective and competitive based on the number of well qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

## REQUIREMENTS FOR THE DEGREE

Students working for the M.A.L.S. degree must take two interdisciplinary core courses, choose a series of interdisciplinary electives designed specifically for the program, and complete either a master's thesis or a synthesis project. By advisement of the Director and with consent of the course instructor, M.A.L.S. students may enroll in regular graduate offerings in the participating departments.

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## LINGUISTICS

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Telephone: (302) 831-6806; Fax: (302) 831-6896

For more information, please visit the department web site at <http://www.ling.udel.edu>

## PROGRAM OVERVIEW

The Department of Linguistics offers programs leading to M.A. and Ph.D. degrees in Linguistics. The M.A. in Linguistics is a flexible degree, allowing students to design programs of study in areas of theoretical linguistics, applied linguistics (including teaching English as a second language) and cognitive science. Areas for Ph.D. specialization include theoretical linguistics (syntax, semantics, phonology, morphology), psycholinguistics (first and second language acquisition, language processing, neurolinguistics), and applied linguistics. The Department of Linguistics also administers the program in Cognitive Science.

**REQUIREMENTS FOR ADMISSION**

Students with a B.A./B.S. or M.A./M.S. in linguistics or in an appropriate field may apply (Students without a degree in linguistics proper may be asked to take additional courses to meet minimum training in linguistics.) Applicants are required to submit a completed application, a writing sample, three letters of recommendation, GRE scores (a minimum of 1050 on verbal and math combined is normally required; the analytical score is also considered), and official transcripts of all previous work. Foreign students whose native language is not English must also submit scores on the TOEFL, on which a minimum of 550 is normally required. For these foreign students, the TOEFL score will be considered as the verbal section of the GRE when the TOEFL score is higher. In all cases, however, scores on all sections of the GRE must be submitted. Foreign students whose native language is not English and who are awarded a teaching assistantship must meet the Graduate School requirement for performance on either the Speak Test or the Test of Spoken English (TSE). The TSE may be taken overseas at any TOEFL center. Students should consult the appropriate section of the catalog for details of this requirement.

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

**FINANCIAL AID**

Financial aid is available for Ph.D. students only and takes the form of teaching assistantships, graduate assistantships and research assistantships. Conditions on funding are stated in the Graduate Guidelines available from the department's Director of Graduate Studies.

**REQUIREMENTS FOR THE MASTER'S DEGREE**

For the M.A. degree, students must complete 30 credit hours planned in consultation with the student's advisor and the Director of Graduate Studies. To acquire an understanding of the basic concepts of linguistics, students must take at least one course in three of the following core areas of linguistics: syntax, phonology, morphology, semantics, sociolinguistics and psycholinguistics. In the 30 credits, at least one of the following courses must be included: Ling 608 Phonology II, Ling 610 Syntax II, or any 800-level seminar offered by the Department of Linguistics. Courses which satisfy the requirement in each of these areas follows: (No one course may be counted toward more than one area.)

**Required Courses: 18 credits**

**Syntax:**  
LING 609 Syntax I  
or  
LING 677 Structure of English  
or  
a course in the structure of a language provided that the course covers syntax.

**Phonology:**  
LING 607 Phonology I  
or  
a course in the structure of a language provided that the course covers phonology

**Morphology:**  
LING 612 Introduction to Morphology  
or  
a course in the structure of a language provided that the course covers morphology

**Semantics:**  
LING 691 Semantics I

**Sociolinguistics:**

LING 617 Language Planning  
or  
LING 676 Second Language Acquisition and Bilingualism  
or  
LING 680 Introduction to Sociolinguistics  
or  
LING 697 Sociolinguistics of English in the Inner City

**Psycholinguistics:**

CGSC 696 Psycholinguistics  
or  
LING 675 Language Acquisition  
or  
LING 676 Second Language Acquisition and Bilingualism

**Other Required Credits:**

3 credits of either CGSC or LING 800-level seminar  
9 credits of electives chosen in consultation with the advisor and the Director of Graduate Studies

**REQUIREMENTS FOR THE PH.D. IN LINGUISTICS**

Students are required to take 60 credits beyond the B.A./B.S. including 9 dissertation credits. Students entering with a credited M.A./M.S. in an appropriate area as determined by the department must take 30 credits including 9 dissertation credits. All transfer credit must be in accord with the rules of the Graduate Office; approval of transferred courses is at the discretion of the Committee on Graduate Studies of the Department of Linguistics.

**All students must complete:**

CGSC 696 Psycholinguistics  
LING 607 Phonology I  
LING 608 Phonology II  
LING 609 Syntax I  
LING 610 Syntax II

**Other Required Credits:**

3 CGSC or LING 800-level seminars (9 credits) chosen in consultation with the student's advisor and the Director of Graduate Studies  
27 credits of CGSC or LING courses, chosen in consultation with the student's advisor and the Director of Graduate Studies so as to have an appropriate balance of work in the subfields of linguistics and, at the same time, to be directed toward the major areas of research interest.

**Qualifying Examination****Qualifying Paper**

Students must complete one publishable research paper before admission to Doctoral Candidacy

**Language Requirement**

Students whose native language is English are required to demonstrate proficiency in a language other than English. The goal is for students to be able to function as a professional in the field of linguistics in general and in their chosen area of specialization. Proficiency may be either written or spoken. Students are responsible for presenting a rationale for the selection of a particular language and for requesting a speaking or reading proficiency test. Students whose native language is not English will be assumed to have proficiency in English and will have thereby satisfied the proficiency requirement. The language requirements must be satisfied prior to the acceptance of the Dissertation Prospectus. No language examinations taken at any other school will fulfill any language requirement.

**Dissertation Prospectus**

LING 969 Doctoral Dissertation (9 credits)

**PROGRAM IN COGNITIVE SCIENCE**

The program in Cognitive Science is administered by the Department of Linguistics. While there is no formal graduate degree in Cognitive Science, the Ph.D. in Linguistics allows a secondary specialization in Cognitive Science, and advanced degrees in related disciplines (e.g., Psychology) also permit students to develop concentrations in the field. There are also regular graduate course offerings in Cognitive Science that allow individualized training in the field.

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## MATHEMATICAL SCIENCES

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Telephone: (302) 831-2346

For more information, please visit the department web site at <http://www.math.udel.edu>

### PROGRAM OVERVIEW

The Department of Mathematical Sciences offers programs of study leading to the degrees of Master of Science and Doctor of Philosophy in Applied Mathematics and in Mathematics.

Most of the major areas of mathematics are included among the research interests of the faculty of the department, but the areas most heavily represented are applied mathematics, partial differential equations, integral equations, inverse problems, discrete mathematics, topology, and probability.

Each of the graduate programs in the department is relatively small allowing for close contact between graduate students and faculty. Individual attention is common. There are several active seminars on research topics and there is steady additional stimulus from professional visits by scientists from the U.S. and abroad.

### REQUIREMENTS FOR ADMISSION

Admission to the graduate programs in Applied Mathematics and Mathematics is open to students who have completed the equivalent of a baccalaureate degree in mathematics or related fields, and have a sound preparation in linear algebra and advanced calculus. On a 4.0 system, applicants should have a GPA of at least 2.5 and an average of at least 3.0 in mathematics and related areas. Applicants who have completed an advanced degree must have done so with a GPA of at least 3.0. In addition, applicants must take the GRE Aptitude Test.

### FINANCIAL AID

Students holding assistantships are expected to perform satisfactorily in their assigned duties and to make good progress in their academic work. Renewal of financial aid is not automatic. Due to the size of our program, we can only offer financial aid for up to 10 semesters for students entering with a Bachelor's degree; those entering with a Master's degree for up to 8 semesters. The department, however, will make every attempt to provide some form of funding for qualified students. First year teaching assistants are required to attend teaching workshops scheduled by the department.

For continued support beyond the 3rd year, a student entering with a Master's degree must pass the Candidacy Exam by the beginning of his/her 4th semester in order to be offered continued support beyond the 2nd year. For a student who does not pass the Candidacy Examination on the first try, there is no guarantee for support for the following academic year. However, a student may make a second and final attempt to pass the Candidacy Examination, and if the attempt is successful, the department will make every effort to secure funding for such a student.

### REQUIREMENTS FOR THE MASTER'S DEGREE

Master's degree students must complete 30 hours of course work beyond the Bachelor's degree. Students must maintain a GPA of 3.0 or better.

**Core requirements (18 credit hours):** MATH 600, MATH 602, MATH 611, MATH 616, MATH 672, and one of MATH 617 or MATH 650.

Complete an additional 12 hours of course work at or above the 600 level. Pass M6xx (graduate student seminar-Fall 1st year) and M6xx (attend 8 scheduled seminars-colloquia in Spring, 1st year).

### REQUIREMENTS FOR THE PH.D. DEGREE

Students with no prior graduate course work must complete 48 credit hours of courses, plus an additional 9 credits of MATH 969

(Doctoral Dissertation). A maximum of 6 credit hours of research (MATH 868) is allowed to count as an elective in the 48 credit hour requirement. Of the 48 hours, a maximum of 27 credit hours of 600-level courses in the mathematics department is allowed. All electives must be approved by the graduate committee. After completing their course requirements, students are expected to enroll for at least one course each semester (which may be as a listener) in addition to MATH 964 or MATH 969. A GPA of 3.0 or better must be maintained.

1. All Applied Mathematics and Mathematics students must complete the requirements for MS and pass the **Preliminary Examination** based on MATH 600, MATH 602, (Advanced Calculus) and MATH672 (Linear Algebra). Students entering with Bachelor's degrees are required to pass the Preliminary Examination by the beginning of their 4th semester (by the beginning of their 2nd semester for students entering with Master's degrees). Students who do not meet this requirement are recommended for dismissal.
2. Complete 48 hours of scheduled courses at the 6xx or higher level, of which a maximum of 27 hours may be 6xx level courses in the Mathematics Department.
3. Pass the oral candidacy Examination by a committee of at least 3 faculty members.
4. Doctoral Dissertation (9 credits): MATH969. Additional requirements. (33 credits)

**Candidacy Exam:** A student entering with a Bachelor's degree must pass the oral Candidacy Exam by the beginning of his/her 6th semester of study (by the 4th semester of study for those entering with a Master's degree). A second and final attempt is permitted. Dismissal will be recommended for a student who does not pass the Candidacy Exam on the second try.

In this examination a student must choose 2 topics from Algebra, Analysis, Applied Mathematics, Discrete Mathematics and Numerical and Functional Analysis. The exams are based on MATH 650 and MATH 845 (Algebra), MATH 805, and MATH 807 (Analysis), MATH 616, MATH 617 and MATH 810/MATH 835 (Applied Mathematics), MATH 688 and MATH 689 (Discrete Mathematics), and MATH 611, MATH 612 and MATH 806 (Numerical and Functional Analysis). Another subject area may be substituted for one of the above by petition to the graduate committee based on two graduate level courses and supported by a faculty member.

**Language Requirement:** The department requires the Ph.D. candidate to have reading knowledge of one of four languages: French, German, Italian or Russian. Substitutions may be allowed upon petition.

**Dissertation:** A student must successfully defend his/her dissertation in front of a committee consisting of the dissertation advisor and no less than three additional members, one of whom must be from outside the department. The dissertation must contain original publishable results.

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## MUSIC

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Telephone: (302) 831-2577

For more information, please visit the department web site at <http://www.music.udel.edu>

### PROGRAM OVERVIEW

The Department of Music offers master's degree programs for students seeking advanced study in music. The degree Master of Music has two main purposes: (1) To provide instruction for gifted performers as they enter the professional world of orchestral, recital, and solo performance; or, (2) To enhance and upgrade the credentials and abilities of K-12 music educators, individuals preparing to enter

doctoral-level programs in performance, and students intending to teach in postsecondary level institutions where the master's degree is required.

Students may choose between three concentrations: Performance (emphasizing studio instruction or conducting, and culminating in a public recital), Teaching (directed towards music educators in grades K-12 who desire a master's degree in this discipline), or Composition.

### RESEARCH FACILITIES

Music study is enriched by the well-equipped and modern facilities in the Amy E. du Pont Music Building, with its large rehearsal rooms, ample practice rooms and Loudis Recital Hall. An excellent collection of scores, books, and music journals is housed in the University's Morris Library. In addition, the department's Music Resources Center contains study scores and chamber music, as well as a fine collection of audio and video recordings. The building also houses extensive electronic equipment to support the work in computer and video-disc technology which has earned the department international acclaim.

### REQUIREMENTS FOR ADMISSION FOR THE MASTER'S DEGREE

The entering student is expected to have an undergraduate degree in music. The applicant must also submit a transcript of all previous academic work to the Office of Graduate Studies, revealing an acceptable grade-point average (normally 3.0). The student must also submit a statement of professional goals and three letters of recommendation to the Office of Graduate Studies. Students applying for admission to the Performance Concentration must pass an audition.

Applicants must perform satisfactorily on the department's music theory placement test prior to enrolling in MUSC 695 (Advanced Analytical Techniques). Any and all deficiencies indicated must be corrected before the student may enroll in MUSC 695. This may be accomplished through enrollment in one or more existing undergraduate music theory courses or through a program of self-study, tutoring, or laboratory work. The department's Coordinator of Graduate Studies will prescribe remedial action, if any, appropriate for each person. The student will be required to retake and pass the portions of the exam in which deficiencies were found before enrolling in MUSC 695. Applicants must also perform satisfactorily on the music history qualifying exam within the first year of matriculation in the Master of Music program. Students may take the music theory placement exam or the music history qualifying exam only three times. Any student failing to pass either exam on the third try will no longer be able to continue in the Master of Music program.

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

### FINANCIAL AID

Graduate assistantships are available to a select number of full-time students. The applicant should contact the department for information. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.

### REQUIREMENTS FOR THE MASTER'S DEGREE

#### I. PERFORMANCE CONCENTRATION

##### Courses:

Students are required to complete 35 credit hours (maintaining a grade average of B or better) to be granted the degree Master of Music: Performance. All students take the following:

MUSC 601	Master's Recital	2
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MUSC 603	Chamber Music Literature	3
MUSC 605	Symphonic Literature (for those students whose major is an orchestral instrument)	3
or		
MUSC 602	Advanced Keyboard Literature (for those students whose major is piano or organ)	
MUSC 611	Studies in Music History	3
MUSC 620	Large Ensemble	2
MUSC 621	Chamber Ensemble	1
MUSC 622	Materials and Methods of Research	3
MUSC 661	Advanced Private Study	3
MUSC 662	Advanced Private Study	3
MUSC 663	Advanced Private Study	3
MUSC 681	Pedagogy and Literature	3
MUSC 695	Advanced Analytical Techniques	3
ELECTIVE	Music or Non-Music elective	3

##### Other Requirements:

The culmination of the degree is a public recital (MUSC 601), which is preceded by an acceptable recital-approval hearing. In addition, toward the end of the course of study, the student must pass an oral examination.

#### II. PERFORMANCE CONCENTRATION (VOICE)

##### Courses:

Students are required to complete 34 credit hours (maintaining a grade average of B or better) to be granted the degree Master of Music: Performance. All students take the following:

MUSC 601	Master's Recital	2
MUSC 608	Vocal Literature	3
MUSC 609	Choral Music Literature I	3
or		
MUSC 610	Choral Music Literature II	3
MUSC 611	Studies in Music History	3
MUSC 620	Large Ensemble	1
MUSC 621	Chamber Ensemble	1
MUSC 622	Materials and Methods of Research	3
MUSC 661	Advanced Private Study	3
MUSC 662	Advanced Private Study	3
MUSC 663	Advanced Private Study	3
MUSC 681	Pedagogy and Literature	3
MUSC 695	Advanced Analytical Techniques	3
ELECTIVE	Music or Non-Music elective	3

##### Other Requirements:

The culmination of the degree is a public recital (MUSC 601), which is preceded by an acceptable recital-approval hearing. In addition, toward the end of the course of study, the student must pass an oral examination.

#### III. PERFORMANCE CONCENTRATION (CONDUCTING)

##### Courses:

Students are required to complete 33 credit hours (maintaining a grade average of B or better) to be granted the degree Master of Music: Performance. All students take the following:

MUSC 600	Master's Performance in Conducting	2
MUSC 603	Chamber Music Literature	3
MUSC 611	Studies in Music History	3
MUSC 620	Large Ensemble	1
MUSC 621	Chamber Ensemble	1
MUSC 622	Materials and Methods of Research	3
MUSC 661	Advanced Private Study	4
MUSC 662	Advanced Private Study	4
MUSC 695	Advanced Analytical Techniques	3
ELECTIVE	Music or Non-Music elective	3

Students specializing in Instrumental Conducting:

MUSC 605	Symphonic Literature	3
MUSC 606	Wind Literature	3

Students specializing in Choral Conducting:

MUSC 609	Choral Music Literature I	3
MUSC 610	Choral Music Literature II	3

##### Other Requirements:

The culmination of the degree is a public recital (MUSC 600), which is preceded by an acceptable recital-approval hearing. In addition, toward the end of the course of study, the student must pass an oral examination.

**IV. TEACHING CONCENTRATION****Courses:**

Students are required to complete 30-31 credit hours (maintaining a grade average of B or better) to be granted the degree Master of Music: Teaching. All students take the following:

**Core Courses (9 cr.):**

MUSC 611	Studies in Music History	3
MUSC 622	Materials and Methods of Research	3
MUSC 695	Advanced Analytical Techniques	3

**Music Education Courses (6 cr.):**

MUSC 640	Philosophical Issues in Music Education	3
MUSC 676	Seminar in Music Education	3

**Specialization Component (3-4 cr.):**

Students can elect one of three areas of specialization: Choral, Instrumental, or General Music K-12. The courses for each are as follows:

**Choral**

MUSC 636	Advanced Choral Conducting	3
MUSC 638	Large Ensemble Practicum (Large Ensemble to be chosen with the approval of the faculty advisor)	1

**OR****Instrumental**

MUSC 637	Advanced Instrumental Conducting	3
MUSC 638	Large Ensemble Practicum (Large Ensemble to be chosen with the approval of the faculty advisor)	1

**OR****General Music K-12**

MUSC 675	General Music K-12	3
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**Thesis or Project (6 cr.):**

Students can elect to write a thesis or pursue a project in which they develop and implement a teaching portfolio. The courses for each are as follows:

**Thesis**

MUSC 869	Master's Thesis	6
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**OR****Project**

MUSC 679	Professional Improvement Project I	3
MUSC 680	Professional Improvement Project II	3

**Elective Courses (6 cr.):**

All elective courses must be approved by the Music Education Advisor. The courses must be graduate-level courses, and they may be taken in music or in other departments.

**V. COMPOSITION CONCENTRATION****Courses:**

Students are required to complete 33 credit hours (maintaining a grade average of B or better) to be granted the degree Master of Music: Composition. All students take the following:

MUSC 601	Master's Recital	3
MUSC 611	Studies in Music History	3
MUSC 621	Chamber Ensemble: Still Breathing	3
MUSC 622	Materials and Methods of Research	3
MUSC 661	Advanced Private Study: Conducting	3
MUSC 661	Advanced Private Study: Composition	3
MUSC 662	Advanced Private Study: Composition	3
MUSC 684	Recording Techniques	3
MUSC 688	Principles of Music Industry Practicel	3
MUSC 695	Advanced Analytical Techniques	3

**Elective:**

MUSC 631	Advanced Arranging	3
or		
MUSC 663	Advanced Private Study: Composition	3
or		
MUSC 697	Advanced Jazz Harmony	3

**PHYSICAL THERAPY**

Telephone: (302) 831-8910

For more information, please visit the department's web site at <http://www.udel.edu/PT>

**PROGRAM OVERVIEW**

The Physical Therapy Department offers a Doctorate of Physical Therapy (DPT) degree program. This entry-level degree program qualifies the graduate to sit for the physical therapy licensure examination in any state in the country. The Commission on Accreditation in Physical Therapy Education accredits the program.

The Physical Therapy Department is housed in McKinly Laboratory and has modern well-equipped laboratories for research, teaching, and clinical practice. In addition, there are three on-site physical therapy practice clinics, which are staffed by licensed physical therapists.

**REQUIREMENTS FOR ADMISSION**

Candidates with baccalaureate degrees from accredited colleges and universities will be eligible to apply for admission into the Doctorate in Physical Therapy graduate program. Applicants must follow the application procedures outlined in the University of Delaware graduate catalog. Thirty-two students will be admitted annually to the program.

Admission to the program is competitive. Acceptance is based on demonstrated academic excellence, evidence of physical therapy clinical experience, the required essay, and letters of recommendation. Acceptance will be based on the stated criteria and not based on race, sex, creed, or national origin. The minimum entrance requirements for the graduate entry-level physical therapy program will be:

- A bachelor's degree from an accredited institution
  - Graduate Record Examination Scores (combined verbal and quantitative scores of 1050)
  - Documented volunteer or paid clinical experience in physical therapy (100 hours minimum)
  - Three letters of recommendation (2 from a PT; 1 from a Professor)
  - If requested, an interview with the admissions committee.
- Students whose first language is not English must achieve a minimum score of 550 on the Test of English as a Foreign Language (TOEFL)

Specific coursework requirements will include:

- English Writing - 1 course (3 credits)
- Psychology- Introductory - 1 course (3 credits)
- Psychology Upper Level - 1 course (3 credits)
- Introductory Statistics - 1 course (3 credits)
- Calculus Introductory - 1 course (3 credits)
- Chemistry w/ lab Introductory - 2 courses (8 credits)
- Physics w/ lab Introductory - 2 courses (8 credits)
- Introductory Biology w/ lab 2 courses (8 credits)
- Human or Mammalian Physiology - 1 course (3 credits)

**REQUIREMENTS FOR THE DEGREE**

The DPT program requires 103 hours of graduate course work. These hours are in such areas as didactic instruction, experiential laboratories, research, clinical internships and other equivalent academic experiences. Full-time clinical internships comprise 12 credit hours of the curriculum and occur at a variety of health care facilities located primarily on the east coast. The program is full-time and of two and one-half years duration, including all summer and winter sessions. Part-time matriculation is not typically permitted.



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## PHYSICS AND ASTRONOMY AND THE BARTOL RESEARCH INSTITUTE

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Physics Telephone: (302) 831-2661 or 831-2662

Bartol Telephone: (302) 831-8111

For more information, please visit the department web site at <http://www.physics.udel.edu> or the Institute web site at <http://www.bartol.udel.edu>

### PROGRAM OVERVIEW

The Department of Physics and Astronomy and the Bartol Research Institute offer joint graduate programs leading to the M.A., M.S., and Ph.D. degrees. The Department and Institute are located in Sharp Laboratory, which houses a physics library, research and teaching laboratories, a fully equipped and staffed machine shop, and electronics shop. Ample computing facilities are available, including access to the Internet and national supercomputing centers.

The faculty of the Joint Graduate Program (JGP) are involved in a variety of experimental and theoretical research activities focused on the areas of condensed matter and materials physics, atomic and molecular physics, astronomy, astrophysics, and space physics, and high energy physics. In-house experimental research laboratories are well equipped for studies of condensed and molecular matter. Off-campus research activities involve high altitude balloon flights, a worldwide network of neutron monitors, and cosmic ray and solar observatories in Antarctica. Faculty also conduct research at national laboratories, both in the U.S. and abroad, and make frequent use of ground- and space-based astronomical observatories.

### REQUIREMENTS FOR ADMISSION

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty, facilities and financial resources. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths. A minimum undergraduate grade point average of 3.2 or its equivalent is recommended for admission. In addition, scores for the Graduate Record Exam (GRE), Verbal, Quantitative and Analytic, and the GRE Physics Subject Test are required. A complete official transcript or equivalent certified written record of academic work to date is also essential. This should list the courses taken and the individual grades awarded. At least three letters of reference should be sent independently by professors or others who are familiar with the applicant's academic work. For students whose first language is not English, the Test of English as a Foreign Language (TOEFL) is required. For financial support, a TOEFL score exceeding 600 is required. Of the reference letters, at least one should be from someone familiar with graduate study in the U.S.A. and at least one should address the applicant's English speaking ability.

### FINANCIAL AID

Financial aid is available to graduate students in the form of teaching assistantships, research fellowships, and University fellowships. Inquiry regarding these appointments may be made when applying for admission. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.

### REQUIREMENTS FOR THE DEGREES

The M.A. degree program requires 30 credit hours of graduate level formal course work, at least 24 of which are taken in PHYS. The course work will not be accomplished merely by accretion of scattered credits, but will be methodically planned in consultation with the student's faculty advisor. In appropriate circumstances a project entered under PHYS 868 could be submitted for as many as 3

of the credits of formal course work. Because it requires neither research nor a thesis, the M.A. degree can be completed more rapidly than the M.S. degree and may be the more suitable for students able to attend only on a part-time basis. But the M.A. degree is viewed as a terminal degree, and its recipients will not normally be considered for candidacy in the M.S. or Ph.D. programs in Physics.

Twenty-four credit hours of course work are required for the M.S. degree; at least 6 must be in 800-level courses in physics. Approval of the department review committee is required if more than 6 of these 24 are from departments other than physics or if any are in a discipline unrelated to physics. In addition, 6 credit hours of thesis (PHYS 869) must be completed. After the M.S. thesis is completed, the candidate defends the thesis in an oral examination administered by the thesis committee.

Prospective Ph.D. candidates are frequently chosen from among those who have successfully completed a master's degree program either at Delaware or elsewhere. However, a physics graduate student may bypass the M.S. degree by:

1. Taking and passing the Ph.D. qualifying examination within two years of entering graduate work (two and one-half years for students admitted in January), and
2. Taking and passing, with a grade of B (3.000) or better, 30 credits of course work within the first five semesters after entering graduate work. At least 21 of these credit hours must be from among PHYS 607/8, and 800-level physics courses.

A student entering the department with a master's degree must either:

1. Take at least 12 credit hours of course work during the first year, including 6 at the 800 level, and take the qualifying exam within one year, and pass it within two years;

#### OR

2. Satisfy the bypass option mentioned above.

All Ph.D. students must take a minimum of 12 credit hours of classroom course work beyond the core curriculum. These courses must be at or above the 600 level and be in physics or physics-related areas.

The qualifying examination, which is based on a core of graduate-level courses, is given twice per year, in late August and in early February. The Ph.D. candidate must pass this examination within three and a half years after arriving at Delaware. Most students take the examination for the first time at the end of their second year.

Upon successful completion of a research program, the candidate is required to pass a final oral examination that includes the defense of the dissertation and discussion of relevant material. Progress of a student through the graduate program is reviewed regularly by a departmental review committee.

The research content of the M.S. and Ph.D. program can be chosen from among current faculty research activities within astronomy, astrophysics, atomic and molecular physics, biophysics, condensed matter and materials physics, cosmic ray physics, nuclear and elementary particle physics, and solar and space physics. More detailed information on research areas and facilities is contained in a departmental brochure available upon request.

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## POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

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Telephone: (302) 831-2356

For more information, please visit the department web site at <http://www.udel.edu/poscir>

### PROGRAM OVERVIEW

The Department of Political Science and International Relations offers both master's and doctoral degrees. The graduate program is a Ph.D. focused program consisting of coursework during the first five semesters followed by dissertation research and writing. A limited

number of students interested in a terminal master's degree will be admitted to a master's track. The master's degree is a two-year, 38 credit hour program. The Ph.D. program is a 62 credit hour program. Students admitted to the master's track but who wish to pursue the Ph.D. degree may apply to the Ph.D. program during their second year of the graduate program.

Graduate study in the department is organized around the theme of global governance. Global governance may be defined as an approach to politics and public policy that transcends the nation-state and its formal institutions of government. It is global because it recognizes that virtually all problems on the public agenda – environment, public health, crime, migration, etc – transcend in their scope, source, and solution national boundaries. It is governance (rather than “government”) because non-formal, non-state actors – nongovernmental organization, interest groups, professional associations, and so forth – have increasingly been accorded legitimacy in rule-making and rule-enforcement. The global governance perspective does not insist that the traditional nation-state has collapsed, or even that such a collapse is inevitable. It does suggest, however, that we will increasingly live in a world characterized by powerful tensions between the formal governmental institutions of individual nation-states on the one hand and a vast array of transnational, non-state forces on the other. It is this tension, with each set of forces laying claim to political legitimacy, that will shape the politics of the next century.

### REQUIREMENTS FOR ADMISSION

Applicants for financial aid should submit completed applications by February 1. Except for unusual circumstances, all other completed applications should be received by May 15 for admissions effective the following September.

To be accepted into the program students are evaluated on several criteria:

1. Performance on the GRE (normally a minimum of 1100 for the combined verbal and math aptitude scores)
2. Undergraduate grade-point averages (normally a 3.0 overall and 3.25 in major field and a 3.5 in any prior graduate work in political science).
3. Three letters of recommendation.
4. For international students, a TOEFL score (normally at least 600).

Using all of these variables, the department attempts to predict the candidate's success (e.g. low GRE scores could be balanced by high grades and very strong recommendations). Applicants are encouraged to submit examples of written work.

In addition, admission to the graduate program is affected by the number of well-qualified applicants and the limits of available faculty. Those who meet stated minimum academic requirements are not guaranteed admission.

Master's students who would like to enter the Ph.D. track must pass the Ph.D. qualifying exam.

### FINANCIAL AID

1. Financial aid is available to graduate students in the form of teaching assistantships, research fellowships, tuition scholarships, and University fellowships. These awards are merit based.
2. Students who receive teaching assistantships or fellowships must achieve a grade of B or higher in every course while taking a minimum of 9 credit hours per semester (unless fewer than 9 credits are needed to complete the credit requirements for the degree).
3. Students who receive teaching assistantships or fellowships are normally committed to work 20 hours per week and must satisfactorily fulfill the requirements of their positions.

4. Any student who, in the judgment of the Director of Graduate Studies, with the advice of the graduate faculty, fails to demonstrate sufficiently strong performance in his or her studies, research, and teaching (as applicable) will be subject to the suspension of his or her teaching assistantship, fellowship, or tuition scholarship.

### REQUIREMENTS FOR THE DEGREES

Each student will complete a minimum of 38 credits.

#### 1. Core Global Governance Courses: 12 credits

POSC 815	Introduction to Statistical Analysis for Political Science
POSC 830	International Relations Theory
POSC 843	Global Governance Theory and Cases
POSC 806	Normative Issues in Global Governance

#### 2. Track Courses: 15 credits.

Each student will choose and declare one of three tracks within the global governance program by the end of their first semester. Track requirements consist of the completion of two required track courses and three elective track courses. The tracks and courses are listed below:

##### Track 1: America and the World

###### Required Courses:

POSC 808	American Political System
POSC 813	American Foreign Policy

###### Elective Courses:

3 from the following list and additional courses as approved by the Director of Graduate Studies. NOTE: American Foreign Policy and American Political System lists are only suggestive:

###### American Foreign Policy

POSC 604	International Law
POSC 615	Force and World Politics
POSC 640	Intl Dev Policy and Admin
POSC 656	Politics and Disaster
POSC 804	Post Industrial Systems
POSC 840	Intl Political Economy

###### American Political System

POSC 614	Judicial Process
POSC 653	Politics and Healthcare
POSC 686	State and Local Government
POSC 803	Public Administration
POSC 805	Public Law
POSC 818	Environmental Pol. & Admin
POSC 835	Organization & Management
POSC 838	Public Policy Analysis

##### Track 2: Global Processes and Transnational Issues

###### Required Courses: (choose 2 from the following three courses)

POSC 844	International Security Course
POSC 842	International Organization Course
POSC 840	International Political Economy

###### Elective Courses:

3 from following list and additional courses as approved by the Director of Graduate Studies.

POSC 604	International Law
POSC 612	Post-USSR Foreign Policy
POSC 615	Force and World Politics
POSC 628	Comparative Environ Policy
POSC 629	Southeast Asia and World
POSC 639	Problems African Politics
POSC 640	Intl Dev Policy and Admin
POSC 642	Problems W European Pol
POSC 643	Chinese Foreign Policy
POSC 650	Problems Latin Amer Pol
POSC 653	Politics and Healthcare
POSC 656	Politics and Disaster
POSC 802	Developing & Trans Sys
POSC 804	Post Industrial Systems
POSC 813	American Foreign Policy
POSC 818	Environmental Pol Admin
POSC 820	Intl Persn on Energy & Env
POSC 838	Public Policy Analysis
Other Courses as Approved by Graduate Director	

**Track 3: A Comparative Perspective****Required Courses:**

- POSC 802 Developing and Transitional Systems  
 POSC 804 Post Industrial Systems

**Elective Courses:**

3 from the following list and additional courses as approved by the Director of Graduate Studies

- POSC 604 International Law  
 POSC 627 Latin American Pol Sys  
 POSC 628 Comparative Environ Policy  
 POSC 629 Southeast Asia and World  
 POSC 632 Post Soviet Systems  
 POSC 633 African Politics  
 POSC 639 Problems in African Politics  
 POSC 640 Intl Dev Policy and Admin  
 POSC 642 Problems W European Pol  
 POSC 643 Chinese Foreign Policy  
 POSC 650 Problems in Latin Amer Pol  
 POSC 653 Politics and Healthcare  
 POSC 808 American Pol Institutions  
 POSC 813 American Foreign Policy  
 POSC 820 Intl Persp on Energy & Env  
 POSC 840 Intl Political Economy  
 Other Courses as Approved by Graduate Director

**3. Elective Courses and COGGS: 11 Credits**

Students must take an additional three courses over the course of their program and the Colloquium on Global Governance and Society for one credit each spring of their first two years. One of the three elective courses must be a research methods or philosophy of inquiry course. This course must be approved by the Graduate Director.

**4. Writing requirement**

Students will prepare a major research paper in at least one course. For the purposes of this requirement, the Department understands a "major research paper" to be one that addresses an important and well-defined topic, demonstrates mastery of the pertinent literature, strives to make an original contribution to knowledge, and is presented in a coherent and professional manner. In meeting this requirement, students are to identify an appropriate academic journal and write the paper as if they were preparing a manuscript for submission to that journal. It is solely the prerogative of the course instructor to determine whether the student's work meets the test of this definition. Students will register for POSC 899 MA Long Paper Course (0 credits) in the spring of their second year to facilitate completion of this requirement.

**REQUIREMENTS FOR THE PH.D. DEGREE**

All requirements listed for the Master's Degree, plus 24 additional credits to total 62.

**Secondary Track Requirements: 9 Credits** All students will chose a secondary track in the fall semester of their first year. In this secondary track students must complete the two required courses and one track elective.

**Research Seminar: 3 Credits** All students must complete a research seminar in conjunction with the Colloquium on Global Governance and Society in the spring semester of their third year. This seminar will provide a significant research experience in addition to the speaker series. Students are expected to complete a major research paper, grant proposal, or dissertation proposal and will present their work.

**Additional Research/Candidacy Credits: 12 Credits**

**Ph.D. Qualifying Exam:** All students admitted to the Ph.D. track and those master's track students who want to apply to the Ph.D. track are required to take an oral qualifying exam in February of their second year. As part of the qualifying exam, students will make an oral presentation of the paper they are submitting in fulfillment of the master's writing requirement. They will be examined by a three-person qualifying committee consisting of the faculty advisor for the paper and two other faculty members appointed by the Director of Graduate Studies. Ph.D. track students who do not pass the qualifying exam may receive a master's degree upon completion of the requirements for that degree.

**Language Requirement:** All candidates for the Ph.D. degree shall demonstrate competence in at least one language other than English. Procedures for certifying competence are maintained by the

Director of Graduate Studies. As candidates whose first language is other than English have already demonstrated competence in a second language by appropriate scores on the TOEFL exam, this requirement shall be deemed met in such cases.

**Comprehensive Examination:** Students will take a written, "take home" comprehensive exam in August before the start of their third year. The exam is prepared, administered and evaluated by a committee appointed by the Director of Graduate Studies. Exams are distributed at 8:00 a.m. and are due back by 4:00 p.m. the following day.

- The exam consists of two parts. Part I covers the core courses on global governance. Part II covers the student's primary track courses.
- Students must pass both Parts I and II to pass the exam.
- Grades on the written exam are: Distinction, Pass, Deficient and Fail. Distinction and Pass are considered passing grades. Results of the comprehensive exam will be made known to students as soon as all exams have been graded.
- Students who receive a grade of Deficient on either section of the written exam will be permitted to take an oral re-examination for that section. The oral exam will be arranged at the discretion of the examining committee. Grades on any such oral exam are Pass and Fail. Students who achieve a Pass on the oral re-examination(s) shall be considered as having successfully discharged their qualifying examination requirement. If a student fails the oral exam(s), he or she will be permitted to retake that section of the written exam once during the following December.
- Students who fail either section of the written exam will be allowed to retake the written exam once during the following December. If a student fails the written exam a second time, s/he will be terminated from the program. If a grade of Deficient is recorded on the second written test, the examining committee will administer an oral re-examination for that section. If the student fails an oral exam after the second written test, s/he will be terminated from the program.
- Students who wish to sit for the comprehensive exam must be in good standing, have at least a 3.0 GPA, and have no "Incompletes" outstanding.

**Admission to Candidacy Examination:**

- A Ph.D. student shall officially be admitted to candidacy upon successful completion of a candidacy oral examination by a faculty committee. Although the candidacy examination may address questions that arise from the student's performance on the written comprehensive exam, its primary purpose is for the student to defend the dissertation proposal. Although the precise form of the dissertation proposal will vary from case to case, it is expected to include a clear statement of the problem and an explanation of its significance, a discussion of the methods proposed to investigate the problem, and a full discussion of relevant literature.
- The candidacy examination should be held at the end of the fall semester or early in the spring semester of the student's third year.
- The candidacy examination committee shall be convened and chaired by the student's dissertation chair and shall consist of members of the student's proposed dissertation committee. Normally students are expected to select a dissertation chair from faculty whose primary appointment is in the Department. In exceptional circumstances, students may petition the Graduate Policy Committee for approval to have someone whose primary appointment is outside the Department chair the dissertation committee. In deciding whether or not to grant approval, the Graduate Policy Committee shall take into account the needs of the student and the Department.

- d. Other members of the Department are welcome to participate as non-voting members of the candidacy examination committee. The candidacy examination shall be announced and copies of the dissertation proposal shall be made available to all faculty at least one week in advance of the examination.
- e. The candidacy examination committee is charged with determining the student's fitness for advancement to candidacy. The main question the committee has to answer is, 'Is this student prepared to write an acceptable Ph.D. dissertation?' In seeking to answer this question, the committee's focus shall be on the student's dissertation proposal, which shall be made available to all members of the department at least one week in advance of the examination.
- f. If, in the judgment of the committee, the student has passed the oral examination, he or she shall be admitted to candidacy, and, shall begin work on the dissertation (see Section 9 below).
- g. If, in the judgment of the committee, the student has not passed the candidacy examination, the committee may direct the student to (a) rethink, rewrite, and resubmit the proposal prior to a re-examination by the committee; (b) undertake remedial work in research design and methodology; or (c) any combination or variation of the above that the committee deems necessary. In the event that additional work is required, the committee will discuss with the student a reasonable time frame for completion of the necessary work. A written statement completed by the student's dissertation adviser should set forth the nature of the work to be undertaken by the student and the time frame that was agreed upon. This shall be sent to the student, circulated to the faculty members who participated in the oral examination and become part of the student's permanent file. At the conclusion of the agreed upon time period, the committee will reconvene to assess the student's progress toward candidacy. In extreme cases, the committee may determine that the student is unable to advance to candidacy and should be terminated from the program.

#### **The Dissertation:**

- a. A Ph.D. dissertation is a manuscript that reflects "the results of original and significant research written in a scholarly and literate manner worthy of publication" (University of Delaware Graduate Catalog).
- b. Students are expected to consult closely and regularly with members of their dissertation committee, particularly the committee chair.
- c. Upon completion of the manuscript, a final oral examination--or "dissertation defense"--must be passed. Ordinarily, students will be asked to summarize the major findings of their research and evaluate the significance of these findings for the field more generally. The student shall then be called upon to defend the findings in the face of questions from members of the dissertation committee and other members of the academic community who choose to attend. If, after deliberating, the dissertation committee is unable to reach agreement on whether the student has successfully defended the dissertation, the committee will adjourn after explaining the nature of their objections and providing suggestions on how these might be satisfactorily addressed with guidance from the dissertation chair. It shall be the responsibility of the dissertation chair to reconvene the group to reconsider the revised product.
- d. Detailed guidelines for the preparation and presentation of the dissertation are described in Regulations Governing Theses and Dissertations, which may be obtained from the Office of Graduate Studies. It is also online on the Graduate home page.

**Teaching Experience:** Candidates for the Ph.D. degree planning an academic career are encouraged to obtain teaching experience at the college level. Opportunities to gain this experience may be available either through teaching assistantships, lectureships in political science courses at the University of Delaware, or opportunities to teach at neighboring colleges.

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#### **PRESERVATION STUDIES**

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Telephone: (302) 831-1535; FAX: (302) 831-8057

For more information, please visit the Center for Material Culture Studies web site at <http://materialculture.udel.edu/>

#### **PROGRAM OVERVIEW**

The Center for Material Culture Studies is home to a Ph.D. in Preservation Studies. The Preservation Studies Ph.D. is an interdisciplinary doctoral course of study that teaches the philosophies, research methodologies, and policies informing preservation efforts focused on art, architecture, landscapes, and material culture. It is distinct from other discipline-based courses of graduate study in that it provides a mechanism to combine cross-field expertise toward doctoral study in preservation. The Preservation Studies Program prepares students to address questions regarding individual objects and works of art, collections, buildings and structures, and sites and landscapes. More specifically, it trains its Ph.D. candidates to 1) assess the significance and cultural contexts for the production, function, reception, and preservation of all aspects of visual and material culture; 2) identify, evaluate, and implement preservation practice and policy; and 3) integrate ideas and methods from the full range of preservation-related disciplines.

The Preservation Studies doctoral program builds on unique and distinguished programs at the University of Delaware and is administered by the Center for Material Culture Studies (CMCS) within the College of Arts and Sciences. The Preservation Studies Program may involve collaboration with faculty and physical resources in the Colleges of Arts and Sciences, Agriculture, Engineering, Human Services, Education, and Public Policy, Marine Studies, and the Winterthur Museum. Applicants apply to a specific area of concentration within Preservation Studies, and acceptance is contingent upon compatibility with existing University of Delaware resources.

#### **REQUIREMENTS FOR ADMISSION**

Successful applicants to the Preservation Studies Program must hold a Master's Degree in a discipline relevant to one of the program concentrations. All college and university transcripts should be submitted to the Office of Graduate Studies; these must come directly from the institution. The application must also include the following: a paragraph summary of intended dissertation research and the relation of this topic to existing UD expertise and resources and a personal statement discussing areas of interest, intellectual goals, and how this program would be seen to meet these goals. Applicants must demonstrate prior background work that will enable them to successfully complete graduate-level courses and conduct graduate-level research on the proposed dissertation topic. A professional and academic résumé is required as is a writing sample to help the admissions committee assess the applicant's ability to design and conduct a research project and to communicate findings to the scholarly community. Graduate Record Examination scores are required. Applicants for whom English is not a native language should submit TOEFL scores in order to demonstrate satisfactory proficiency in the English language. A score of 550 or higher is required for paper-based TOEFL exams; 213 or higher is required for computer-based TOEFL exams. Applications must include three letters of recommendation that speak to the applicant's ability to

conduct research in the chosen area of concentration. The deadline for submission of an official application form to the Office of Graduate Studies is February 1. The committee may request additional materials. An on-campus interview is strongly encouraged.

The Preservation Studies Program will convene a committee of at least three faculty members in the chosen area of expertise to process and consider the application after all materials listed above are received. Admission to the program will be selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities for each concentration and dissertation topic area. Applicants who meet stated minimum requirements are not guaranteed admission, nor are those who fail to meet all of those requirements necessarily precluded from admission if they offer other appropriate strengths.

### FINANCIAL AID

Funding is competitive and may take the form of fellowships, teaching assistantships, and research assistantships. Please refer to the chapter "Graduate Fellowships and Assistantships in this catalog.

### REQUIREMENTS FOR THE DEGREES

Upon their acceptance into the Program, students will meet with their advisors to formalize their curricula. They will choose approved courses relevant to their area of concentration and projected course of study. Areas of concentration include: Historic Preservation Planning (including Structures, Landscape, and Preservation of Social and Cultural Context), Preservation Technologies, Conservation Research and Technical Studies, and Heritage Management. Each student's curriculum must include a balance of courses that provide an introduction to the wide range of theoretical and methodological issues as well as courses supporting individual preservation research endeavors. Theoretical and methodological breadth ensures that all students in Preservation Studies are familiar with basic procedures of research design and data handling and analysis needed to conduct dissertation research. Eighteen credits of coursework are required. A non-credit seminar for presentation of research in progress will also be required for three semesters (PRES 801). Three courses will be required as approved by the advisor, selected in consultation with the student. There will be three electives. Once advanced to candidacy, students must register for at least 9 credits of Ph.D. dissertation credit (969). (A total of 27 course credits.) Proficiency in one or more foreign languages may be required for certain areas of concentration and/or dissertation topics and will be determined by the chair of the dissertation committee. Likewise, proficiency in certain practical laboratory techniques may be necessary for certain concentrations.

After 18 credits of course work have been graded, the student must pass a written qualifying examination in the areas of concentration, supervised by senior faculty from the appropriate departments. The scope and content of the examination will be determined by the dissertation committee chair in consultation with members of the committee and/or professors of courses the student has completed for the concentration requirement. The qualifying examination must be passed before the student proceeds to candidacy. One semester after passing the qualifying examination, the student must submit a formal dissertation proposal (of about 10-15 pages) to his or her dissertation committee. The completed dissertation is expected to reflect the results of original and high quality research of significance to preservation studies, written in a scholarly and literary manner worthy of publication. The student will conduct an oral defense of the dissertation to all members of the dissertation committee.

## PSYCHOLOGY

Telephone: (302) 831-2271

For more information, please visit the department web site at <http://www.psych.udel.edu/grad>

### PROGRAM OVERVIEW

The Department of Psychology offers a doctoral degree program in psychology, with specialization in the areas of social psychology, cognitive psychology, behavioral neuroscience, and clinical psychology. Students in the doctoral program can earn an optional Master's Degree by submitting a thesis, but all students are required to continue for the doctorate. The objective of the program is to train researchers who will broaden the base of scientific knowledge upon which the discipline of psychology rests. Major emphasis is given to preparation for research. Other emphases include preparing students for teaching and for the practice of clinical psychology. The clinical training program is accredited by the American Psychological Association.

### RESEARCH FACILITIES

The Psychology Department has excellent laboratory and computer facilities to support graduate training. The research space, much of it newly designed and renovated, allows for research in animal behavior, cognitive information processing, child development, electrophysiology, pharmacological and physiological bases of animal behavior, psychophysiology, small group behavior, interpersonal communication, psycholinguistics and visual processing. All laboratories have several computers and terminals that link the department to the University-wide computing system. The department also has several small, general purpose laboratories, useful for performing animal surgeries and histology, and access to an electronics and carpentry shop. Training for clinical practice is provided in a separate facility containing several consultation rooms designed for supervision of testing and therapy.

### REQUIREMENTS FOR ADMISSION

Students are admitted directly to the doctoral program. A combination of criteria is used in evaluating candidates for admission to graduate study in psychology: scores made on the Graduate Record Examination, undergraduate grade-point average, letters of recommendation, and in some cases, information gained from a personal interview. The minimum admission requirements are about 1200 GRE total and a 3.5 GPA, or some combination of equal merit. Those who meet these requirements are not guaranteed admission, nor are those who fail to meet the requirements necessarily precluded from admission, if they offer other appropriate strengths. Undergraduate research experience is looked on very favorably. An undergraduate degree in psychology is not required for admission, but students may be required to make up deficiencies in their background by enrolling in appropriate undergraduate courses. Deadline for application is January 7.

### FINANCIAL AID

Financial aid is available in the form of teaching and research assistantships, fellowships, and tuition scholarships. Application materials are available from the chair of the Graduate Committee. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.

### REQUIREMENTS FOR THE DEGREES

In the first three years, students complete statistics courses and seminars in areas outside their specialization. These courses provide broad training in psychology and other allied disciplines, including neuroscience, cognitive science and linguistics. In their specialization



areas, students also complete course work and conduct research for the second year project. The Master's Degree is optional.

Successful completion of the second year project, the qualifying exam, and the dissertation proposal are necessary for admission to candidacy for the Ph.D. Progress toward the Ph.D. is achieved through completion of advanced work, dissertation research, and a clinical practicum and internship for students in the clinical area.

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## SOCIOLOGY AND CRIMINOLOGY

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Telephone: (302) 831-2581

For more information, please visit the department web site at <http://www.udel.edu/soc/>

### PROGRAM OVERVIEW

The Department of Sociology and Criminology offers a Master of Arts and a Doctor of Philosophy degree program in both sociology and criminology. The primary focus of the program is the preparation of members of the next generation of sociologists and criminologists by emphasizing systematic training in theory and research methodology as well as teaching. These advanced education degrees are intended for persons interested in careers in academia, public service, or private enterprise. The Department has a large number of full-time distinguished faculty (29) from the disciplines of Sociology, Psychology, Law, Criminology, History and Criminal Justice. This allows students to work closely with faculty members while preserving a reasonable breadth of interests. Thus, while both the Sociology and Criminology degrees rely on strong theoretical and methodological foundations, they also allow students to tailor a program that meets their individual needs.

### RESEARCH CENTERS

There are two internationally recognized research centers associated with the Department. The Center for Drug and Alcohol Studies (CDAS) was established at the University in 1991 and has been awarded a series of multi-million dollar research grants from the National Institute on Drug Abuse. Locally, CDAS has offices in Newark and Wilmington. CDAS was instrumental in setting up and evaluating a national model of Therapeutic Community treatment in criminal justice. Recently, CDAS was included in a small group of Research Centers nationally that will be leading research in treating criminal justice substance involved clients. In addition to evaluating treatment programs in criminal justice settings, other ongoing studies include: The relation of school experiences to adolescent substance abuse, studies examining the efficacy of AIDS education and awareness programs, and studies which examine the epidemiology and etiology of substance abuse in general. CDAS also has major AIDS prevention initiatives in Florida, Latin America, and the Caribbean. With two offices in the Miami area and a new center opening this year in Porto Alegre, Brazil, the focus of these initiatives is the development and evaluation of culturally specific HIV prevention programs for hard-to-reach and underserved populations.

The Disaster Research Center (DRC), established in 1963, was moved to the University of Delaware in 1985. DRC is one of the world's leading centers for social science research on disasters and hazards. Since its inception, the Center has conducted field studies in over 520 communities that have sustained the effects of large-scale emergencies, in particular, natural and technological disasters. The Center's research program focuses on group, organization, and community preparations for, responses to, mitigation of, and recovery from various hazard agents. Current and past sponsors of the Center's research activities include the National Science Foundation, the Federal Emergency Management agency, the NOAA Sea Grant Program, the U.S. Geological Survey, the Multidisciplinary Center for Earthquake Engineering Research, and the Public Entity Risk

Institute. DR has conducted field and survey research in numerous communities in the United States and has been involved in studies of the major disaster events of our time, including the 1964 Alaska, 1971 San Fernando, 1989 San Francisco, and 1994 Northridge earthquakes; major hurricane, flood and tornado events, and mass-casualty disasters such as explosions and plane crashes. The Center has also carried out research on significant civil disturbances, including the 1960s urban riots and the 1992 Los Angeles unrest. Although its main focus has been on disasters and other community crises in the United States, DR is also involved in international research, and Center personnel work closely with members of the international hazards research community. DRC is currently engaged in a number of research projects, including: a study of the organizational response to the September 11, 2001, World Trade Center (WTC) disaster; a collaborative and multi-disciplinary project focusing on emergency weather warnings, the development of new technologies and their relationship to disaster preparedness and response; a collaborative project with engineers and computer scientists at the University of Rhode Island focusing on the development of a model and prototype software for the simulation of pedestrian motion, both during emergency situations that result in evacuations and during situations devoid of emergencies; population composition, geographic distribution, natural hazards, and vulnerability in the coastal regions of Puerto Rico; socio-economic impacts of earthquakes in the United States; a detailed analysis of urban search and rescue teams and their operations and response to hazard events. It is important to note that the DRC is also an active collaborator in the Engineering Research Center (ERC) for the Collaborative Adaptive Sensing of the Atmosphere (CASA) and the Mid-America Earthquake Center (MAE). DRC led a Social Science reconnaissance trip to India and Sri Lanka following the aftermath of the Indian Ocean Tsunamis in these regions.

Both Centers offer opportunities for research training for graduate students including stipends for research assistants and use of data sources.

### REQUIREMENTS FOR ADMISSION

Applicants should submit transcripts of all academic work, Graduate Record Examination scores (ideally a total of at least 1,000 on the verbal and quantitative tests) and three letters of recommendation. Applications for fall admission should be completed by March 1. Students applying for financial aid for fall admission must complete applications by February 1.

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths. The department admits new students only in the fall semester.

### FINANCIAL AID

Teaching assistantships, research assistantships and University fellowships are available to graduate students at the M.A. and Ph.D. levels. Please refer to the chapter "Graduate Fellowships and Assistantships" in this catalog for additional information.

### REQUIREMENTS FOR THE DEGREES

All new students are required to take a non-credit one-hour pro-seminar.

#### M.A. IN SOCIOLOGY

##### M.A. IN SOCIOLOGY WITH THESIS OPTION

SOCI 605	Data Collection
SOCI 612	Development of Sociological Theory

- SOCI 606 Qualitative Methodology  
 or  
 SOCI 614 Advanced Data Analysis  
 or  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education

5 elective courses from at least two different substantive areas to assure breadth in substantive areas of Sociology

6 thesis credits

**M.A. IN SOCIOLOGY WITH MASTER'S EXAMINATION**

- SOCI 605 Data Collection  
 SOCI 612 Development of Sociological Theory  
 SOCI 606 Qualitative Methodology  
 or  
 SOCI 614 Advanced Data Analysis  
 or  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education  
 SOCI 621 Deviance  
 SOCI 626 Organizations  
 SOCI 609 Stratification

3 elective courses

Comprehensive Exams in two areas

**M.A. IN SOCIOLOGY WITH AN INTERNSHIP AND ANALYTIC PAPER**

- SOCI 605 Data Collection  
 SOCI 612 Development of Sociological Theory

- SOCI 606 Qualitative Methodology  
 or  
 SOCI 614 Advanced Data Analysis  
 or  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education

SOCI 626 Organizations

3 elective courses selected with the advice of the Intern Director

Internship (6 credits)

**M.A. IN CRIMINOLOGY**

**Required Courses**

- SOCI 605 Data Collection  
 SOCI 612 Development of Sociological Theory  
 SOCI 606 Qualitative Methodology  
 or  
 SOCI 614 Advanced Data Analysis  
 or  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education  
 SOCI 835 Seminar in Criminal and Delinquent Behavior

9 credits from categories a and b below, with at least one course selected from each group:

**a) Criminal and Deviant Behavior**

- SOCI 628 Corporate/Government Deviance  
 SOCI 621 Social Deviance  
 SOCI 836 Seminar in Criminal and Delinquent Behavior  
 SOCI 667 When topic is crime, deviance, law or social control

**b) Criminal Justice and Legal Systems**

- SOCI 655 Law and Society  
 UAPP 624 Seminar in Criminal Justice  
 SOCI 6xx American Legal Systems

There are thesis, exam or internship options as in Sociology.

**PH.D. IN SOCIOLOGY**

To permit maximum flexibility for developing an individualized Ph.D. program, there are no minimum course hour requirements. However, six specific courses are required. The Graduate Policy Committee is responsible for approving course equivalents for courses taken elsewhere. Current requirements are as follows:

- SOCI 605 Data Collection and Analysis  
 SOCI 614 Advanced Data Analysis  
 SOCI 606 Qualitative Methodology  
 or  
 SOCI 611 Techniques of Demographic Analysis  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education  
 SOCI 612 Development of Sociological Theory  
 SOCI 813 Current Issues in Social Theory

A one-credit course in Teaching Techniques

4 elective courses (12 credits excluding independent studies)

Comprehensive Exams in two areas

- SOCI 969 Dissertation (9 credits)

**PH.D. IN CRIMINOLOGY**

There is no minimum number of credit hours prescribed for the Ph.D. in Criminology but students are required to take the following courses. The Graduate Policy Committee is responsible for approving course equivalents for courses taken elsewhere. Current requirements are as follows:

- SOCI 605 Data Collection and Analysis  
 SOCI 614 Advanced Data Analysis  
 SOCI 606 Qualitative Methodology  
 or  
 SOCI 611 Techniques of Demographic Analysis  
 EDUC 812 Regression Models in Education  
 or  
 EDUC 874 Multivariate Data Analysis in Education  
 or  
 EDUC 876 Structural Models in Education  
 or  
 EDUC 873 Hierarchical Linear Modeling in Education

- SOCI 612 Development of Sociological Theory  
 SOCI 835 and 836 Seminar in Criminal and Delinquent Behavior

4 courses (12 credits, excluding independent studies, from the courses listed in Parts a and b of the M.A. in Criminology program)

A one-credit course in Teaching Techniques

Comprehensive exam in Criminology and one additional area, except Social Deviance

- SOCI 969 Dissertation (9 credits)

## THEATRE

Telephone: (302) 831-2201

For more information, please visit the department web site at <http://www.udel.edu/theatre/>

### PROGRAM OVERVIEW

The Department of Theatre offers graduate study leading to a Master of Fine Arts degree with concentrations in acting, technical production, and stage management. The Professional Theatre Training Program (PTTP) involves intensive studio work designed to prepare students for creative careers in the professional theatre and thereby contribute to its growth and improve its quality.

Once every three years, after an extensive search conducted throughout the United States, a group of exceptionally talented students is selected for admission to the Professional Theatre Training Program in the Department of Theatre. Each student in the Professional Theatre Training Program participates in an intense curriculum in one of three concentrations (acting, stage management, or technical production) for three years. Each curriculum is carefully designed to provide the skills, abilities, and experiences necessary to begin a successful career in theatre. Students work exclusively within their area in an intensive program of studio classes and production experiences. Each curriculum is skill-oriented, emphasizing rigorous training in the craft areas appropriate to the specialization being pursued. All students in a curricular area participate in the same prescribed program of conservatory classes and continue working with one another throughout the three years of training. Because only one class is enrolled at a time, the faculty is able to focus its full energies on the development of each student. In all three years, students enjoy multiple production opportunities in classic plays as well as in a variety of other theatrical styles and genres. Although graduates find themselves well prepared for employment in many styles and mediums, the Program is specifically designed to train through plays from the classic repertoire and seeks students with a particular commitment to, and appetite for, the acknowledged masterworks of dramatic literature.

### REQUIREMENTS FOR ADMISSION

Students apply for admission to one of three curricular areas: Acting, Stage Management, or Technical Production. In order to be considered for an audition (Acting) or interview (Stage Management and Technical Production), students must have an undergraduate degree or equivalent theatre experience. Graduate Record Examination (GRE) scores are not required. A statement of theatre experience equivalency will be submitted by the Department of Theatre to the Office of Graduate Studies for those students who are recommended for admission without an undergraduate degree.

Prior to the audition/interview process, all students submit a program application, acquired from the Theatre Department, along with a resumé. Upon receipt of the program application and resumé, all students are scheduled for an audition/interview. There is no audition/interview fee. Applicants' talent and aptitude are evaluated via the audition/interview process conducted in cities throughout the United States.

Once students have completed the audition/interview process as described below, they must submit a University Graduate Application along with the \$60 non-refundable application fee in order to be considered for selection into the Program.

**Audition Process for Acting.** Applicants are requested to prepare two monologues of contrasting mood, one from a modern or contemporary play and one from a classic play in verse. The combined length of the two selections should not exceed four minutes. The audition process is conducted with groups of 10-15 applicants at a time. Each applicant presents her or his prepared

selections, and participates in group exercises and improvisations in acting, voice, movement, and speech conducted by members of the acting faculty.

**Interview Process for Stage Management and Technical Production.** Applicants are required to interview. While an in-person interview is preferable and highly encouraged, a telephone interview is acceptable. Applicants are encouraged to bring to or send in advance of their interview any pertinent materials (e.g., production photographs, production books, renderings, draftings, and/or slides).

### FINANCIAL AID

The PTTP offers full fellowships and stipends based on need. Fellowships and stipends are automatically renewed while a student matriculates through the Program as long as the student meets the University's criteria for maintaining an award.

### REQUIREMENTS FOR THE DEGREE

All candidates for the degree of Master of Fine Arts must be full-time participants of the Professional Theatre Training Program for three consecutive years and must complete the curricular requirements and specified credits in one of the three areas: Acting, Stage Management, or Technical Production. Specific academic policies may be obtained from the department. Degree requirements for each concentration follow.

#### ACTING

The acting curriculum is an intensive three-year conservatory training program. Students follow an integrated curriculum in which all subjects are directly related and in which no course is optional. Students in acting are expected to develop technical proficiency in voice, speech, movement, and acting. The curriculum emphasizes frequent public performance in predominately classic plays produced in a wide variety of theatrical styles and genres, with continual studio work on the development of skill leading to artistry.

CREDITS

#### YEAR 1: Students enroll in the following courses during year #1.

THEA 600	Distinctions of Professional Theatre Practice (1 credit each semester)	2
THEA 601	Dynamics (1 credit each semester)	2
THEA 602	Voice Development IA (1 credit fall)	1
THEA 603	Voice Development IB (1 credit spring)	1
THEA 608	Stage Movement IA (1 credit fall)	1
THEA 609	Stage Movement IB (1 credit spring)	1
THEA 614	Stage Speech IA (2 credits fall)	2
THEA 615	Stage Speech IB (2 credits spring)	2
THEA 620	Rehearsal & Performance/Acting (3 credits each semester)	6
THEA 665	Theatre Literacy (2 credits each semester)	4
Total Year #1		22

#### YEAR 2: Students enroll in the following courses during year #2.

THEA 600	Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601	Dynamics (1 credit each semester)	2
THEA 604	Voice Development IIA (1 credit fall)	1
THEA 605	Voice Development IIB (1 credit spring)	1
THEA 610	Stage Movement IIA (1 credit fall)	1
THEA 611	Stage Movement IIB (1 credit spring)	1
THEA 616	Stage Speech IIA (1 credit fall)	1
THEA 617	Stage Speech IIB (1 credit spring)	1
THEA 620	Rehearsal & Performance/Acting (3 credits each semester)	6
Total Year #2		18

#### YEAR 3: Students enroll in the following courses during year #3.

THEA 600	Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601	Dynamics (1 credit each semester)	2
THEA 606	Voice Development IIIA (1 credit fall)	1
THEA 607	Voice Development IIIB (1 credit spring)	1
THEA 612	Stage Movement IIIA (1 credit fall)	1
THEA 613	Stage Movement IIIB (1 credit spring)	1
THEA 618	Stage Speech IIIA (1 credit fall)	1
THEA 619	Stage Speech IIIB (1 credit spring)	1
THEA 620	Rehearsal & Performance/Acting (5 credits each semester)	10
Total Year #3		22

**TOTAL GRADUATION CREDITS** ..... 62

**STAGE MANAGEMENT**

The stage management curriculum is an intensive three-year conservatory training program. Students follow an integrated curriculum in which all subjects are directly related and in which no course is optional. Students in stage management are expected to develop technical proficiency in professional rehearsal and performance practices and techniques, communication skills, technical theatre skills, and management skills. The curriculum emphasizes frequent public performance in predominately classic plays produced in a wide variety of theatrical styles and genres, with continual studio work on the development of skill leading to artistry.

	CREDITS
<b>YEAR 1: Students enroll in the following courses during year #1.</b>	
THEA 600 Distinctions of Professional Theatre Practice (1 credit each semester)	2
THEA 601 Dynamics (1 credit each semester)	2
THEA 633 Stage Management Organizational & Managerial Techniques IA (2 credits fall)	2
THEA 634 Stage Management Organizational & Managerial Techniques IB (1 credit spring)	1
THEA 639 Stage Management Production Skills IA (2 credits fall)	2
THEA 640 Stage Management Production Skills IB (2 credits spring)	2
THEA 645 Rehearsal & Performance/Stage Management (1 credit fall; 2 credits spring)	3
THEA 648 Costume Construction (1 credit spring)	1
THEA 665 Theatre Literacy (2 credits each semester)	4
THEA 680 Lighting Production (1 credit fall)	1
THEA 681 Audio Production (1 credit spring)	1
THEA 693 Production Seminar (1 credit fall)	1
Total Year #1	22

<b>YEAR 2: Students enroll in the following courses during year #2.</b>	
THEA 600 Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601 Dynamics (1 credit each semester)	2
THEA 635 Stage Management Organizational & Managerial Techniques IIA (2 credits spring)	2
THEA 641 Stage Management Production Skills IIA (2 credits fall)	2
THEA 645 Rehearsal & Performance/Stage Management (2 credits fall, 4 credits spring)	6
THEA 674 Scenery Production (1 credit fall)	1
THEA 694 Special Topics in Theatre Production (2 credit fall)	2
Total Year #2	19

<b>YEAR 3: Students enroll in the following courses during year #3.</b>	
THEA 600 Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601 Dynamics (1 credit each semester)	2
THEA 636 Stage Management Organizational & Managerial Techniques IIB (2 credits spring)	2
THEA 642 Stage Management Production Skills IIB (2 credits fall)	2
THEA 645 Rehearsal & Performance/Stage Management (5 credits each semester)	10
Total Year #3	20

**TOTAL GRADUATION CREDITS ..... 61**

**TECHNICAL PRODUCTION**

The technical production curriculum is an intensive three-year conservatory training program. Students follow an integrated curriculum in which all subjects are directly related and in which no course is optional. Students in technical production are expected to develop technical proficiency in properties construction, audio production, scenic painting, stage carpentry, stage electronics, computerized drafting, and production management. The curriculum emphasizes frequent public performance in predominately classic plays produced in a wide variety of theatrical styles and genres, with continual studio work on the development of skill leading to artistry.

	CREDITS
<b>YEAR 1: Students enroll in the following courses during year #1.</b>	
THEA 600 Distinctions of Professional Theatre Practice (1 credit each semester)	2
THEA 601 Dynamics (1 credit each semester)	2
THEA 665 Theatre Literacy (2 credits each semester)	4
THEA 674 Scenery Production (1 credit fall)	1
THEA 675 Properties Production (1 credit spring)	1
THEA 680 Lighting Production (1 credit fall)	1
THEA 681 Audio Production (1 credit spring)	1
THEA 683 Production Project Management (1 credit fall)	1
THEA 684 Technical Production Seminar (1 credit spring)	1
THEA 686 Information Technologies for Theatre (1 credit fall)	1
THEA 687 Scenery Painting (1 credit spring)	1
THEA 688 CAD & Scenery Construction (1 credit spring)	1

THEA 692 Production & Performance/Technical (1 credit each semester)	2
THEA 693 Production Seminar (1 credit fall)	1
Total Year #1	20

**YEAR 2: Students enroll in the following courses during year #2.**

THEA 600 Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601 Dynamics (1 credit each semester)	2
THEA 676 Scenery: Metalworking (1 credit fall)	1
THEA 677 Properties Production II (1 credit fall)	1
THEA 679 Scenery: Stage Rigging (1 credit fall)	1
THEA 684 Technical Production Seminar (1 credit each semester)	2
THEA 692 Production & Performance/Technical (3 credits each semester)	6
THEA 694 Special Topics in Theatre Production (3 credits spring)	3
Total Year #2	20

**YEAR 3: Students enroll in the following courses during year #3.**

THEA 600 Distinctions of Professional Theatre Practice (2 credits each semester)	4
THEA 601 Dynamics (1 credit each semester)	2
THEA 684 Technical Production Seminar (1 credit each semester)	2
THEA 692 Production Preparation & Performance/Technical (5 credits fall, 6 credits spring)	11
THEA 694 Special Topics in Theatre Production (1 credit fall)	1
Total Year #3	20

**TOTAL GRADUATION CREDITS ..... 60**

**WINTERTHUR PROGRAM IN EARLY AMERICAN CULTURE**

Telephone: (302) 831-2678

For more information, please visit the program web site at <http://seurat.art.udel.edu/MS/WPEAC/index.html>

**PROGRAM OVERVIEW**

The Winterthur Program in Early American Culture is a two year program leading to a Master of Arts. The program provides a multidisciplinary approach to the study of American decorative arts and material culture. It is based on the assumption that a cultural approach to the American past and its artifacts is the best way to achieve an understanding of the American people. The program is a cooperative effort of the Henry Francis du Pont Winterthur Museum and the University. Related areas are American fine and decorative arts, social and cultural history, literature, and museum studies. The method combines traditional concepts from the humanities with those of the social sciences that emphasize the importance of material culture as a nonverbal means of communication. Methods of research for analyzing both the material itself and contemporary documents are stressed, with courses at the University providing the cultural context for detailed examination of original objects at Winterthur. Other special facilities include research libraries at both institutions as well as slide and media centers.

**REQUIREMENTS FOR ADMISSION**

Students who are interested in graduate work in this field must apply for appointment as Winterthur Fellows. Application for admission must be made by applying directly to the Winterthur Program in Early American Culture at the University of Delaware. The deadline is January 15 for the complete application file of admissions credentials. The GRE General Test is required. Appointment as a Fellow includes financial support.

Admission is selective and competitive based on the number of well-qualified applicants and the limits of available faculty and facilities. Those who meet stated minimum academic requirements are not guaranteed admission, nor are those who fail to meet those requirements necessarily precluded from admission if they offer other appropriate strengths.

### WINTERTHUR FELLOWSHIPS

Graduate fellowships have been established under the auspices of the Henry Francis du Pont Winterthur Museum and the University for study in the Winterthur Program in Early American Culture. All admitted students receive a fellowship which provides full tuition and an annual stipend. Application for the program and these fellowships can only be made by applying to the program through the Director's office, 207 Mechanical Hall. In order to be considered, all application materials, including the GRE scores, must be received no later than January 15 of the year for which admission is desired. Admission is by fellowship only.

### REQUIREMENTS FOR THE DEGREE

The Winterthur Program takes two years of full-time study to complete, beginning in July of the year of acceptance. The degree requires at least 42 course credit hours and includes a written thesis. No special examinations or language are required.

**Core requirements.** These begin in the summer of entrance with intensive training in the decorative arts with a focus on the Winterthur collection. Courses incorporate connoisseurship, research methods, and theoretical approaches to the study of American material life, spanning the 17th, 18th, and 19th centuries. Extracurricular activities such as field trips add breadth and richness to the required coursework. Fellows participate in guide training and interpretation at the Museum.

**Course distribution.** Students gain breadth in understanding of American culture through University courses usually chosen from art history, history, and English. In addition to traditional courses, these departments also embrace such fields as folklore, vernacular architecture, and media study.

**Optional curriculum.** Students may choose further studies in the areas listed above or work in other departments of the University, such as geography, anthropology, or museum studies. In addition, Fellows who wish to receive museum certification may receive course credit for an internship taken at the Winterthur Museum.

Further information is available through the Director, Winterthur Program in Early American Culture.