This is the Introduction and General Information sections, and the Majors and Degrees table from the 1999-2001 Graduate School Catalog of the University of Minnesota.

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Introduction

Graduate School Location

The Graduate School’s main administrative offices are on the East Bank of the University of Minnesota’s Twin Cities campus in Johnston Hall, 101 Pleasant Street S.E., Minneapolis, MN 55455. See Campus Maps at the end of this catalog. Johnston Hall is wheelchair accessible.

Publications

Graduate School Catalog—The first section, General Information, is the official source of information about Graduate School policies and procedures. The next section, Majors and Degrees, lists more than 250 degrees offered through the Graduate School.

The largest sections, Degree Programs and Courses, present requirements and course descriptions for the various programs offering graduate degrees. The short section that follows is Duluth Degree Programs.

At the back is a list of contact names and addresses for the degree programs (Program Offices), a list of faculty who teach in each discipline (Graduate Faculty), a complete set of Campus Maps, and Course Designators. The inside back cover, Course Numbers and Symbols, explains the numbering system, punctuation, department designators, and symbols used throughout the course descriptions.

The catalog is available in the Graduate School (309 Johnston Hall) or the Office of Admissions (240 Williamson Hall), both on the East Bank; H. D. Smith Bookstore (100 Anderson Hall), West Bank; 130 Coffey Hall, St. Paul campus; and on the Internet at <www.umn.edu/commpub>.

Updates to Catalog Information—Changes in Graduate School policies and procedures relating to admission, registration, financial assistance, and commencement are accessible on the Internet at <www.grad.umn.edu>.

Other Publications—The Class Schedule lists courses, class hours, locations, instructors, and basic costs and regulations. It is available in campus bookstores before registration each term. Separate catalogs are printed for University College, the Duluth campus, and other University units.

Policies

Catalog Use—The information in this catalog and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

This publication is available in alternative formats on request. Contact the Office of Admissions, University of Minnesota, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/625-2008; e-mail admissions@tc.umn.edu).

Equal Opportunity—The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363; by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans With Disabilities Act of 1990; by Executive Order 11246, as amended; by 38 U.S.C. 2012, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Julie Sieweitzer, Acting Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455 (612/624-9547).

Disability Services—The University’s mission is to provide optimal educational opportunities for all students, including for those with disabilities. The University recognizes that students with disabilities sometimes have unique needs that must be met for them to have access to campus programs and facilities. In general, University policy calls for accommodations to be made on an individualized and flexible basis. It is the responsibility of students to seek assistance at the University and make their needs known.

The first place to seek assistance is Disability Services (DS). This office promotes program and physical access, which means ensuring the rights of students with disabilities and assisting the University in meeting its obligations under federal and state statutes. DS provides direct assistance such as information, referral, support, and academic accommodations for enrolled and prospective students, as well as consultation to faculty and staff to ensure access to their programs and facilities. The office also assists students with disabilities in obtaining services from other University or community resources and serves as a liaison between the University and the Division of Rehabilitation Services. Campus accessibility maps also are available from DS; building accessibility information is printed in the Student-Staff Directory and Class Schedule. For more information, contact Disability Services, University of Minnesota, 30 Nicholson Hall, 216 Pleasant Street S.E., Minneapolis, MN 55455 (612/626-1333 voice or TTY).

Access to Student Educational Records—In accordance with regents’ policy on access to student records, information about a student generally may not be released to a third party without the student’s permission. (Exceptions under the law include state and federal educational and financial aid institutions.) The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, electronic (e-mail) address, telephone number, dates of enrollment and enrollment status (full time, part time, not enrolled, withdrawn and date of withdrawal), college and class, major, adviser, academic awards and honors received, and degrees earned—is considered public or directory information. Students may prevent the release of public information. To do so, they must request suppression from the records office on their campus.
Students have the right to review their educational records. The regents' policy, including a directory of student records, is available for review at 200 Fraser Hall, Minneapolis; at records offices on other campuses of the University; and at <www.umn.edu/registrar>. Questions may be directed to the Office of the Registrar, 200 Fraser Hall (612/625-5333).

Immunization—Students born after 1956 who take more than one University course are required under Minnesota law to submit a Student Immunization Record form.

The form, which is sent along with the official Graduate School admission letter, should be filled out and returned to Boynton Health Service as soon as possible, but absolutely no later than 45 days after the beginning of the first term of enrollment, in order for students to continue registering for courses at the University. Complete instructions accompany the form.

Smoke-Free Campus Policy—Smoking is prohibited in all facilities of the University of Minnesota. Twin Cities campus except for designated private residence hall rooms.

The Campus and Community

On the Twin Cities campus, Graduate School students enjoy the vast academic and cultural opportunities of a major university and a unique metropolitan area.

Two Campuses in One—The Twin Cities campus, the largest and oldest in the University system, is technically two separate campuses: one just east of downtown Minneapolis on the Mississippi River, the other just west of the State Fairgrounds a couple of miles from downtown St. Paul.

The Mississippi River divides the Minneapolis campus into two banks connected by the double-decker Washington Avenue Bridge. The picturesque mall of the main East Bank is bordered by stately traditional buildings—including Johnston Hall, home of the Graduate School. Next door is Northrop Auditorium and its plaza. On the other end of the mall, Coffman Memorial Union offers a good place to relax between classes. Nearby are unique underground facilities and the health sciences complexes.

Just across the river is the West Bank. Newer and smaller, it boasts sleek brick buildings like the main library, the Humphrey Institute of Public Affairs, the Law Center, the Ted Mann Concert Hall, and the Carlson School of Management.

Three miles away is the St. Paul campus, whose animal barns, croplands, flowers, and wooded areas evoke a small college atmosphere.

Urban Diversity—The Dinkytown, Stadium Village, Seven Corners, and Cedar-Riverside areas near the Minneapolis campus, and the St. Anthony Park neighborhood alongside the St. Paul campus, all feature shops and restaurants tailored to students’ interests and budgets.

Minneapolis (the largest city in Minnesota) and St. Paul (the state capital) are both flourishing centers of commerce and industry, where grandiose historic buildings complement bold new skyscrapers. Focal points of a progressive metropolitan area of 2.3 million people, the two downtowns offer many opportunities for entertainment, research, volunteer or part-time work, internships, and careers.

Arts and Entertainment—The Twin Cities are renowned for their innovative and varied cultural attractions, such as the Guthrie Theater, Ordway Music Theater, Orchestra Hall, Science Museum and Omnitrheater, and Brave New Workshop. Northrop Auditorium, the campus centerpiece, hosts performances by popular musical and dance artists and outstanding University bands and ensembles. Students can see or star in plays at the Rarig Center. Or they can enjoy the Walker Art Center and the Minneapolis Institute of Arts, the Minnesota and Como Zoos, the Mall of America, the Renaissance Festival and Valleyfair, and the Minneapolis Aquatennial and St. Paul Winter Carnival. Overlooking the Mississippi River is the University’s Frederick R. Weisman Art Museum, with award-winning design by Frank Gehry.

Recreation and Sports—The Recreational Sports program, one of the largest of its kind on any campus in the country, offers curling, cycling, racquetball, crew, ballroom dance, juggling, and 100 other teams, clubs, and fitness activities. Sports fans can view Golden Gophers or Vikings football and Twins baseball at the Metrodome, and Timberwolves basketball at the Target Center. Many women’s and men’s intercollegiate athletic events also take place right on campus.

Outdoor enthusiasts can explore the Twin Cities’ 150 parks and 200 lakes, ideal for picnicking, hiking, biking, swimming, canoeing, sailing, fishing, rollerblading or ice skating, cross-country or downhill skiing, or simply sitting and thinking. The Boundary Waters Canoe Area Wilderness, one of the most unsullied wilderness treasures in the entire nation, is only a few hours drive north.

The warmth of spring, greenery of summer, and bright colors of autumn are followed by at least three months of winter snow, but even then, daytime temperatures generally average an invigorating 10 to 30 degrees above.

University Counseling & Consulting Services

University Counseling & Consulting Services (UCCS), 109 Eddy Hall on the East Bank and 199 Coffey Hall on the St. Paul campus (612/624-3323 for both), offers counseling for academic, career, personal, or relationship concerns. Besides counseling, UCCS features a variety of services. The Career Development Center and the Learning and Academic Skills Center offer workshops, courses, and materials for career development or academic skills improvement. The Organizational Development Program offers consultation, assessment team building, conflict mediation, training, and workshops. UCCS’s Office of Measurement Services (OMS) scores exams, surveys, and research instruments and provides consultation to University faculty and staff. The Testing Center administers admissions, placement, and national tests. For more information, see <www.ucs.umn.edu/uccswww/uccs.html>.
Libraries and Research Opportunities

The University of Minnesota, Twin Cities Libraries, with a collection of more than 5.4 million catalogued volumes and 48,000 serials, ranks 17th in size among American universities. Included in the system are the Bio-Medical Library (health sciences); Magrath Library (agriculture, biological sciences, human ecology); Walter Library (engineering, natural sciences, education, psychology); and Wilson Library (social sciences, humanities, special collections). Other campus libraries include those for architecture, entomology, forestry, horticulture, journalism, law, mathematics, music, plant pathology, and veterinary medicine. The library system also includes many specialized libraries and archives, such as the Children’s Literature Research Collections and the Immigration History Research Center Archives. In addition to strong comprehensive research collections, the system offers a full range of reference and information services, including specialized reference assistance, interlibrary loan service, database literature searching, and library user instruction. MNCAT, the library system’s on-line catalog, may be accessed from residence halls, offices, and other locations at <www.lib.umn.edu>.

Research support is provided by the Office of the Vice President for Research and Dean of the Graduate School as well as by the public and private sectors. The Graduate School fellowship and research support programs distribute nearly $7 million annually to students and faculty. The University also ranks among the top research universities receiving federal research money.

University Research Centers

Addiction Studies, Center for Aging, Center on Agricultural Experiment Station Alternative Plant and Animal Products, Center for Applied Research and Educational Improvement, Center for (CAREI) Archaeological Studies, Interdisciplinary Archaeology Laboratory Archeometry Laboratory Army High Performance Computing Research Center Austrian Studies, Center for Avian Research Center Biological Process Technology, Institute for Advanced Studies in Biomedical Ethics, Center for Biomeric Research, Coordinating Centers for (CCBR) Cedar Creek Natural History Area Cereal Rust Laboratory Chemical Toxicology Research Center Child Welfare, Center for Advanced Studies in Clinical Outcomes Research Center (CORC) Clinical Research Center Cloquet Forestry Center Cold Climate Housing Program Community and Regional Research, Center for Community Integration, Institute on Computational Science and Engineering, Laboratory for Conflict and Change Center Control Science and Dynamical Systems Center Cooperative Learning Center Corrections Education Research, Center on Corruption Center CPCRA (Community Program for Clinical Research on AIDS) Statistical Center Criminal Justice Institute Dairy Foods Research Center Daylighting Center, Regional Death Education and Research, Center for Dental Research Center for Biomaterials and Biomechanics, Minnesota Dental Research Institute Design Center for the American Urban Landscape Early Childhood Research Institute Early Education and Development, Center for Early Modern History, Center for Economic Development Center (Twin Cities) Economic Development (Duluth), Center for Economic Education (Duluth), Center for Economic Education (Twin Cities), Center for Economic Research, Center for Education in Agriculture and Extension, Center for Educational Outcomes, National Center on Entrepreneurial Studies, Carlson Center for Epilepsy Clinical Research Program European Studies, Center for Experiential Education and Service Learning, Center for Feminist Studies, Center for Advanced Geological Survey, Minnesota Geometry Center, The Girls and Women in Sport, Center for Research on Herbarium History of Information Processing, (Charles) Babbage Institute-Center for the Hornel Institute Horticultural Research Center Human Factors Research Laboratory Human Genetics, Institute of Human Resource Development Research Center Industrial Relations Center Integrated Natural Resources and Agricultural Management, Center for Interdisciplinary Studies of Writing, Center for Interest Measurement Research, Center for Interfacial Engineering, Center for International Food and Agricultural Policy, Center for International Studies and Programs, Institute of Interpersonal Relationships, Center for Research on Jewish Studies Center Journalism Center, Minnesota Lake Itasca Forestry and Biological Station Landscape Arboretum, Minnesota Landscape Studies Center Language Acquisition, Center for Advanced Research on (CARLA) Large Lakes Observatory Learning, Perception, and Cognition, Center for Research in Life Course Center Limnological Research Center Long-Term Care Administration, Center for Low-Vision Research, Minnesota Laboratory for Lung Health Study Coordinating Center Magnetic Resonance Research, Center for Management Information Systems Research Center Manufacturing, Design, & Control, Center for Advanced (CAMDAC) Mathematics and Its Applications, Institute for Medieval Studies, Center for Micromagnetics and Information Technologies Center (MINT) Microtechnology Laboratory (MTL) Nanostructure Laboratory Natural Resource Policy and Management, Center for Natural Resources Research Institute Neurocommunication Research, Edwin Eddy Center for Neuroscientific Databases, Center for North Central Soil Conservation Research Laboratory Nuclear Physics, Williams Laboratory for Occupational Health and Safety, Midwest Center for Pharmaceutical Research in Management and Economics (PRIME) Institute Philosophy of Science, Minnesota Center for Plant Molecular Genetics Institute Political Economy, Center for...
Introduction

Polymerization and Polymer Process Engineering Center
Population Analysis and Policy, Center for
Psychiatry Research
Race and Poverty, Institute on
Raptor Center, Garrigan
Reflective Leadership Center
Refugee Studies Center
Residential Services and Community Living, Center for
Restorative Justice and Mediation, Center for
Retail Food Industry Center, The (TRFIC)
Rock Magnetism, Institute for
Rural Health Research Center
Rural Sociology and Community Analysis, Center for
St. Anthony Falls Laboratory
Sand Plain Research Farm
Sea Grant College Program, Minnesota
Silha Center
Space Grant Consortium, Minnesota
Speech, Equality, and Harm, Center for
Strategic Management Research Center
Supercomputer Institute
Superconductivity, Center for Science and Application of
Survey Research, Minnesota Center for
Sustainable Agriculture, Minnesota Institute for (MISA)
Technological Leadership, Center for Development of
Theoretical Physics Institute
Transportation Studies, Center for
Twin and Adoption Research, Minnesota Center for
Underground Research Site, Soudan
Urban and Regional Affairs, Center for
Violence and Abuse, Higher Education Center Against (HECAVA)
Vocational Education, Minnesota Research and Development Center for
Vocational Education, National Center for Research in
Water Resources Research Center
Women and Public Policy, Center on
Youth Development, Center for

Administration

University Regents
William E. Hogan II, Minnetonka, Chair
Patricia B. Spence, Rice, Vice Chair
Anthony Baraga, Side Lake
Robert S. Bergland, Roseau
Dallas Bohnsack, New Prague
Warren C. Larson, Bagley
David R. Metzen, South St. Paul
H. Bryan Neel III, Rochester
Michael O’Keefe, Minneapolis
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Maureen K. Reed, Stillwater

University Administrators
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McKinley Boston, Jr., Vice President for Student Development & Athletics
Carol Carrier, Vice President for Human Resources
Sandra Gardebring, Vice President for Institutional Relations
Eric Kruse, Vice President for University Services
Philip Larson, Internim Vice President for Agicultural Policy
Christine Maziar, Vice President for Research and Dean of the Graduate School
Mark B. Rotenberg, General Counsel

Graduate School Administrators
Christine Maziar, Ph.D., Vice President for Research and Dean of the Graduate School
Edward Schiappa, Ph.D., Associate Dean of the Graduate School
George D. Green, Ph.D., Associate Dean of the Graduate School
Stephen C. Hedman, Ph.D., Associate Dean of the Graduate School, Duluth
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The Graduate School provides advanced training in a variety of fields and promotes research in an atmosphere of freedom of inquiry.

The Graduate School administrative structure includes six policy and review councils, consisting of faculty and students, in the areas of biological sciences; education and psychology; health sciences; language, literature, and the arts; physical sciences; and social sciences. These councils, together with an Executive Committee, are responsible for making general policy for the Graduate School. The Executive Committee is composed of the Graduate School dean; chairpersons of the policy and review councils, the Graduate School Research Advisory Committee, and the Fellowship Committee; and representatives from the Duluth Graduate Faculty Committee, Graduate School administration and staff, and the Council of Graduate Students.

Tuition and Fees

Tuition for the various categories of Graduate School registration and fees are listed in the Class Schedule, published each term. Summer session tuition and fees are listed in the Summer Session Catalog.

Residence—Because the University is a state institution, Minnesota residents pay lower tuition than nonresidents. To qualify for resident status, students must reside in Minnesota for at least one calendar year before the first day of class attendance. For more information, contact the Resident Classification and Reciprocity Office, University of Minnesota, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/625-6330).

Reciprocity—For residents of North Dakota, South Dakota, Wisconsin, or Manitoba who qualify for reciprocity privileges, tuition rates are lower than for nonresidents and are, in some cases, comparable to resident rates. For more information, contact the Resident Classification and Reciprocity Office (see above).

Resident Tuition Benefit—For information on resident tuition for graduate assistants, fellows, and trainees, see Assistantships and Fellowships below. For information on the benefit for underrepresented and educationally disadvantaged students, see Office of Equal Opportunity in Graduate Studies below.

Basic Admission Requirements

Any student with a U.S. bachelor’s degree or a comparable foreign degree from a recognized college or university may apply to the Graduate School dean for admission. Applicants with the necessary background for their chosen major field, an excellent scholastic record from an approved college or university, and appropriate professional qualifications may be admitted for graduate work on recommendation of the graduate faculty in the proposed major field and approval of the Graduate School dean. The Graduate School operational standard for admission is an undergraduate grade point average (GPA) of 3.00. Many programs require a higher GPA. Applicants should consult the program to which they are applying for more specific information about admission standards.

For more information on admission requirements and application procedures, contact the proposed major field at the address or phone number listed for each program in Program Offices at the back of this catalog.

Application Procedure

Requests for application materials should be sent to the director of graduate studies in the individual program (see the contact list at the back of this catalog for program addresses). Requests should specify the applicant’s proposed major field and emphasis, degree objective, and date of entry.

Applicants are encouraged to apply for admission well in advance of the term in which they wish to enter the Graduate School (but no more than one year in advance of the proposed entry date). The Graduate School application, complete with all required materials, must be submitted by the following deadlines:

- Fall semester—June 15
- Spring semester—October 15
- Summer session—March 15

Deadlines that fall on a holiday or weekend will be extended through the next regular workday.

Many major fields have established deadlines earlier than those listed above and also require additional application and supporting materials. It is the applicant’s responsibility to obtain information about those deadlines and requirements from the director of graduate studies for the proposed major.

Note: More detailed and up-to-date information regarding the application fee, transcripts, and test data is included in the instructions accompanying the Graduate School Application for Admission.

Transcripts—Official transcripts of previous academic study must be submitted.

Experience at the University of Minnesota has been that often during the course of study a student has need of a complete set of official credentials covering previous college and university training. Applicants are urged to request two sets of official credentials when preparing their admission application—one to be submitted for permanent filing in the Graduate School and the other for personal use.

International Applicants—All international applicants must submit complete credentials. Details on the types of transcripts required are given in the Graduate School Application for Admission instructions.

Test Data—One or more of the following tests may be required as part of the application process (in addition, consult the individual program requirements under Degree Programs):

- Graduate Record Examination (GRE)—Most major fields request the GRE. It would be wise, therefore, for applicants to complete this test either in the senior year of undergraduate work or before filing an admission application.
The Graduate School requires GRE General Test results from all applicants who submit undergraduate narrative transcripts or transcripts containing “pass-no credit (P-N),” “credit,” or other ungraded notations for a substantial number of courses taken during the junior and senior years or whose transcripts do not show a substantial number of letter grades during those years.

For information about the test, contact the Educational Testing Service, CN 6000, Princeton, NJ 08541. Official scores must be sent to the Graduate School office from the testing service.

In 1999, the paper and pencil, three-part format of the GRE General Test (Verbal, Quantitative, and Analytical) will be replaced by a computer-adaptive General Test with five components. These components will include a college-level mathematical reasoning test and a writing test, as well as revised versions of the current Verbal, Quantitative, and Analytical measures. The General Test will be available in two packages: 1) Verbal, Analytical, Writing, and Quantitative Reasoning, and 2) Verbal, Analytical, Writing, and Mathematical Reasoning. Applicants should contact their proposed major program directly to determine which package their program requires.

Graduate Management Admission Test (GMAT)—See the business administration program description under Degree Programs. For information on registering for the GMAT, write to the Educational Testing Service, CN 6108, Princeton, NJ 08541.

Text of English as a Foreign Language (TOEFL) and Michigan English Language Assessment Battery (MELAB)—The operational standard for admission to the Graduate School is a TOEFL score of 550 or MELAB score of 80; individual programs may require a higher score. One of these tests is required of all international applicants whose native language is not English, except those who will have completed 24 quarter or 16 semester credits (within the past 24 months) in residence as a full-time student at a recognized institution of higher learning in the United States before entering the University of Minnesota. These transfer students, however, may be asked to take locally administered English tests after arrival on campus.

Foreign Medical Graduate Examination in the Medical Sciences (FMGEMS)—Applicants seeking admission to graduate study in clinical medical fields whose medical degrees or qualifications were conferred by medical schools outside the United States, Puerto Rico, or Canada must submit certification by the Educational Commission for Foreign Medical Graduates or evidence of a full and unrestricted license to practice medicine issued by a state or other territory under United States jurisdiction that is authorized to license physicians. For more information on certification and the FMGEMS, write to the Educational Commission for Foreign Medical Graduates, 3624 Market Street, Philadelphia, PA 19104, USA or phone 215/386-5900.

Additional Information—The Graduate School and individual programs within it reserve the right to request additional information when they believe it is necessary.

Special Applicant Categories

University of Minnesota Undergraduates—University of Minnesota students who have no more than seven semester credits or two courses to complete for their bachelor’s degree (including both distribution and total credit requirements), if they are admitted, may register in the Graduate School to begin a graduate program while simultaneously completing their baccalaureate work. A final bachelor’s transcript must be submitted before the second term of registration.

Professional Development—Applicants who wish to enroll in a field in the Graduate School but are not interested in a graduate degree may apply for admission for “professional development coursework.” Applicants for professional development courses must complete the usual application materials and meet existing deadlines and admission standards. Because some major fields restrict admission to those planning on pursuing an advanced degree, applicants are advised to consult with the director of graduate studies in their proposed major field before completing application materials.

Visiting Graduate Students—Students who have registered within the previous 24 months in a graduate degree program at another recognized U.S. graduate school and wish to enroll for a summer session or single semester in the University of Minnesota Graduate School to earn credits to apply toward their degree program may be admitted as visiting graduate students. Applicants must meet the current University of Minnesota entrance standards. They are required to ask the dean of their graduate school to complete the Visiting Student Application (G.S. Form 57) and return it to the Graduate School, University of Minnesota, 309 Johnston Hall, 101 Pleasant Street S.E., Minneapolis, MN 55455. Submission of the application fee and a photocopy of the bachelor’s degree transcript is required.

Under no circumstances will students be permitted to register for more than one semester or summer session as visiting students. Persons originally registering under this status who wish to apply for regular admission must follow the application procedures outlined above.

Academic Staff—University of Minnesota staff holding academic appointments above the rank of instructor or research fellow are normally not permitted to complete a graduate degree at the University. Those who wish to register for courses and transfer them elsewhere may apply for admission for “professional development coursework.”

Committee on Institutional Cooperation Traveling Scholar Program—The University of Minnesota participates in the Traveling Scholar Program for graduate students enrolled in Committee on Institutional Cooperation (CIC) institutions. The 14 participating universities are the members of the “Big Ten,” the University of Chicago, the University of Illinois at Chicago, and the University of Wisconsin (Milwaukee).

The program enables doctoral students at any CIC university to take advantage of educational opportunities—specialized courses, unique library collections, unusual laboratories—at any other CIC university without change in registration or increase in fees. Students may take advantage of these educational opportunities for three quarters or two semesters.
Graduate students interested in graduate course offerings not available at the University of Minnesota should confer first with their major department and major adviser concerning which of the cooperating institutions to select for program enrichment and diversification. Information on procedures for participating in the Traveling Scholar Program is available in the Graduate School Admissions Office, 309 Johnston Hall, or by calling (612) 625-3524.

Assistantships and Fellowships

Resolution of the Council of Graduate Schools in the United States—Acceptance of an offer of financial aid (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by an enrolled or prospective graduate student completes an agreement that both student and graduate school expect to honor. When a student accepts an offer before April 15 and subsequently desires to withdraw, the student may submit a written resignation for the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment was made. Similarly, an offer made by an institution after April 15 is conditional on presentation by the student of a written release from any previously accepted offer. It is further agreed by the institutions and organizations subscribing to this resolution that a copy of the resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer.

Graduate Assistantships—Graduate assistantships are academic appointments reserved for graduate and professional students. Appointments to teaching assistant, research assistant, or administrative fellow positions are offered through various departments. A teaching assistant helps teach students in a specified course or courses under the general supervision of the academic staff and may be assigned primary responsibility for an entire course. A research assistant carries out activities connected with research studies assigned by the supporting department or principal research investigator. An administrative fellow performs duties of a specialized nature connected with academic administration.

To be eligible to hold one of these appointments, a student must have been admitted to the Graduate School or a professional school and be registered in the Graduate School or professional school each term of the appointment; this applies to appointments of any percentage or any number of hours. For more specific information, refer to the Handbook for Graduate Assistants.

Benefits—All graduate assistants holding appointments as teaching assistants, research assistants, and administrative fellows may become eligible for the following benefits:

Tuition Benefits—Upon reaching minimum qualification for eligibility (refer to the Handbook for Graduate Assistants), students receive a tuition benefit, which is credited on the fee statement before the tuition benefit. This privilege applies concurrently to members of the immediate family (spouse or domestic partner, children, and parents).

Extended Resident Rate Privilege—When a graduate assistant completes two qualifying terms of assistantship, the resident rate break continues for the number of terms the appointments were held, up to a maximum of six terms. This privilege applies also to the student’s immediate family. Note: For the student and family, this privilege does not extend beyond three years from the termination of the last or most recent qualifying appointment.

Each department sets its own financial aid application deadline. Unless otherwise noted, students should apply by January 15 for appointments for the ensuing academic year; applications received after January 15 are considered for available vacancies.

Graduate assistants are compensated according to a pay range established each year by the University’s central administration and approved by the Board of Regents. The current pay range for graduate assistants is available from the department or the University of Minnesota Job Center. Graduate students may not hold appointments for which there is no monetary compensation, nor are they allowed to hold appointments for which they receive only course credit or resident tuition rates.

More information may be obtained from either the head of the department offering the appointment or the Job Center, which distributes The Handbook for Graduate Assistants and Grapevine, a newsletter for graduate assistants. Copies of the handbook and more information about the assistantship program at the University may be obtained from the Job Center, University of Minnesota, 200 Donhowe Building (first floor for walk-in assistance), 319 15th Avenue S.E., Minneapolis, MN 55455 (612/624-7070; fax 612/625-9801; e-mail gaoinfo@tc.umn.edu).

Graduate Assistant Health Care Plan—University-subsidized health insurance is available to most Graduate School or professional school students who hold an appointment as a teaching assistant, research assistant, or administrative fellow (some other fellows
and trainees enrolled in the Graduate School are also eligible). For these students, the University pays 50 to 100 percent of the insurance premium during the academic year (fall through spring), the percentage depending on the level of appointment. To receive this coverage, eligible students must apply for it by the end of the second week of classes. To apply, and for more information, contact the Graduate Assistant Insurance Office, N-323 Boynton Health Service, 410 Church Street S.E., Minneapolis, MN 55455 (612/625-6936).

**General College Assistantships**—Graduate students are eligible to apply for teaching assistantships in General College in mathematics, natural sciences, social sciences, writing, oral communication, and the humanities. The General College program consists of developmental and general education courses that enable underprepared students to later transfer to degree-granting colleges. Approximately 35 percent of the students in the college are from Asian/Pacific-American, African-American, Native American, and Hispanic ethnic groups.

All graduate teaching assistantships for General College are posted for at least five days in the Job Center, University of Minnesota, 319 15th Avenue S.E., Minneapolis, MN 55455. Notices of vacancies in General College may also be sent to related academic departments in other University colleges.

**Graduate Fellowships**—Graduate fellowships, awards based on academic merit, are available to new and currently enrolled graduate students. The Graduate School Fellowship Office, 321 Johnston Hall, administers several fellowship programs, described in detail below; a number of individual academic departments also administer field-specific fellowships. Entering students should contact their prospective graduate program. Currently enrolled students should consult the Fellowship Office and their graduate program office for current information on fellowship opportunities. The Fellowship Office also processes applications for several international competitions, such as Fulbright Grants for graduate study abroad.

**Resident Benefit for Graduate Fellows and Trainees**—Graduate students who hold fellowships or traineeships are eligible for resident tuition rates, provided the award is administered by the University and the stipend is at least equal to a 25-percent-time graduate assistantship. This eligibility also extends to members of the immediate family (i.e., parent, spouse, child, or ward). Any changes to this policy will appear in the Class Schedule.

**Fellowships Awarded and Administered Through the Graduate School Fellowship Office**—Awards listed below are subject to change in amounts or cancellation, depending on availability of funds. The following policies govern all awards administered by the Graduate School Fellowship Office.

**Supplementation**—Recipients of any full-support Graduate School awards may concurrently hold an assistantship or other position at 25 percent time or less without reduction in the fellowship stipend. Recipients of full-support awards may not hold other fellowships, scholarships, grants, or similar awards that duplicate the benefits of the fellowship; they may, however, receive additional partial stipends (not administered by the Graduate School) not to exceed the value of a 25-percent-time assistantship. No part of any full Graduate School fellowship may be used to supplement other full support awards.

**Terms of Award**—Graduate School awards may not be renewed, used for summer study (unless specifically designated), or deferred for use in another academic year.

**For New Graduate Students**

**GRADUATE SCHOOL FELLOWSHIPS**—Intended for recruiting outstanding new students to the University’s graduate programs, these fellowships provide approximately $12,000 for the academic year plus tuition for up to 14 credits per term. Prospective students must be nominated by their chosen major field in early February through procedures announced by the Graduate School during fall semester. Applicants should contact the director of graduate studies in their major field in advance.

**NORWEGIAN NATIONAL TORSKE KLUBBEN FELLOWSHIP**—Available to Norwegian nationals, both new and continuing students, for one year of graduate study at the University of Minnesota. Approximately $7,500 for the academic year supplemented by a tuition scholarship.

**FELLOWSHIPS AVAILABLE FOR UNDERREPRESENTED AND EDUCATIONALLY DISADVANTAGED STUDENTS**—Because eligibility varies depending on the fellowship, students should contact the appropriate program office to see if they are eligible. Information can also be obtained from the Office of Equal Opportunity in Graduate Studies, 303 Johnston Hall (612/625-6858; e-mail gseo@tc.umn.edu).

**Educational Opportunity Fellowship**—Students planning to enter the Graduate School for the first time in the fall semester are eligible for these one-year fellowships, which provide a stipend of approximately $11,800 plus tuition and health insurance (fees not included) for the academic year. Departmental support following the fellowship year is included. All applicants must be nominated by the graduate program they plan to enter. About 10 fellowships are awarded by the Graduate School each year.

**Other Available Fellowships**—The availability of other fellowships for underrepresented and educationally disadvantaged students changes yearly. They include the Ford Foundation Predoctoral and Postdoctoral Fellowships for Minorities, the National Science Foundation Minority Graduate Fellowship, the GEM Master’s Fellowship, the GEM Ph.D. Engineering and Natural Science Fellowship, the MacArthur Scholars Fellowship, the National Physical Science Consortium Fellowships for Minorities and Women in the Physical Sciences, and others. Contact the Office of Equal Opportunity in Graduate Studies, 303 Johnston Hall, for information. In addition, underrepresented and educationally disadvantaged students should check all regular sources of support described in this catalog.

**Fellowships and Scholarships Awarded and Administered Through Academic Departments**—See the end of this General Information section for a listing by department.

**Office of Equal Opportunity in Graduate Studies**

This office (303 Johnston Hall, 612/625-6858, e-mail gseo@tc.umn.edu) provides underrepresented and educationally disadvantaged students with information on graduate education. It assists students with the admissions process and identifies financial aid sources. The office also administers fellowships and initiatives that focus on retention and graduation.

**Waiver of Nonresident Tuition**—The University of Minnesota may waive, in whole or in part, nonresident tuition for high-ability nonresident, nonreciprocity students the University is seeking to attract. The waiver may be for either the full nonresident component of tuition or for half the nonresident component of tuition. Awards are made to new students at the time they enter the University, and are renewed through graduation for students who attend full-time and maintain satisfactory academic progress.
Preparing Future Faculty

Preparing Future Faculty (PFF), formerly the Teaching Opportunity Program for Doctoral Students (TOPDS), welcomes graduate and postdoctoral participants from all disciplines. PFF helps participants acquire information about the teaching and learning process and the role of faculty at a variety of higher-education institutions; gain a realistic perspective on the skills required for success as a faculty member; examine their fit with a teaching career in higher education; work with a faculty mentor in a teaching opportunity at the University of Minnesota, Twin Cities or a regional college or university; demonstrate, document, and reflect on their teaching skills; and market themselves for faculty or other professional positions.

To receive a letter of recognition and certificate of program participation from the Graduate School, participants must complete Grad 8101—Teaching in Higher Education and Grad 8102—Practicum for Future Faculty. Some graduate programs may have additional requirements for doctoral students participating in PFF. Other courses for credit in higher-education teaching may be recognized by PFF as substitutes for Grad 8101 or Grad 8102. Completion of an enrollment interview before the beginning of the term is required for admittance to the program.

PFF is a Graduate School program, funded by the Bush Foundation and administered through the Teaching Enrichment Programs of the Office of Human Resources. The PFF office is in 120 Fraser Hall, 106 Pleasant Street S.E., Minneapolis, MN 55455. For information on program enrollment, contact the PFF program assistant at (612) 625-3811 or pff@tc.umn.edu, or visit <www.umn.edu/ohr/pff>.

Registration

Registration Deadlines—All graduate students must register before the start of classes to avoid a late registration fee. Exceptions to these University-wide deadlines will be considered only by written request to the Graduate School; such requests are not routinely granted. For University calendar and registration deadline information and the University-wide policy governing cancel/adds, refer to the Class Schedule. For information about summer terms, including registration deadlines, refer to the Summer Session Catalog.

Registration Requirements—Most graduate students are enrolled full time every semester. In addition, the following requirements apply as appropriate.

1. To maintain their active status, graduate students must register once each year. Those who do not register in the Graduate School at least once per year are considered to have withdrawn; their Graduate School records are deactivated. Deactivated students may not register for courses, take examinations, submit degree program or thesis proposal forms, file for graduation, or otherwise participate in the University community as Graduate School students. Those who wish to resume graduate work must request readmission to the Graduate School and, if readmitted, must register in the Graduate School for the term of readmission to regain their active status. See Registration Deadlines above.
General Information

Graduate students who have registered within the past year need not register for the sole purpose of taking final written or oral examinations for the master’s degree or specialist certificate, or preliminary written, preliminary oral, or final oral examinations for the doctorate.

2. Graduate students holding appointments as teaching assistants, research assistants, or administrative fellows must be registered each term of their appointment; this applies to appointments of any percentage or any number of hours. See Graduate Assistantships under Assistantships and Fellowships above for more information.

3. Each individual enrolled in a clinical residency or post-M.D. graduate training program sponsored by the University of Minnesota and directed by a clinical department of the Medical School is required to register either as a medical fellow in the Graduate School or a medical fellow specialist in the Medical School.

4. Students receiving other types of financial aid from the University or other agencies, international students with certain types of visas, and students who wish to use various University services and facilities may have specific registration requirements; these students are responsible for obtaining information about such requirements from the appropriate offices.

Grading System

The Graduate School uses two grading systems: A-B-C-D-F (with pluses and minuses) and S-N. Students have the option of choosing the system under which they will be graded, except in courses in which grading has been restricted to one system with approval of the Graduate School. 5xxx and 8xxx courses with grades of A, B, C (including C-), and S may be applied to a Graduate School degree program. Under some circumstances and with approval of the student’s major field, 4xxx, 6xxx, and 7xxx courses may also be applied to a Graduate School degree. At least two-thirds of the total number of course credits included on any degree program must be taken A-F. Individual major fields have the option of specifying more stringent requirements regarding the application of S-N courses to a degree program.

Satisfactory Progress Toward the Degree

In addition to fulfilling the Graduate School requirements, students should consult their major program’s graduate studies handbook for program-specific criteria for satisfactory progress toward their degree.

Termination of Graduate Student Status

When performance is unsatisfactory in terms of grades or normal progress toward the student’s degree objective, graduate student status may be terminated. All guidelines stated in this catalog are minimum requirements, and each program is free to set more specific terms by which progress is measured for purposes of continuation. Students are encouraged to check with the director of graduate studies in their major field for complete information about academic performance and degree progress standards and the procedures used to monitor these standards.

Students who do not register in the Graduate School at least once per year are considered to have withdrawn; their Graduate School records are deactivated (see Registration Requirements above).

Master’s Degree

The master’s degree is awarded in recognition of academic accomplishment as demonstrated by a coherent program of coursework, passing of the required examinations, and preparation of a thesis or projects.

Two Plans for the Master's Degree—The Graduate School offers the master’s degree under two plans: Plan A, requiring a thesis, and Plan B, which substitutes additional coursework and special projects for the thesis. For plans offered in each major, see Degree Programs in this catalog.

Registration Requirement for the Master’s Degree—Master’s degree students are required by the Graduate School to complete at least 60 percent of the coursework for their official degree programs (excluding thesis credits) as registered University of Minnesota Graduate School students; individual major fields may require a higher percentage. With approval of the adviser, director of graduate studies in the major (and director of graduate studies in the minor, if the courses are for a designated minor), and Graduate School, transfer coursework may make up the remaining 40 percent (maximum) of the degree coursework (see Transfer of Credits for the Master’s Degree below).

Master’s Plan A students must enroll for a minimum of 10 thesis credits (8777) before receiving the degree.

Double Counting—Students may have a maximum of 8 credits in common between two master’s degrees.

Transfer of Credits for the Master's Degree—Unless otherwise specified under a student’s major in Degree Programs, the following rules apply to transfer of credits.

Master’s degree students are required by the Graduate School to complete at least 60 percent of the coursework for their official degree programs (excluding thesis credits) as registered University of Minnesota Graduate School students. With approval of the adviser, director of graduate studies in the major (and director of graduate studies in the minor, if the courses are for a designated minor), and Graduate School, the transfer of up to 40 percent of the degree program coursework from any combination of the following is permitted.

1. Other recognized graduate schools;
2. Adult special, summer session, and University College (formerly Continuing Education and Extension) registrations at the University of Minnesota.

In all cases, official transcripts of the work must be attached to the degree program form, unless they have already been included in the student’s Graduate School file.

Individual graduate programs have the option of specifying a lower percentage of coursework for transfer.
Work to be transferred must be graduate level (postbaccalaureate), have been taken for graduate credit, and have been taught by faculty authorized to teach graduate courses. Credits transferred from other institutions must in addition have been taken as an enrolled, graduate-degree-seeking student and appear on official school transcripts of the institutions. University of Minnesota courses taken in University College (formerly Continuing Education and Extension) must bear the special UC or CEE transcript entry verifying that they were completed for graduate credit.

In the case of a transfer from a non-U.S. institution, the credits must have been earned in a program judged by the Graduate School to be comparable to a graduate degree program in a graduate school of a regionally accredited institution in the United States.

Regarding the transfer of coursework from either a U.S. or non-U.S. institution, if conditions are placed on a student’s admission to exclude certain coursework from transfer to a Graduate School degree program, that coursework may not be transferred regardless of the level of the coursework or the status of the school or college in which it was earned.

Credits are transferred by including the courses in the proposed degree program. Credits not accepted as part of a student’s degree program cannot be transferred to the Graduate School transcript.

Courses completed through independent (correspondence) study, completed through extension or special categories at other institutions, or taken before the awarding of a baccalaureate degree cannot be transferred.

UC/CEE Tuition Differential—For all coursework taken fall 1980 or later in University College (formerly Continuing Education and Extension) and then transferred to a graduate degree program, students are billed by University College for the difference between the UC (CEE) rate and the Graduate School rate in effect at the time the credits were taken.

Official Program for the Degree—By the time students have completed 10 credits, they must file with the Graduate School an official degree program. The degree program form is available from the Graduate School, 316 Johnston Hall. Students list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements, including transfer work (see Transfer of Credits for the Master’s Degree). If a foreign language is required for the degree, it also is specified on the degree program form. If the degree is being completed under Plan A, students include the proposed thesis title. The members of a student’s final examining committee (who are the thesis reviewers for Plan A) are appointed by the dean of the Graduate School on recommendation of the faculty in the major field at the time the student’s official degree program is approved.

The minimum credit requirements for the program are specified under the Plan A and Plan B sections below.

A degree program approved by the Graduate School must be on file before reviewers report, examination, or graduation forms can be released to the student.

Official Program for the Degree in the Clinical Medical Fields—Students are expected to file an official program for the degree, including the proposed thesis title, before the end of the second year of registration. Approval by the faculty in the major field and by the Graduate School indicates a student’s admission to candidacy for the degree. Students should include on the official program forms only the minimum number of credits actually required for the award of the degree, rather than the full complement of credits taken during the course of the residency program.

Changes in Approved Program—Once approved, the degree program must be fulfilled in every detail to meet graduation requirements. Program changes should be requested by completing a Graduate School petition form.

Minimum Grade Requirements—The Graduate School requires a minimum GPA of 2.80 (on a 4.00 scale) for courses included on any official master’s degree program. Courses with grades of A, B, C (including C-), and S may be included in the official degree program, but grades of S are not calculated in the GPA. Students pursuing a Plan A master’s degree are required to register for thesis credits (8777); these registrations are not graded and therefore cannot be used to meet course credit requirements. At least two-thirds of the course credits included on any degree program must be taken A-F.

Individual major fields have the option of setting higher grade requirements and specifying more stringent requirements regarding the application of S-N courses to a degree program; students should be familiar with any special requirements in their major field.

Language Requirement—See Degree Programs to determine the language requirement, if any, for a specific major field. The Graduate School monitors the fulfillment of language study when a major field requires a language. Information on how to demonstrate proficiency, and on conditions under which proficiency is recorded on the official transcript, is available from the Graduate School, 316 Johnston Hall.

More Information—Students who have questions about the master’s degree after reading this entire section (including the following on Plan A and Plan B) may contact the Graduate School by e-mail (gsmast@tc.umn.edu). Note: Some commonly used forms are available on the Graduate School Web site at <www.grad.umn.edu>.

Plan A: Master’s Degree With Thesis

Minimum Credit Requirements—Students must complete an approved program of coursework consisting of a minimum of 14 credits in the major field and a minimum of 6 credits in one or more related fields outside the major. All credits included in the official degree program must be in graduate-level courses. A 2.80 minimum GPA must be maintained for all courses in the program. Students must also register for a minimum of 10 master’s thesis credits (8777); these registrations are not graded and therefore cannot be used to meet course credit requirements.

Students who wish to complete a designated minor (which is certified on the transcript—unlike the related fields option, which is not) must complete 6 or more credits in a single field. A designated minor must be approved by the director of graduate studies in the minor field.

For majors in clinical branches, the minor or related fields must be in nonclinical fields that will serve as a basis for the proposed clinical specialization. This fundamental work should be taken early in the program. Familiarity with those phases of the nonclinical disciplines essential to proficiency in the major specialty is required.
Thesis Credits—Students must enroll for a minimum of 10 master’s thesis credits (8777) before receiving the degree. Students cannot include thesis credits in the total program credits when determining maximum transfer allowed (see Transfer of Credits for the Master’s Degree above). They also cannot transfer thesis credits from other graduate institutions, double-count thesis credits between two master’s degrees, or use thesis credits to meet the minimum major and related field coursework requirements for the degree.

Master’s Thesis
Students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing a master’s thesis.

Thesis Title—The thesis title is submitted for approval as part of the information provided on the student’s official degree program form. Subsequent changes to the wording of the thesis title only may be made without special approval. However, once the student registers the thesis title with the Graduate School (see Registration of the Thesis Title below), changes to the title should not be made.

Language of the Thesis—Theses must normally be written in English or in the language of instruction. If a thesis is to be written in a foreign language, including a language of instruction other than English, a letter documenting the student’s proficiency in that language should be attached to the degree program form when the thesis is submitted to the Graduate School. This letter should confirm that the recommended thesis reviewers (including the outside reviewer) are qualified to read, comprehend, and criticize a thesis in the foreign language.

Published Work Included in or in Lieu of the Thesis—The thesis may include materials that students have published while University of Minnesota graduate students, provided the research was carried out under the direction of the graduate faculty and approved by the adviser for incorporation into the thesis. Such publication is welcomed as the best demonstration of quality in a student’s research, and the Graduate School encourages the practice. The adviser should notify the Graduate School in writing of the intention to publish part of the thesis material, but the Graduate School’s approval is not required.

In cases where the thesis research is to be presented to the examining committee in the form of one or more articles that have been published, or are in a form suitable for publication, the student should contact the Graduate School, 316 Johnston Hall, for information on accommodating such a presentation to the required thesis format.

Registration of the Thesis Title—When the draft of the thesis is ready to be distributed to the thesis reviewers, the student must register the title with the Graduate School, 316 Johnston Hall, by submitting a copy of the thesis title page as it will appear in the final document. Upon submission of the thesis title page, the Graduate School confirms that the degree program has been approved by the Graduate School and that the student has maintained active status (see Registration Requirements under Registration above). If so, the student is provided with the thesis reviewers report form and the other forms and information necessary to graduate.

Thesis Reviewers—The thesis is read by the entire examining committee, which is appointed by the dean of the Graduate School on recommendation of the faculty in the major field at the time the student’s official degree program is approved. This examining committee consists of at least three members: two representatives from the major field and one from the minor or a related field.

To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their adviser and other members of the final oral committee at least two weeks in advance that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered. These are minimum standards; individual programs may establish other standards for their students.

The entire committee must be unanimous in certifying that the thesis is ready for defense, as indicated by their signatures on the thesis reviewers report form. When the signed form is returned to the Graduate School, 316 Johnston Hall, the student is provided with the final examination report form.

Final Examinations—Candidates for the master’s degree, Plan A, must pass a final oral examination; a final written examination may also be required at the discretion of the graduate faculty in the major field. If both a written and oral examination are specified, the written examination must precede the oral examination.

The final examinations cover the major field and the minor or related fields, and may include any work fundamental to these fields. The final oral for the master’s degree is conducted as a closed examination, attended by only the student and the examining committee.

Final examinations are coordinated by the chair of the student’s examining committee. All committee members must be present at the examination; the absence of any member results in an invalid examination. The results of the examinations are reported to the Graduate School on the final examination report form. A majority vote of the committee, all members present and voting, is required to pass the examination. A student who fails the examination may be terminated from the graduate program or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original examining committee.

Changes in the Examining Committee—Substitutions on the examining committee may be necessitated by such circumstances as a faculty member’s temporary absence or leave from the University. The adviser or the director of graduate studies must request the Graduate School’s approval of such substitutions well in advance of the examination. Substitutions for an oral examination that are necessitated by emergency situations must also be approved in advance. In such cases, the adviser should consult with the Graduate School staff by telephone before the start of the examination.

Preparation and Submission of the Thesis—Two copies of the thesis must be submitted to the Graduate School. The student’s adviser(s) must sign both copies of the thesis to confirm that they are complete and satisfactory in all respects and that all revisions required by the final examining committee have been made. Instructions for the preparation of the thesis,
including format specifications and adviser’s signature requirements, should be obtained from the Graduate School, 316 Johnston Hall.

Plan B: Master’s Degree Without Thesis

Minimum Credit Requirements—Students must complete an approved program of coursework consisting of a minimum of 14 credits in the major field and a minimum of 6 credits in one or more related fields outside the major. The balance of credits to be completed to meet the 30-credit minimum requirement for the degree is chosen by agreement between the adviser and the student, subject to whatever restrictions the graduate faculty in the major field may place on that choice. All credits included in the official degree program must be in graduate-level courses. A 2.80 minimum GPA must be maintained for all courses included in the program.

Students who wish to complete a designated minor (which is certified on the transcript—unlike the related fields option, which is not) must complete 6 or more credits in a single field. A designated minor must be approved by the director of graduate studies in the minor field.

Plan B Project(s)—Students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing at least one Plan B project. The graduate faculty in each major field may require as many as three such projects.

The Plan B project(s) should involve a combined total of approximately 120 hours (the equivalent of three full-time weeks) of work. The graduate faculty in each major field specifies both the nature and extent of the options available to satisfy this requirement, and whether the requirement is to be satisfied in conjunction with or independent of the courses in the student’s program.

Final Examinations—The Graduate School requires a final examination for Plan B candidates; this may be written, oral, or both, at the discretion of the graduate faculty in the major field. The final examinations cover the major field and the minor or related fields, and may include any work fundamental to these fields. Students should make the Plan B project(s) available to the examining committee for its review well in advance of the final examination. If a final oral is held, it is conducted as a closed examination, attended by only the student and the examining committee. All committee members must be present at the oral examination; the absence of any member results in an invalid examination.

A committee of at least three examiners is appointed by the dean of the Graduate School upon recommendation of the faculty in the major field at the time the official degree program is approved. This committee consists of two representatives from the major field and one from the minor or a related field. The examination is coordinated by the chair of the student’s examining committee. The results of the examination are reported on a form the student must obtain from the Graduate School, 316 Johnston Hall, before the examination is held. To obtain this form, the student must have on file a degree program approved by the Graduate School and must have maintained active status (see Registration Requirements under Registration above). A majority vote of the committee, all members present and voting, is required to pass the examination. A student who fails the examination may be terminated from the graduate program or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original examining committee.

Changes in the Examining Committee—Substitutions on the examining committee may be necessitated by such circumstances as a faculty member’s temporary absence on leave from the University. The adviser or the director of graduate studies must request the Graduate School’s approval of such substitutions well in advance of the examination. Substitutions for an oral examination that are necessitated by emergency situations must also be approved in advance. In such cases, the adviser should consult with the Graduate School staff by telephone before the start of the examination.

More Information—Students who have questions about the master’s degree may contact the Graduate School by e-mail (gsmast@tc.umn.edu). Note: Some commonly used forms are available on the Graduate School Web site at <www.grad.umn.edu>.

Professional Master’s Degree in Engineering

A number of engineering departments offer programs, with emphasis on design methods, leading to a designated professional master’s degree in engineering. The design emphasis of the program is on applications rather than development of engineering methods or material behavior, and on application of knowledge and methods of the physical and social sciences as well as of engineering. The programs are primarily for students who have already earned a bachelor’s degree in a related engineering field. Students normally are expected to be recent graduates of bachelor of science in engineering programs accredited by the Engineers’ Council for Professional Development (ECPD). Full-time students should be able to complete a program in one calendar year. The professional master’s degree in engineering is considered a terminal degree. Students should also note that only under exceptional circumstances will the Graduate School and the participating programs permit students to transfer from this program to an M.S. program.

Fields in Which the Program is Offered—Refer to the appropriate engineering department sections under Degree Programs for information about the fields in which the professional master of engineering program is offered.

Regular Graduate School application procedures should be followed. Applicants should designate the master of engineering as their degree objective, to distinguish it from the master of science degree also available in the engineering fields.

Two Tracks for the Professional Master’s Degree in Engineering—The Graduate School offers the professional master’s degree in engineering under two tracks, depending on the major field: a design project track and a coursework only track.

Design Project Track—This track requires 14 credits in the major field, a minimum of 6 credits in one or more related fields outside the major, and a design project measured as a minimum of 10 credits. Students who wish to complete a designated minor must complete Graduate students must file an official degree program.

Forms are available from the Graduate School, 316 Johnston Hall.
6 or more credits in a single field. The design project emphasizes problem solving based on engineering design criteria extant in industry. Performance of professional caliber is expected which can be subjected to the scrutiny and critique of senior design engineers in industry as well as engineering faculty.

Coursework Only Track—This track requires a minimum of 30 semester credits distributed to include 14 credits in the major field, a minimum of 6 credits in one or more related fields outside the major, and the remaining credits to be determined by the student and adviser subject to whatever guidelines the graduate faculty in the major field may place on such elective choices. Students who wish to complete a designated minor must complete 6 or more semester credits in a single field. No projects or papers specific to this track are required.

Master of Fine Arts

Admission to master of fine arts programs is limited to students with the bachelor's degree or its equivalent from an accredited university or college who demonstrate exceptional promise as creative artists in one or more of the subfields in their major area. For a list of the subfields and for specific program requirements, see Art; Creative Writing; Design, Housing, and Apparel; and Theatre Arts under Degree Programs.

Specialist Certificate in Education

The Graduate School offers two-year specialist programs in several education fields (see Educational Administration, Educational Psychology—Counseling/Personnel, Educational Psychology—School Psychology, and Educational Psychology—Special Education under Degree Programs for descriptions). The specialist certificate requires a minimum of 60 credits.

Transfer of Credits—With approval of the adviser, director of graduate studies in the major, and Graduate School, transfer of up to 50 percent of the degree program coursework from any combination of the following is permitted.

1. Other recognized graduate schools;
2. Adult special, summer session, and University College (formerly Continuing Education and Extension) registrations at the University of Minnesota.

Individual graduate programs have the option of specifying a lower percentage of coursework for transfer.

Work to be transferred must be graduate level (postbaccalaureate), have been taken for graduate credit, and have been taught by faculty authorized to teach graduate courses. Credits transferred from other institutions must in addition have been taken as an enrolled, graduate-degree-seeking student and appear on official graduate school transcripts of the institutions.

University of Minnesota courses taken in University College (formerly Continuing Education and Extension) must bear the special UC or CEE transcript entry verifying that they were completed for graduate credit.

In the case of a transfer from a non-U.S. institution, the credits must have been earned in a program judged by the Graduate School to be comparable to a graduate degree program in a graduate school of a regionally accredited institution in the United States.

Regarding the transfer of coursework from either a U.S. or non-U.S. institution, if conditions are placed on a student's admission to exclude certain coursework from transfer to a Graduate School degree program, that coursework may not be transferred regardless of the level of the coursework or the status of the school or college in which it was earned.

Credits are transferred by including the courses in the proposed degree program. Credits not accepted as part of a student’s degree program cannot be transferred to the Graduate School transcript.

Courses completed through independent (correspondence) study, completed through extension or special categories at other institutions, or taken before the awarding of a baccalaureate degree cannot be transferred.

Degree Requirements—Students pursuing the specialist certificate ordinarily complete the requirements for the master's degree with a major in the field of the specialty as the first year of the program. All first-year students must meet regular admission, candidacy, and examination requirements for the master of arts degree and should specify as their degree objective the master’s degree on the application. A decision regarding continuation beyond the master’s degree in a specialist program depends on an evaluation of performance in meeting the master’s requirements.

Doctor of Philosophy Degree

The doctor of philosophy degree is awarded chiefly in recognition of high attainment and ability in a special subject field as demonstrated by passing the required examinations covering both a candidate's general and special subject fields, and by preparing and successfully defending a thesis based on original research that makes a significant contribution to knowledge in the student’s field.
Registration Requirement for the Doctoral Degree—
Doctoral students are generally required to register for major field and minor or supporting program coursework. Students should consult their graduate program to determine whether coursework completed while pursuing a University of Minnesota master’s degree may be used to meet their doctoral coursework requirement.

Doctoral students are required to enroll for a minimum of 24 thesis credits (8888) while writing the doctoral thesis. Students may not register for thesis credits until the semester after they have passed their preliminary oral examination.

Doctoral Pre-Thesis Credits (8666)—These credits are available for doctoral students who have not yet passed their preliminary oral examination but need to be registered in the Graduate School to meet requirements of agencies or departments outside the Graduate School (e.g., loan agencies). Doctoral pre-thesis credits are not graded. Note: Registration for doctoral pre-thesis credits cannot be used to meet any Graduate School degree requirements.

Transfer of Credits for the Doctoral Degree—
Students may request from the Graduate School the transfer of the following types of course credits by including the courses on the proposed degree program. In all cases, official transcripts of the graded work must be attached to the degree program form, unless they have already been included in the student’s Graduate School file. Transfer of graduate credit is not allowed for courses completed through independent (correspondence) study, completed through extension or special categories at other institutions, or taken before the awarding of a baccalaureate degree.

From Adult Special or Summer Session—Students admitted to and registered in the Graduate School may transfer to their doctoral programs the graduate-level credits earned in their first academic semester as adult special students (or in their first summer session) at the University of Minnesota. Such work must be graduate level and offered by faculty approved to teach graduate courses, and students must complete the work required of graduate students in the courses.

From University College (formerly Continuing Education and Extension)—A maximum of 12 credits of graduate-level work completed in University College (formerly Continuing Education and Extension) may be transferred to the doctoral program. This applies only to credits earned in UC (CEE) at the University of Minnesota; extension credits earned at other institutions may not be transferred. University of Minnesota extension courses must bear the special UC or CEE transcript entry showing they were completed for graduate credit.

UC/CEE Tuition Differential—For all coursework taken fall 1980 or later in University College (formerly Continuing Education and Extension) and then transferred to a graduate degree program, students will be billed by University College for the difference between the UC or CEE rate and the Graduate School rate in effect at the time the credits were taken.

From Other Graduate Institutions—Graduate credits earned at other recognized graduate institutions may be applied to doctoral degrees if the coursework was taken as an enrolled, graduate-degree-seeking student and the credits appear on official graduate school transcripts.

In the case of a transfer from a non-U.S. institution, the credits must have been earned in a program judged by the Graduate School to be comparable to a graduate degree program of a regionally accredited institution in the United States.

In the case of a transfer from either a U.S. or non-U.S. institution, if conditions are placed on a student’s admission to exclude certain coursework from transfer to a Graduate School degree program, that coursework may not be transferred regardless of the level of the coursework or the status of the school or college in which it was earned.

Transfer of graduate credit is not allowed for courses completed through independent (correspondence) study, completed through extension or special categories at other institutions, or taken before the awarding of a baccalaureate degree.

Official Program for the Degree—Students are expected to file an official program for the degree during their second year of study; the specific requirements depend on individual major field requirements. Students should submit their completed degree program forms to the Graduate School at least one semester before the term in which they plan to take the preliminary oral examination. The degree program form is available from the Graduate School, 316 Johnston Hall. The form should list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements in the major field and in the minor field or supporting program, including any transfer work (see Transfer of Credits for the Doctoral Degree above). If the student’s major field requires proficiency in one or more foreign languages, these should be specified as well. The members of a student’s preliminary oral examining committee are appointed by the dean of the Graduate School on recommendation of the faculty in the major field at the time the student’s official degree program is approved.

A degree program approved by the Graduate School must be on file before the student is permitted to schedule the preliminary oral examination.

Changes in Approved Program—Once approved, the program must be fulfilled in every detail to meet graduation requirements. Program changes should be requested by completing a Graduate School petition form.

Minimum Grade Requirements—The Graduate School does not define a minimum GPA for courses included on an official doctoral degree program, although individual programs are free to do so as part of their effort to monitor their students’ academic achievement and degree progress. Courses with grades of A, B, C (including C-), and S may be included in the official degree program, but grades of S are not calculated in the GPA. Students pursuing a doctoral degree must register for doctoral thesis credits (8888); these registrations are not graded and therefore cannot be used to meet course credit requirements. At least two-thirds of the total number of course credits included in any degree program must be taken A-F. Individual major fields have the option of specifying more stringent requirements concerning the application of S-N courses to a degree program.

Major Field Credits—The Graduate School does not specify a minimum number of credits in the major field for the doctoral degree. Depending on previous preparation and the nature of the research undertaken, the number of credits required for individual students, even within the same major field, may vary considerably.
Minor Field or Supporting Program Work—For the doctoral degree, a minimum of 12 credits must be completed in the minor field or supporting program. With a traditional minor, this work is in a single field related to the major; the minor field must be declared before the student passes the preliminary oral examination. If the student chooses a supporting program, it must be composed of a coherent pattern of courses, possibly embracing several disciplines. Both the minor and supporting program options may require students to take written preliminary examinations in the fields included, but students electing the supporting program option are not expected to have competency in each of the fields comparable to that of a person with a traditional minor.

For majors in clinical branches, the minor field or supporting program must be in nonclinical fields that will serve as a basis for the proposed clinical specialization. This fundamental work should be concentrated early in the program. Familiarity with these phases of the nonclinical disciplines essential to proficiency in the major specialty is required.

Language Requirement—See Degree Programs to determine the language requirement, if any, for a specific major field. The Graduate School monitors the fulfillment of language study when a major field requires a language. Information on how to demonstrate proficiency, and on conditions under which proficiency is recorded on the official transcript, is available from the Graduate School, 316 Johnston Hall.

Official Doctoral Candidacy—Doctoral candidacy is established when a student passes the preliminary oral examination (including “pass with reservations”).

More Information—Students who have questions about the doctoral degree, including information on examinations and the thesis, may contact the Graduate School by e-mail (gsdoc@tc.umn.edu). Note: Some commonly used forms are available on the Graduate School Web site at <www.grad.umn.edu>.

Preliminary Written and Oral Examinations

Preliminary Written Examination—All doctoral students are required to pass a written examination in the major field. This examination covers all work completed in the major field and may include any work fundamental to this field. The results of the examination are reported on the preliminary written examination report form, signed by the student’s adviser and the director of graduate studies in the major field. It is the student’s responsibility to ensure that this form is received by the Graduate School, 316 Johnston Hall, before scheduling the preliminary oral examination.

Preliminary Oral Examination—Students take the preliminary oral examination after completing a substantial part of the coursework and passing the preliminary written examination, but before writing the dissertation.

Preliminary Oral Examining Committee—The examination is administered by the committee appointed by the dean of the Graduate School on recommendation of the faculty in the major field at the time the student’s official doctoral degree program is approved. The examining committee includes a minimum of four members: three (including the student’s adviser) from the major field and one from the minor field or supporting program.

All assigned members must be present at the preliminary oral examination; the absence of any member results in an invalid examination.

Changes in the Preliminary Oral Examining Committee—Substitutions on the examining committee may be necessitated by such circumstances as a faculty member’s temporary absence on leave from the University. The adviser or the director of graduate studies must request the Graduate School’s approval of such substitutions well in advance of the examination. Substitutions necessitated by emergency situations must also be approved in advance. In such cases, the adviser should consult with the Graduate School staff by telephone before the start of the examination.

Scheduling the Preliminary Oral Examination—It is the responsibility of the student to schedule the preliminary oral with the examiners and with the Graduate School, 316 Johnston Hall, at least one week in advance. In certain of the health science fields, however, the faculty requires 30 days’ notice of the date of the preliminary oral.

Preliminary oral examinations should not be scheduled during the summer unless the members of the assigned committee can be assembled without substitution.

Before the oral examination can be scheduled, a degree program form approved by the Graduate School must be on file, along with a written examination report form indicating that the student has passed the preliminary written examination. The Graduate School must also confirm that the student has maintained active status (see Registration Requirements under Registration above).

If these documents are on file and the student has active status, the Graduate School issues the preliminary oral examination report form and instructions for conducting the preliminary oral examination to the chair of the examining committee. A copy of the student’s degree program form is also sent to both the chair of the examining committee and the student; this may be useful to the committee in reviewing the student’s preparation and in confirming the completion of degree requirements, including coursework and any language requirements. The preliminary oral examination may be authorized in spite of deficiencies in these requirements, unless more stringent standards have been established by the major field. All requirements must be completed before the final oral examination may be scheduled.

Preliminary Oral Examination Content and Outcome—All doctoral students are required to pass an oral examination in the major field. The preliminary oral examination covers the major field, the minor field or supporting program, and any work fundamental to these areas, including possible plans for thesis research.

Unlike the final oral examination, the preliminary oral is conducted as a closed examination, attended by only the student and the examining committee.

Immediately before the preliminary oral examination, the committee chair stipulates the objectives of the examination and, in consultation with other members of the examining committee, determines how the examination is to be conducted. Immediately after the examination, the candidate is excused from the room and a written secret ballot is taken before discussing the examination. Following the discussion, a second and final vote is taken, and the participants sign in the appropriate place on the report form, which is to be returned to the Graduate School, 316 Johnston Hall, no later than the first workday after the examination.

The outcome of the examination, with all committee members present and voting, is recorded in one of three ways: pass, pass with reservations, or fail. The voting proportions necessary for these decisions are
as follows: if the committee consists of four members, a favorable verdict for passing consists of either a unanimous vote or a vote of 3-1; if the committee consists of five members, a unanimous vote or a vote of 4-1 is needed; if the committee consists of six members, a unanimous vote or a vote of 5-1 or 4-2 is needed; and if there are seven members, a unanimous vote or a vote of 6-1 or 5-2 is needed. Candidates who do not earn committee votes in these proportions fail the examination. If, to achieve the minimum number of votes to reach a verdict of pass, any vote of pass with reservations is included, then the outcome will be recorded as a pass with reservations. A vote to pass the student with reservations still constitutes a passing vote.

Pass With Reservations—If the student passes the examination with reservations, the student is informed immediately, but the committee is permitted one week in which to convey its reservations to the student in writing, informing the student of the steps that must be taken to remove them. A copy of this letter must be sent to the Graduate School and should accompany the signed oral examination report form. When the student has satisfied the committee’s reservations, a second letter informing the student and the Graduate School that the reservations have been removed and that the student may proceed toward the degree is also required. Both letters should be written by the committee chair. The final oral examination may not be scheduled until the Graduate School has received a copy of the letter indicating that the reservations have been removed.

If the committee members disagree as to whether the reservations have been satisfactorily removed, the committee chair asks for another vote, the results of which are subject to the same voting proportions as the initial vote. If the student is unable to satisfy the committee’s reservations, his or her doctoral candidacy and graduate student status may be terminated.

Failure of the Preliminary Oral Examination—
Students who fail the examination may be excluded from candidacy for the degree or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original preliminary oral examining committee.

In no case may the reexamination take place before 10 weeks have passed. No more than one reexamination is allowed.

Recess of a Preliminary Oral Examination—
If the preliminary oral examining committee recesses without having determined whether a student has passed the examination, the chair of the committee must send a letter to the dean of the Graduate School explaining the reasons for the recess and noting the date on which the examining committee will reconvene. If the recess will be longer than one week, the examination report form must be returned to the Graduate School, 316 Johnston Hall, and the student must reschedule the examination with the Graduate School one week in advance. A new examination report form will be mailed to the chair of the committee one week before the date on which the committee will reconvene. The reconvened committee must be composed of the same members as the original preliminary oral examining committee.

Ph.D. Thesis
The thesis must demonstrate the student’s originality and ability for independent investigation, and the results of the research must constitute a contribution to knowledge. The thesis must exhibit the student’s mastery of the literature of the subject and familiarity with the sources. The subject matter must be presented with a satisfactory degree of literary skill.

Thesis Proposal—At the time of submission of the doctoral program, or not later than the first semester after passing the preliminary oral examination, students must file the thesis proposal form with the Graduate School, 316 Johnston Hall. The form must include the proposed thesis title and a thesis proposal, about 250 words in length, describing the research to be undertaken and the methods to be employed in carrying it out.

The thesis reviewers and other members of the final oral examining committee are appointed by the dean of the Graduate School upon recommendation of the faculty in the major field at the time the student’s thesis proposal is approved.

A thesis proposal approved by the Graduate School must be on file before the reviewers report form can be issued to the student.

Changes in the Thesis Title or the Thesis Proposal—
Changes in the wording of the thesis title may be made without special approval, but changes should not be made after the thesis title is registered (see Registration of the Thesis Title and Delivery of the Thesis to Thesis Reviewers below). If substantive changes are made in the nature of the thesis research itself, the student must submit a revised thesis proposal immediately.

Language of the Thesis—
Theses must normally be written in English or in the language of instruction. If a thesis is to be written in a foreign language, including a language of instruction other than English, a letter should be attached to the thesis proposal form when it is submitted to the Graduate School. This letter should confirm that the recommended thesis reviewers (including the outside reviewer) are qualified to read, comprehend, and critique a thesis in the foreign language.

Published Work Included in or in Lieu of the Thesis—
The thesis may include materials that students have published while University of Minnesota graduate students, provided the research was carried out under the direction of the graduate faculty and approved by the adviser for incorporation into the thesis. Such publication is welcomed as the best demonstration of quality in a student’s research, and the Graduate School encourages the practice. The adviser should notify the Graduate School in writing of the intention to publish part of the thesis material, but the Graduate School’s approval is not required.

In cases where the thesis research is to be presented to the examining committee in the form of one or more articles that have been published, or are in a form suitable for publication, the student should contact the Graduate School, 316 Johnston Hall, for information on accommodating such a presentation to the required thesis format.

Registration of the Thesis Title—
Students must register the thesis title with the Graduate School, 316 Johnston Hall, by submitting a copy of the thesis title page as it will appear in the final document. Upon submission of the thesis title, the Graduate School provides the student with the thesis reviewers report form and the other forms necessary to graduate, on condition that the student has on file a thesis proposal approved by the Graduate School and has maintained active status (see Registration Requirements under Registration above).
Thesis Reviewers—All members of the final oral examining committee read the thesis, although only those designated as thesis reviewers sign the report form certifying that the thesis is ready for defense.

The designated thesis reviewers consist of the adviser representing the major field, and at least two other members of the final oral examining committee, including at least one representative from the major field and one representative from the minor or supporting program. Part of this group of reviewers should come from outside of the graduate program’s thesis advisory committee, if the program uses such a committee.

Certification of the thesis as ready for defense is a necessary step toward the final oral examination, but in no way diminishes the significance of that examination.

Delivery of the Thesis to Thesis Reviewers—At the time the candidate submits a draft of the thesis to the thesis reviewers, copies must also be provided to all other members of the final oral examining committee. The thesis abstract must be included with the thesis when it is distributed to the committee. The abstract must be signed by the adviser before it is submitted to the Graduate School, which forwards it to University Microfilms.

To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their adviser and other members of the final oral committee at least two weeks in advance that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered.

When signing the thesis reviewers report form, the reviewers have three options: the thesis is acceptable for defense as presented; the thesis is acceptable for defense with minor revisions; or the thesis requires major revisions and is not acceptable for defense as presented.

The reviewers must be unanimous in certifying that the thesis is ready for defense, whether as presented or with minor revisions. If this is the case, and all other requirements have been met (see Final Oral Examination below), the Graduate School authorizes the final oral examination. In any instance where revisions are required, the committee must inform the student in writing of the revisions required, and all questions concerning such revisions must be resolved before the final copies of the thesis are submitted and the degree is conferred. It is the adviser’s responsibility to ensure that revisions required by the reviewers are satisfactorily made (see Preparation of the Copies of the Thesis below).

Final Oral Examination

All doctoral students are required to successfully defend their theses in a final oral examination within five calendar years after passing the preliminary oral examination. To be eligible for the final oral examination, a student must have completed all work on the official doctoral degree program form, including the language requirement, if any; must have passed both the written and oral preliminary examinations; must have maintained active status; and must have satisfied the thesis credit requirement. In addition, the thesis must have been certified by the readers as ready for defense.

Scheduling the Final Oral With the Graduate School—The student must schedule the examination at least one week in advance with both the committee and the Graduate School (see Clearance for Graduation below). In certain of the health science fields, however, the faculty requires 30 days’ notice of the date of the final oral.

When the examination is scheduled, the student’s Graduate School file is checked to determine if the student can actually take the examination as stipulated above. If so, the report form for the final oral examination will be forwarded to the chair of the examining committee. If difficulties are apparent, the Graduate School staff will contact the adviser and the student immediately.

A minimum of ten weeks must intervene between the preliminary oral and the final oral examinations. Also, the final oral should not be scheduled during the summer unless the committee members can be assembled without substitution.

Final Oral Examining Committee—The committee must consist minimally of four members: three (including the student’s adviser) from the major field and one from the minor field or supporting program. At least one committee member from the minor field or supporting program should represent a graduate program and budgetary unit other than that of the student’s major.

Although the student’s adviser serves as a member of the final oral examining committee, another member of the committee is designated as the chair and functions in this capacity at the final oral examination. The chair must be a full member of the graduate faculty and may be from either the major field or the minor field or supporting program. The chair and other members of the final oral examining committee are appointed by the dean of the Graduate School upon recommendation of the faculty in the major field at the time the student’s thesis proposal is approved.

All committee members must be present at the examination; the absence of any member results in an invalid examination.

Changes in the Final Oral Examining Committee—Substitutions on the examining committee may be necessitated by such circumstances as a faculty member’s temporary absence on leave from the University. The adviser or the director of graduate studies must request the Graduate School’s approval of such substitutions well in advance of the examination. Substitutions necessitated by emergency situations must also be approved in advance. In such cases, the committee chair should consult with the Graduate School staff by telephone before the start of the examination.

Form of the Final Oral Examination—The final oral examination consists of a seminar in which the candidate presents the thesis and to which the scholarly community is invited. The seminar may take place only after the thesis has been judged ready for defense. The examination is limited to the candidate’s thesis subject and relevant areas. It will not exceed three hours. A closed meeting between the candidate and the appointed examining committee immediately follows the seminar. The candidate is then excused and the vote taken on whether the candidate passed the examination.

Reporting the Results of the Final Oral Examination—Upon completion of the examination, a formal vote of the committee is taken. To be recommended for the award of the doctoral degree, candidates must receive a vote with no more than one dissenting member of the total examining committee. If the student has clearly passed or clearly failed the
examination and all members have signed the final examination report form, the report form must be returned to the Graduate School no later than the first workday following the examination.

The adviser should be responsible for ensuring the inclusion of appropriate modifications and required revisions, if any, in the final thesis. The final oral examination report form should not be signed and submitted to the Graduate School until all reservations have been satisfied. If the form will be held for more than one week, a letter must be sent to the Graduate School stating that the form is being held pending required revisions.

Once the final report form has been returned to the Graduate School indicating that the student has either passed or failed the final oral examination, a hold is placed on the student’s records to prevent further registration in the Graduate School. If the adviser indicates that the student needs additional time to make minor revisions to the thesis before it is submitted to the Graduate School, the student is permitted to register for one additional semester. Once the thesis has been submitted, no further registration in the Graduate School is permitted unless the student has been admitted to professional development status or to another major field.

**Recess of a Final Oral Examination**—On rare occasions, the examining committee may conclude that the final oral examination should be recessed, to be reconvened at a later date. Guidelines for such circumstances are sent to the chair of each examining committee along with the final oral examination report form.

The Graduate School need not be notified until after the fact of informal recesses of up to a week. In the case of a longer recess, the committee must inform the student in writing of the reasons for recessing the examination, including any deficiencies noted in the student’s thesis or defense, and must indicate when they expect to reconvene and resume the examination. A copy of this letter must be sent to the Graduate School, along with the unsigned final examination report form. When the student and the committee are ready to reconvene the examination, it should be scheduled in the normal way with the Graduate School. A new examination report form will be mailed to the chair of the committee one week before the date on which the committee will reconvene. The reconvened committee must be composed of the same members as the original final oral examining committee.

**Preparation and Submission of the Copies of the Thesis**

A copy of the thesis must be submitted to the Graduate School. The student’s adviser(s) must sign the thesis to confirm that it is complete and satisfactory in all respects and that all revisions required by the final examining committee have been made. Instructions for the preparation of the thesis, including format specifications and adviser’s signature requirements, should be obtained from the Graduate School, 316 Johnston Hall.

**Pursuit of a Second Ph.D. Degree**

Students are not permitted to earn two Ph.D. degrees at the same time in two fields using the same program of study and thesis. Although students are generally discouraged from doing so, special circumstances may warrant taking a second Ph.D. degree at a later date, but only when a completely separate program and thesis are involved.

**Doctor of Education**

The University of Minnesota awards the doctor of education (Ed.D.), its highest professional degree in educational administration and vocational education, in recognition of satisfactory academic preparation and demonstrated competence for professional activity in those fields.

Standards and procedures for admission, and expectations for scholastic performance, are comparable to those for the Ph.D. A major part of the program must be conducted in full-time residence, including at least one continuous academic year at advanced stages of the program. Rules and procedures governing examinations, candidacy, time limits, appointment of committees, and the thesis for the Ph.D. apply in general to the Ed.D.

For requirements, see Doctor of Philosophy Degree above, or contact the Graduate School by e-mail at gsdoc@tc.umn.edu. Note: Some commonly used forms are available on the Graduate School Web site at <www.grad.umn.edu>.

**Doctor of Musical Arts**

The program for the professional doctor of musical arts (D.M.A.) degree has a performance-teaching orientation. Emphases are offered in piano, organ, voice, violin, cello, clarinet, woodwinds, trumpet, trombone, guitar, accompanying/coaching, and orchestral conducting. Standards and procedures for admission, and expectations for scholastic performance, are comparable to those for the Ph.D. Details concerning major and minor requirements for the D.M.A. are included in the Music section under Degree Programs. Rules and procedures governing examinations, candidacy, time limits, and appointment of committees for the Ph.D. apply in general to the D.M.A.; in place of the thesis, a project document or paper is required.

For requirements, see Doctor of Philosophy Degree above, or contact the Graduate School by e-mail at gsdoc@tc.umn.edu. Note: Some commonly used forms are available on the Graduate School Web site at <www.grad.umn.edu>.

**Use of Human or Animal Subjects in Research**

All research on the Twin Cities, Duluth, Morris, and Crookston campuses that involves the use of human or animal subjects must be reviewed and approved before initiation by the Institutional Review Board: Human Subjects Committee (IRB) or the Institutional Animal Care and Use Committee (IACUC). This policy, approved by the University Senate and Board of Regents, applies to funded and nonfunded faculty, staff, and student research. All research, including Plan B projects, theses, and dissertations, that involves human or animal subjects must be approved by the appropriate committee to ensure that the rights and welfare of the subjects are protected. For more information, contact the Research Subjects Protection Office, University of Minnesota, Box 820 Mayo, 420 Delaware Street S.E., Minneapolis, MN 55455 (612/626-5654; fax 612/626-6061).
Clearance for Graduation

Degrees are awarded at the end of each month. To qualify for graduation for a particular month, a student must submit the Application for Degree form on or before the first workday of that month and must complete the examination and all other requirements (including necessary forms and fees) by the last workday of that month.

Commencement Ceremony

Two Graduate School commencement ceremonies are held each year—in late spring (for January through June graduates) and in late fall (for July through December graduates). Graduates are encouraged, but not required, to attend. To make sure their names appear in the program distributed at the commencement ceremony, graduates must submit the commencement attendance form by the deadline specified in the Graduate School section of the Class Schedule.

Other Financial Assistance

Student Employment—The University’s Job Center (part of the Office of Human Resources) offers graduate students a wide range of nonacademic employment opportunities both on campus and throughout the Twin Cities area. All jobs are posted at the Job Center, 200 Donhowe Building, 319 15th Avenue S.E., Minneapolis, MN 55455 (612/625-2000). Contact the Job Center for more information, including registration requirements for graduate student eligibility.

In addition to University (on-campus) employment, the Center offers programs for off-campus employment: the Job Location and Development (JLD) Program helps locate career-related opportunities with private and public employers in the Twin Cities; Community Service Programs helps arrange employment on and off campus with nonprofit organizations and agencies.

Students who prefer more flexibility may apply for short-term, on-campus temporary positions through the Student Temporary Service (STS). STS also offers free microcomputer training and temporary job placement through the Microcomputer Training Program. Training is provided on Macintosh and IBM microcomputers. Once qualified, students are placed in temporary, on-campus microcomputer-related jobs at competitive wages.

Office of Scholarships and Financial Aid (OSFA)—To apply for financial aid, graduate students must complete the Free Application for Federal Student Aid (FAFSA), available from the financial aid office each year. Graduate students are considered for the following programs, according to their degree program, student status, and other qualifying criteria: Ford Federal Direct Subsidized and Unsubsidized Loans; Federal Perkins Loans; Student Educational Loan Fund (SELF); University Trust Fund Loan (UTFL); University of Minnesota scholarships and fellowships; regular student employment and Work-Study; Health and Human Services Health Care Professions Grants; Minnesota Medical Foundation Scholarship; Minnesota Tuition Offset for Health Professions; Nursing Grant Program for Persons of Color; Peters Pharmacy Scholarship; University of Minnesota Medical School Scholarships; Health Professions Student Loan (HPSL); Loans for Disadvantaged Students (LDS) for health professions; Nursing Student Loan (NSL); Primary Care Loan (PCL) for medical students; and private loans. International graduate students must contact International Student and Scholar Services for financial aid opportunities (see below).

Most awards are based on financial need and full-time enrollment status. Aid from the UTFL, Perkins, and Work-Study programs is awarded as applications become complete and until all funds have been spent. Students who submit their FAFSAs early to the federal processor receive first priority consideration for limited funds. Prospective students may apply before admission to the University.

For detailed information, students should obtain the most recent edition of the Scholarships and Financial Aid Handbook, a comprehensive guide to the financial aid process at the University of Minnesota. The handbook is accompanied by the FAFSA, which must be completed for aid consideration. Students may write to the Office of Scholarships and Financial Aid at either University of Minnesota, 210 Fraser Hall, 106 Pleasant Street S.E., Minneapolis, MN 55455, or University of Minnesota, 130 Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 55108, or call (612) 624-1665 or, July-September, 1-800-400-UofM(8636); the fax number is (612) 624-9584 and the e-mail address is osfa@tc.umn.edu. To receive disability accommodations when in Fraser Hall or information in an alternative format, call the disability services liaison for financial aid at (612) 625-9578; TTY telephone is (612) 626-0701.

International Students and Scholars—Counseling, advising, and educational services are provided for students and scholars from other countries by International Student and Scholar Services (ISSS). Staff members offer counseling and advising services regarding visa requirements and other immigration issues; social, personal, and financial matters; international and intercultural educational opportunities; academic issues; and English language requirements.

International students new to the University of Minnesota must participate in ISSS’s Preregistration Program, which introduces students to academic, social, and practical matters relevant to their study in the United States. In addition, ISSS coordinates many cross-cultural programs for students, faculty, staff, and the community. All admitted international students and scholars are mailed materials pertaining to pre-arrival, arrival, and transition to the University system. Prospective student inquiries may be addressed to International Student and Scholar Services, 109 Hubert H. Humphrey Center, 301 19th Ave. So., Minneapolis, MN 55455 (612/626-7100).

Army and Air Force ROTC—Graduate students may pursue a two-year Army or Air Force ROTC program. For information, see the University’s Undergraduate Catalog for the Twin Cities campus or call the Army ROTC (612/624-7300) or Air Force ROTC (612/624-2884).
Fellowships and Scholarships Awarded and Administered Through Academic Departments—
Following is an illustrative list of fellowships and scholarships administered at the academic department level. More information is available from departments. Awards are subject to change or cancellation depending on availability of funds.

AGRICULTURAL ENGINEERING
Alton Leaverton Award— For an agricultural engineering graduate student who demonstrates excellence in academics and research. Variable amount.

AGRONOMY AND PLANT GENETICS
H. K. Hayes Memorial Scholarship— For a current graduate student in the Department of Agronomy and Plant Genetics who is outstanding in scholarship, research, and leadership in department and student activities. $1,000.
J. W. Lambert Memorial Fellowship— For graduate students entering the Department of Agronomy and Plant Genetics with exceptional academic records and/or experience, $3,000 plus a half-time assistantship first year; $1,000 plus a half-time assistantship subsequent years.

Pioneer Hi-Bred Graduate Fellowship— For outstanding graduate students in applied plant breeding. Variable amount, consisting of augmentation to a half-time assistantship.

AMERICAN STUDIES
American Studies Fellowship— To support three first-year graduate students, a stipend and quarter-time assistantship about equal to first-year Graduate School Fellowship stipend.

APPLIED ECONOMICS
The Center for International Food and Agricultural Policy Graduate Study Fellowships— To attract high-quality Ph.D. students to the program and to strengthen opportunities for international experience within the graduate curricula. Up to $2,000 plus a regular 12-month, half-time research assistantship each year for up to 45 months of study; up to $2,000 travel grant in the final year of the student's program.

ARCHITECTURE
All scholarships/fellowships are for graduate and undergraduate students already in the architecture program and are given at the discretion of the department, unless otherwise noted.

AIA (American Institute of Architects) Foundation Scholarships— Stipends awarded to architecture students on the basis of financial need and academic achievement. Nominations are made by CALA to the AIA Foundation.

AIA Henry Adams Medal and Certificate— Awarded to the two graduating architecture students highest in academic rank.

AIA Minneapolis Chapter— Two stipends for third-year architecture students who do not qualify for other awards.

AIA Minneapolis/Minnesota Archaeological Stipend Program— Awarded to architecture students based upon need and background. Nominations are made by CALA to the AIA.

Alpha Rho Chi Medal— Given to a graduating architecture student for leadership and service by the national architecture fraternity.

Thomas Ellerbe Fellowship— Stipend awarded to architecture students in their final year by the Minnesota Architectural Foundation based on academic record, portfolio, and recommendations.

Stanley and Doris Moe Scholarship— Offered to outstanding architecture applicants at the time of their admission.

SPQR Travel Award— Stipend awarded to architecture students for participating in the Study Abroad Program based on need and academic rank.

Stretch/Morrill Memorial Award— Thesis award for graduating architecture students nominated by faculty.

In addition, several corporations and firms sponsor other annual scholarships and architectural design competitions (with financial awards) as part of design studios. Recent sponsors have included Pella scholarships and architectural design competitions (with financial awards). Recent sponsors have included Pella scholarships and architectural design competitions (with financial awards).

ART (Twincities Campus)
Dayton-Hudson Internships in the Arts— To enhance graduate student involvement and visibility in the local arts community and to assist arts organizations with their missions. $6,000 for each year of the three-year program.

Studio Arts Endowed Scholarships— To assist graduate students in their individual visual research. $500-$3,500.

ART (Duluth Campus)
Alice Tweed Tuohy Foundation Scholarship— For graduate or undergraduate art students to help defray tuition expenses. Variable amount.

ART HISTORY
Elizabeth Roe Fellowship— For art history graduate students. $500 to $3,000.

Pioneer Fellowship— For Art History Graduate Students $500 to $3,000.

BIOCHEMISTRY
Chemical Bases of Cell and Molecular Biology Training Grant— To train doctoral students in biochemistry, chemistry, genetics and cell biology, and microbiology, in a chemically based approach to cellular and molecular biology. U.S. citizenship required. $8,800 plus tuition, health insurance, and certain fees. This amount is supplemented to bring the stipend to that received by other graduate students in the program.

Arnold J. Johnson Doctoral Fellowship— To train pre-doctoral students in biochemistry with faculty in the College of Biological Sciences. U.S. citizenship required. Apply through the Biochemistry Department, College of Biological Sciences. $6,250.

BIOLOGICAL SCIENCES
Bell Delta Waterfowl Fellowship— For graduate students in ecology, evolution, behavior, and biology who are studying North American waterfowl at the Delta Waterfowl Research Station in Manitoba. Apply through Bell Museum of Natural History. Variable amounts.

Dayton Natural History Fund— To encourage field research in field biology by graduate students without geographic restrictions. Apply through Bell Museum of Natural History. Variable amounts, usually $100 to $2,000.

Itasca Research Stipends— To encourage research at Lake Itasca Forestry and Biological Station by qualified graduate students from any area relating to field biology. Apply through the Itasca Biology Program. Variable amounts.

Florence Rothman Fellowship— For first- or second-year graduate students in ecology or associated with Bell Museum faculty to support exploratory field studies. Applicants should apply through the Department of Ecology, Evolution, and Behavior. At least $500.

Sigerfoos Fellowship— For short-term zoological study by graduate students at another institution or research area. Preference for study of marine or tropical zoology. Apply through the director of graduate studies in zoology.

James W. Wilkie Fund for Natural History— For field studies in natural history by graduate students in any aspect of field biology. Apply through Bell Museum of Natural History. Variable amounts, usually $100 to $2,000.

BIOSTATISTICS
National Research Service Award Traineeships— For graduate students in biostatistics. U.S. citizenship or permanent residency required. Salary (usually $10,008) plus tuition and insurance premium waivers.

U.S. Public Health Service Traineeships in Public Health— For graduate students in biostatistics. U.S. citizenship or permanent residency required. Variable amounts.

BUSINESS ADMINISTRATION
Accounting Department Scholarships— Awarded to MBA and Ph.D. accounting students on the basis of merit. Variable amount. More information is available from the Carlson School Accounting Department.

American Production and Inventory Control Society— For Carlson School of Management graduate and undergraduate students interested in a career in operations and materials management. Variable amount.

R. Glen Berryman Scholarship Fund— Awarded to Carlson School accounting students based on merit. Variable amount.

Carlson Companies Scholarship— For Carlson Companies employees or children or grandchildren of employees enrolled as graduates or undergraduates in the Carlson School. Variable amount.


Carlson School Ph.D. Fellowships— Awarded to first-year Ph.D. students on the basis of merit. Variable amount.

Carlson Student Aid Fund— For graduate and undergraduate students enrolled in the Carlson School. Variable amount.


Erwell Foundation— Awarded to several Ph.D. students in finance. Variable amount.

With the transition from quarters to semesters in fall 1999, classes will begin the day after Labor Day. For complete calendar information, see the inside front cover of this catalog.
General Information

**CHEMISTRY**

All chemical engineering and materials science graduate students who submit applications for graduate assistantships or Graduate School Fellowships are considered for departmental fellowships. The criterion for selection is academic excellence. In recent years, departmental fellowship funds have come from the following sources:

- **Air Products and Chemicals**
  - Chevron
  - Dow Chemical Company Foundation
  - Eastman Kodak
  - Exxon Education Foundation
  - Fridley Foundation
  - Minnesota Mining and Manufacturing Company (3M)
  - Mobil
  - Pillsbury Company
  - Proctor and Gamble
  - Shell Companies Foundation
  - Union Carbide
  - Upjohn Company

**CHEMICAL ENGINEERING AND MATERIALS SCIENCE**

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**CHEMISTRY**

The Department of Chemistry awards fellowships for outstanding graduate students each year. Several fellowships for partial summer support are sponsored by a number of corporations.

**CHEMISTRY/CHEMICAL PHYSICS**

Same as Chemistry.

**CHILD PSYCHOLOGY**

Center for Research in Learning, Perception, and Cognition—To prepare doctoral students in learning, perception, cognition, and related areas for research careers in cognitive science. Must be U.S. citizen, national, or permanent resident. $10,800 (12 months) plus tuition and fees.

Institute of Child Development—To prepare continuing doctoral students in child psychology for research careers. Must be U.S. citizen, national, or permanent resident. $7,506 (9 months) plus tuition and fees.

**CIVIL ENGINEERING**

Sommerfeld Fellowships—For outstanding graduate students in any branch of civil engineering. $10,200 plus tuition and health coverage.

**CLASSICAL AND NEAR EASTERN STUDIES**

John C. Hutchinson Fellowship—To support promising classics students in the study of Greek and Latin language and literature at an advanced level. $1,000 to $4,000.

**COMMUNICATION DISORDERS (Twin Cities Campus)**

Center for Research in Learning, Perception, and Cognition—To prepare doctoral students with interests in perception, learning, and cognition for research careers in cognitive science. U.S. citizenship required. $10,008 plus tuition, fees, and insurance.


Veteran’s Administration Traineeships in Speech-Language Pathology and Audiology—For master’s and doctoral students in speech-language pathology and audiology. U.S. citizenship required. $4,900.

**COMMUNICATION DISORDERS (Duluth Campus)**

Eddy Foundation Scholarships—For students in communication disorders at University of Minnesota-Duluth. Preference to Duluth area residents.

Robert F. Pierce Scholarship for Academic Excellence—For top applicants to the communication disorders graduate program on the Duluth campus. Awarded annually $10,000 paid in $3,000 installments.

**COUNSELING**

Counseling Internship and Associate Staff Positions—For doctoral students in psychology and education to provide experience and training in college student counseling. Apply through University Counseling and Consulting Services.

**Counseling and Consulting Services.**

For doctoral students in cellular and integrative physiology. $1,500.

Lifson-Johnson Award—For a doctoral candidate in cellular and integrative physiology who has demonstrated outstanding merit, academic potential, and financial need. $1,500.

Irwin J. Fox Award—To recognize outstanding academic achievement by a doctoral student in cellular and integrative physiology. $1,000.

Allan Hemingway Endowed Scholarship—For a doctoral candidate in cellular and integrative physiology who has demonstrated outstanding merit, academic potential, and financial need. $1,500.

Lifson-Johnson Award—For a doctoral student in cellular and integrative physiology, to recognize outstanding teaching or research in the area of physiological transport systems. $1,000.

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CREATIVE WRITING
See ENGLISH below.

CURRICULUM AND INSTRUCTION
(Reading/Language Arts Education)
Guy Bond Research Assistantship—To support a new doctoral student in reading education. $12,000 plus tuition for the first two years; departmental teaching assistantship for third year.
Reading/Language Arts Education Dissertation Fellowship—To support preparation of a publishable paper. $1,000.
Robert Schreiner Reading Fellowship—To support preparation of a publishable paper. $1,000.
Frances Triggs Reading/Language Arts Memorial Fellowship—To assist a doctoral candidate in the completion of the dissertation. $2,500.

ECONOMICS
Harold Hardy Fellowship—Thesis support for doctoral students.
Hellier Fellowship in Public Policy—for thesis research support in public policy economics.

EDUCATION
See also CURRICULUM AND INSTRUCTION above.
Ruth Eckert Scholarship—For women doctoral students who have completed the preliminary examination for the Ph.D.
Recommendations from the student’s major adviser and other one faculty member are required. Variable amount not to exceed $1,000.
Education and Human Development Alumni Society Advanced Study Scholarship—For graduate students with outstanding academic performance and whose faculty recommendations show the student’s potential to make significant contributions to the field. $500, subject to availability of funds.
Education and Human Development Alumni Society Larry Wilson Scholarship—For degree-seeking students who have career objectives related to non-school-based education. Recipients will be selected based on leadership potential and a strong academic record. $500, subject to availability of funds.
Education and Human Development Student Community Service Award—For students who have performed outstanding volunteer service for nonprofit organizations and groups external to the University. $500.

Epsilon Chapter of Pi Lambda Theta Dissertation Research Grant—For graduate students who have completed the preliminary exam for the doctorate in education. $500, subject to availability of funds.

Home Economists in Business—For graduate student majoring in home economics education with career goals oriented toward working in a business setting. Applicants must be members of the Minnesota Home Economics Association. $800.

Minnesota Home Economics Association—For students in home economics, preferably members of the Minnesota Home Economics Association. $500.

Minnesota Recreation and Park Foundation Scholarship—For students in recreation, park, and leisure studies. Awards are based on an essay limited to one page. $500, subject to availability of funds.

J. Anna Norris Award—For graduate or postbaccalaureate women students in a program likely to lead to a career in college teaching or adult education in physical education and/or sport. Variable amount.

Omicron Nu Research Fellowship—Awarded to graduate students at the doctoral level in family education within the Department of Work, Community, and Family Education. $2,250.

Richard C. Schleien Memorial Scholarship Fund—For students in therapeutic recreation, adapted physical education, special education, or areas related to serving students with disabilities. $100 to $1,000.

Twin City Home Economists in Homemaking—Awarded to a graduate student in home economics education or other home economics field. $1,200.

ENGLISH
Edelstein-Keller Teaching/Writing Fellowships—For outstanding writers entering or enrolled in the M.F.A. program in creative writing. Up to three appointments combining fellowship support with some work for a total stipend of about $9,000.

Frederick Klaeber Fellowship in Medieval Studies—For doctoral students in medieval English language and literature, especially those concentrating in Anglo-Saxon. $9,000 plus tuition for the year of tenure; a teaching assistantship plus tuition for two more years.

Martin Ruud Memorial Fellowship—Given in alternate years. For doctoral students in English during their first three years of coursework, $9,000 plus tuition for the first year; a teaching assistantship plus tuition for the second and third years.

ENTOMOLOGY
Dr. Alexander A. Granovsky Pest Management Scholarship—To recognize an entomology student for outstanding professional interests and studies related to pest management, with particular focus on urban pest management. Must be a student member of the Entomological Society of America and have at least one popular or scientific publication related to arthropods published or in press. $1,000.

ENVIRONMENTAL HEALTH
National Institute for Occupational Safety and Health—For graduate students specializing in industrial hygiene, occupational health nursing, and injury prevention. U.S. citizenship or permanent residency required. Up to $8,300 plus tuition and fees; partial awards also offered.

U.S. Public Health Service Traineeships in Public Health—For graduate students in environmental health. U.S. citizenship or permanent residency required. Stipend plus tuition and fees; partial awards also offered.

Richard G. Bond Memorial Scholarship—For full-time environmental health student with preference to student with experience in environmental health or related field. Full tuition for up to two semesters.

EPIDEMIOLOGY
Behavioral Aspects of Cardiovascular Diseases Fellowship—For pre- and postdoctoral scholars preparing for research careers. $8,800 to $32,300, plus tuition, fees, and travel (according to level of training and experience).

Cancer Epidemiology Fellowship—Pre- and postdoctoral cancer research training program in the epidemiology of cancer. Stipend, tuition, fees, and travel (stipend according to level of training and experience).

Cardiovascular Epidemiology and Prevention Fellowship—Pre- and postdoctoral research training in the epidemiology and prevention of cardiovascular disease. Stipends according to level of training and experience.

FAMILY SOCIAL SCIENCE
Mary Ellen McFarland Assistantship—For a currently enrolled graduate student in family social science to work on a research or teaching project. One award.

FISHERIES AND WILDLIFE
John Dobie Fellowship in Fisheries—To encourage graduate students in fisheries who are interested in careers in fisheries research and management, particularly in Minnesota; must have ranked in upper third of college graduating class. Variable amount.

Gordon Guillion Scholarship—Awarded to a student in Wildlife Conservation who demonstrates an interest in subject areas that reflect Gordon Guillion’s dedication to the study of the beneficial relationship between forest management and the proliferation of diverse wildlife species. $1,000.

FORESTRY
Leiton E. Nelson Scholarship—For a graduate student in forest resources or forest products. Offered alternate years. $1,500.

Potlatch Fellowship in Forestry—For a graduate student in forest resources. $10,000.

FRENCH
Marguerite Guinotte Memorial Scholarship—For needy and promising graduate students or advanced undergraduates in French language and literature to study in or travel to a French-speaking country. $350 to $500.

Elizabeth Folsom Rathert Graduate Fellowship in French—Full academic-year fellowship for incoming graduate students in French. Must be a U.S. citizen with limited experience living in French-speaking cultures. Offered every year. $10,000 plus tuition.

Travel or Special Project Grant—For current graduate students in French and Italian seeking support for a trip (e.g., to present a conference paper or to conduct research) or for a special project related to the student’s academic work. $300 to $400.

Université Paul Valéry Exchange—For advanced graduate students in French to spend one year teaching English at the Université Paul Valéry in Montpellier.

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GEOGRAPHY
John R. Borchert/CURA Fellowship—For geography graduate students in their second or later year of graduate study who propose to carry out a research project consistent with the mission of CURA (Center for Urban and Regional Affairs). Equivalent to 50%-time assistantship for 9 months plus tuition.
Darrell Haug Davis Memorial Fellowship— For doctoral students in geography who are in their third, fourth, or fifth year of study.$9,500 plus tuition.

GEOLGY AND GEOPHYSICS
Richard Clarence Dennis Fellowship— For graduate students in geology and geophysics with strong academic records. Up to $10,000/year.
William Harvey Emmons Fund— In part for graduate students in geology and geophysics who have strong academic records and financial need. Up to $5,000.
Francis A. Gibson Fellowship— For graduate students in geology and geophysics with preference for those studying hydrogeology or energy. Up to $6,000.
Samuel S. Goldich Award— To support graduate students in geology and geophysics conducting research in geochemistry of the Precambrian. Variable amount.
John W. Gruner Fellowship— For outstanding graduate students in geology and geophysics. Up to $6,000.
Harold M. Mooney Fellowship— In part for meritorious graduate students in geophysics. Variable amount.

GERMAN
Humboldt University Exchange— For graduate students in German with teaching experience who are native speakers of English to spend one year teaching English at Humboldt University in Berlin.
Elizabeth Folsom Rathert Graduate Fellowship in German— For graduate students in German. Must have been U.S. citizen at least ten years before fellowship term. For students with limited experience in German-speaking culture. Offered every year. At least $5,000.

GERONTOLOGY
Center on Aging— To support graduate research on aging. Contact Center on Aging. Variable amount, between $500 and $1,500.

HEALTH INFORMATICS
NLM Traineeships in Medical Informatics— For doctoral students or postdoctorates in health informatics or related computer-oriented fields. Must demonstrate computer expertise and knowledge of health sciences. U.S. citizenship or permanent residency required. NIH stipends.

HEALTH SERVICES RESEARCH
Health Services Research Traineeship— For entering doctoral students who show interest in the organizing and delivery of cost-effective health services and policy issues. U.S. citizenship required. $10,000 plus tuition.

HISTORY
Class of 1889 Memorial Prize Fund— Annual awards for the best essay in history with both undergraduates and first-year graduate students eligible. Variable amount.
Dissertation Research Fellowships— For students who have passed their preliminary examinations. One-semester fellowships to further dissertation research and writing. Two awarded annually. Each fellowship is named for one of the donors whose gifts support the awards (William Stearns Davis, Samuel Deinard, the Lothrop Memorial fellowship is named for one of the donors whose gifts support the fellowship). Variable amount.

HISTORY DEPARTMENT SUMMER GRANTS FOR LANGUAGE OR SPECIAL TRAINING— For graduate students in history. Variable amount.

INDUSTRIAL RELATIONS
Randy A. Bray Scholarship— For a promising new master’s degree student. Variable amount.
Chevron Scholarship— For a promising new master’s degree student. Variable amount.
Chrysler Corporation Fund Scholarship— For an outstanding master’s degree student. Variable amount.
Citicorp Scholarship— For a promising new master’s degree student. Variable amount.
Exxon Scholarship— For an outstanding master’s degree student. Variable amount.
General Mills Scholarship— For a promising new master’s degree student. Variable amount.
Herbert G. Heneman, Jr. Scholarship— For a promising new graduate student. Variable amount.
I.R. Council on Graduate Opportunities for Advanced Level Studies (G.O.A.L.S.) Graduate Fellowships— For a minority student. $7,800 per academic year plus tuition and fees. Renewable for second year if progress is satisfactory.
Pfizer Scholarship— For a master’s degree student. Variable amount.
Pillsbury Scholarship— For a promising new master’s degree student. Variable amount.

TWIN CITY PERSONNEL ASSOCIATION SCHOLARSHIP— For a second-year master’s degree student who is a Minnesota resident and intends to pursue a personnel career in the Twin Cities. Variable amount.

UNION CARBIDE SCHOLARSHIP— For an outstanding master’s degree student with at least one full academic year of study remaining. Variable amount.

WEYERHAUSEN COMPANY— For an outstanding master’s degree student. Variable amount.

INTEREST MEASUREMENT
E. K. Strong, Jr., Memorial Fellowship— For doctoral candidates in psychology, child development, or educational psychology for interest measurement research. Contact Center for Interest Measurement Research. Up to $1,000.

INTERNATIONAL STUDIES
(Foreign Language and Area Studies [FLAS] Fellowships)
International Studies— Competitive fellowships for graduate students in fields other than foreign languages and literatures to study an eligible foreign language. Applicants must have research interests with an international focus and be a U.S. citizen or resident alien. Fellowships are for summer or academic year and include stipend and tuition. For applications and information contact FLAS Coordinator, Institute of International Studies, 214 Social Sciences. Application deadline is mid-February.

WESTERN EUROPEAN STUDIES— Competitive fellowships for graduate students in fields other than foreign languages and literatures to study an eligible foreign language. Applicants must have research interests with a Western European focus and be a U.S. citizen or resident alien. Fellowships are for summer or academic year and include stipend and tuition. For applications and information contact FLAS Coordinator, Center for European Studies, 309 Social Sciences. Application deadline is mid-February.

ITALIAN
See FRENCH above.

LANDSCAPE ARCHITECTURE
Edmund J. Phelps Memorial Fellowship— To recruit outstanding students from allied disciplines. $4,500.

MASS COMMUNICATION
Ralph D. Casey Dissertation Award— For doctoral candidates embarking on dissertation research who have proposed outstanding, meritorious dissertation research projects. $2,000.
Herbert Berridge Elliston Fellowship— For worthy and needy seniors or graduate students in mass communication. Variable amount.
Arle and Billy Haeberle Memorial Scholarship— A merit scholarship for graduate students based on academic excellence. Variable amount.
Hubbard/KSTP Broadcast Scholarship— For currently enrolled graduate students in broadcast journalism who show professional promise and academic achievement. Variable amount.
Silha Center Research Fellowship in Ethics and Law— For graduate students in mass communication who have demonstrated interest and ability in mass communication ethics or law. Variable amount.

MATHEMATICS
Lando Fund— For doctoral students in mathematics for summer support. $2,400.
NSF Research Funds— For doctoral students in mathematics for summer support. $2,400.
Elia Thorpe Fund— For doctoral students in mathematics for summer support. $2,400.

MECHANICAL ENGINEERING
McDonnell Douglas Fellowship— For outstanding graduate students in mechanical engineering.
Murphy/Robertson Fellowship— To support outstanding graduate students in study of power and propulsion.

MEDICAL SCHOOL, CLINICAL SCIENCES
A medical student or physician seeking information on post-M.D. graduate training programs (residencies), fellowships, or advanced degree programs in any of the clinical fields should contact the director of graduate studies or the department office in the clinical science of interest.

MICROBIOLOGY, IMMUNOLOGY, AND MOLECULAR PATHOBIOLOGY
National Institutes of Health National Research Service Awards— For doctoral students receiving research training in biotechnology, cancer biology, immunology, and molecular pathogenesis of infectious diseases. $10,008 plus tuition, fees, and health insurance.
Dennis W. Watson Fellowship—Awarded annually to an outstanding doctoral student in honor of Regents Professor Emeritus and former Department of Microbiology head Dennis W. Watson. $13,500 fellowship plus $500 cash award.

MOLECULAR, CELLULAR, DEVELOPMENTAL BIOLOGY AND GENETICS

Program Fellowships—For outstanding new doctoral students in Molecular, Cellular, Developmental Biology and Genetics. $1,200 per month plus tuition and health insurance.

MUSIC

School of Music Scholarship—For graduate students in all areas of music. Performance awards require audition. Up to $4,500.

NEUROSCIENCE

Predoctoral Traineeships—To provide interdisciplinary training for doctoral students. Must be U.S. citizen or permanent resident.

NURSING

Edna and Myron Allen Nursing Scholarship—For a qualified enrolled undergraduate or graduate nursing student intending to work with underserved populations.

Marion Bergenson Nursing Scholarship—For a qualified enrolled undergraduate or graduate nursing student.

Ruth Thomas Brinker Nursing Scholarship—For a qualified enrolled undergraduate or graduate nursing student.

Clifton J. Bisco Nursing Scholarship—For qualified enrolled undergraduate or graduate nursing student.

Margaret Caldwell Memorial Nursing Scholarship—For qualified enrolled graduate or undergraduate nursing student. Must have scholastic record, ability, personal attributes, professional promise. Financial need.

Grace B. Dayton Nursing Scholarship—For enrolled undergraduate or graduate nursing student with demonstrated ability.

Beatrice Lofgren Delue Scholarship in Nursing—For a Minnesota resident. Must have a minimum GPA of 3.00 and demonstrated financial need.

Agnes Dempster Nursing Scholarship—Applicant must have completed a minimum of 9 graduate credits and have a minimum 3.50 GPA. Minimum award of $1,000. Random drawing by Foundation’s board member.

Kathleen Dineen Scholarship in Nurse-Midwifery—For a qualified enrolled graduate nurse-midwifery student. Must have minimum 3.50 GPA, financial need, two letters of reference, and personal statement.

Suzanne J. Doehring Memorial Scholarship in Nursing—For qualified enrolled graduate or undergraduate nursing student with demonstrated ability.

Katherine Densford Drevs Nursing Scholarship—Minimum $100 awards for students with superior scholastic achievement/promise/aptitude in management.

Eisenmenger Scholarship in Nursing—For qualified enrolled graduate or undergraduate nursing student. Financial need.

Arbus Kuth Hopkins Nursing Scholarship—Annual award of up to $1,900 toward tuition and fees. Career goal of public school nurse.

Florence Jullian Memorial Nursing Scholarship—Enrolled graduate student with demonstrated interest or aptitude in area of management.

James Lillehei Scholarship in Cardiac Nursing Research—Enrolled graduate student with demonstrated interest in conducting research relating to care of patients and families with cardiac conditions. Financial need.

Minority Nursing Scholarship Fund—Financial assistance for minority or non-traditional enrolled nursing student.

Nursing Alumni Scholarship—For an enrolled undergraduate or graduate nursing student. Alumni selects annually.

Alice and Gale W. Perry Nursing Scholarship Fund—For qualified enrolled undergraduate or graduate nursing student.

Eloise Reichert—For currently enrolled graduate nursing student in public health.

Jennie Siebold Memorial—For qualified enrolled undergraduate or graduate nursing student.

Mary Hensler Spurzem Nursing Scholarship—For qualified enrolled undergraduate or graduate nursing student. Financial need.

Marion Vannier Nursing Scholarship—For students who show academic promise and are in financial need.

PHARMACY

National Research Service Award—For doctoral students in pharmacology and toxicology. $13,000 plus tuition, fees, and health insurance.

PHARMACY

American Foundation for Pharmaceutical Education Graduate Fellowships—For U.S. citizens. $6,000 to $10,000.

S. W. Melendy Fellowships—For graduate students engaged in programs offered through the College of Pharmacy. Summer Fellowships: Average $600 to $800; Academic Year Fellowships: $10,000. Departments determine number and amount of individual student awards.

William and Mildred Peters Graduate Fellowship—For students currently registered in the four graduate programs or the post-Pharm.D. resident and fellowship program within the College of Pharmacy. Eligibility established and determined by department in which program is located. Variable amounts.

Ted Rowell Fellowship—For graduate students engaged in basic science programs offered through the College of Pharmacy. $3,000 to $6,000. Preference to Minnesota residents who are U.S. citizens.

3M Fellowship—For first year students in the pharmacuetics graduate program. Supported by 3M Pharmaceuticals $18,000 total; the department determines the number and amount of awards.

PHYSICS AND ASTRONOMY

In addition to the awards listed below, other fellowships from the University and the Institute of Technology are available to physics and astronomy students.

Phyllis St. Cyr Freier Fellowships—In honor of Professor Freier and the centennial of physics at the University of Minnesota. $9,600.

PLANT BIOLOGY

USDA National Needs Fellowship in Plant Biotechnology—To support doctoral students in plant biotechnology who has been identified as an area of national need for trained scientists. Students in plant molecular biology, biochemistry, physiology, cell biology, and genetics are eligible to apply. $17,000 plus tuition and travel funds.

PLANT PATHOLOGY

Fred I. Froshueher Scholarship—For graduate students in plant pathology who have demonstrated outstanding abilities in scholarship, research, and all aspects of graduate study, based on at least one year of a proven performance record in graduate school. Variable amounts.

M. F. Kernkamp Fellowship—For graduate students in plant pathology who are outstanding in scholarship, research, and all aspects of graduate study including participation in department activities. Variable amounts.

POLITICAL SCIENCE

Harold W. Chase Memorial Award—For doctoral students with distinguished records in public law. Up to $1,000.

Asher N. Christensen Memorial Award—For doctoral students in political science for study abroad or research in American government and politics.

Hubert H. Humphrey Fellowship—For doctoral students with distinguished records in political science. Up to $8,500.

Clara H. Ueland Memorial Fellowship—For female doctoral students with distinguished record in political science. Up to $8,500.

Vernie Wolsberg Fellowship—For female doctoral students with distinguished record in political science. Up to $8,500.

PSYCHOLOGY

Center for Research in Learning, Perception, and Cognition—To prepare doctoral students in related areas for research careers in cognitive science. Apply through Center for Research in Learning, Perception, and Cognition. $10,008 plus tuition and fees.

University Counseling and Consulting Services Fellowship—To provide APA-approved predoctoral internships for clinical and counseling psychology students. Internship is a 12-month, full-time position for $13,500 plus health insurance. Apply through Training Program Director, University Counseling and Consulting Services. Typical deadline is November 30 for the following year.

Veterans Administration Fellowship—For doctoral students in counseling and clinical psychology to pursue APA-approved internship experience. U.S. citizenship required. Apply through Training Director, Psychology Service, Veterans Administration Medical Center, Minneapolis. $17,000 for 1,900 hours.

PUBLIC AFFAIRS

Cram-Dalton International Women’s Rights Scholarship—For an entering graduate student who has shown an interest in international women's rights. International students are encouraged to apply. Variable amount.

Gerald W. Heaney Fellowship or Scholarship—Award made on basis of academic merit. Applicants should be from Duluth, the Duluth area, or northeast Minnesota. Variable amounts.
Hubert H. Humphrey Fellowships and Scholarships in Public Affairs—For outstanding graduate students preparing for careers in public service. Up to $10,000 plus tuition first year; with satisfactory performance, up to $4,200 plus tuition second year.

Minority and Disadvantaged Student Awards—For graduate students preparing for careers in public affairs; awards based on need. Variable amounts.

Joseph Robbie Fellowship or Scholarship in Metropolitan Government and Planning—Award made on basis of academic merit. Applicants must be planning to enter career in metropolitan or regional government or planning. Variable amounts.

Woodrow Wilson Minority Access Program Fellowships—For minority students entering graduate school in public affairs or planning. Must have completed one of the Wilson Junior Year Summer Institutes Programs.

PUBLIC HEALTH
Federally funded traineeships are available in some major areas. Research assistant, teaching assistant, and postdoctoral fellowship positions are available dependent on student’s area of interest. See specific listings in this section for biostatistics, environmental health, epidemiology, health services research and policy and health services research, policy and administration.

RHETORIC
Rhetoric and Scientific and Technical Communication Scholarship—National awards of $2,000 through the Society for Technical Communication.

Scientific and Technical Communication Fellowship—To encourage MSSTC candidates to pursue qualitative and quantitative research and theory building in STC and to encourage MSSTC candidates to teach STC at the postsecondary level. $300 to $1,500.

SOCIAL WORK
A small number of training fellowships from federally funded grants, paid field placements from local agencies, and assistantships, including the Morris Hursh Graduate Assistant Endowment, are directly available from the School of Social Work. Number of awards and amounts vary from year to year.

Rose E. Snyder Memorial Scholarship—Provides annual funding for tuition for M.S.W. students.

SOCIAL WORK (Duluth Campus)
Will Dodge Memorial Fund—For graduate students in social work to support field placements or projects that involve grass-roots community organizing. Must register for 6 credits per semester during the next academic year. About $500.

SOCIOLOGY
Bright Research Award—Given annually to graduate student(s) for whom the award will make possible a significant improvement in the progress of research toward the Ph.D. Up to $3,000.

Don Martindale Award for Scholarship—Given annually to a current Ph.D. student who has shown exceptional accomplishment and progress toward the degree as well as toward contributing to the profession. $1,000.

SPEECH-COMMUNICATION
Frizelle-Reid Memorial Award—For doctoral candidates in speech-communication for expenses associated with the completion of their programs. Based on academic excellence and quality of proposal. About $600.

Arle and Billie Haeberle Fellowship and Awards—The fellowship is for a first-year graduate student specializing in the use of electronic media in communication. Based on academic excellence. $10,000 plus tuition. The awards are for undergraduate and graduate students and are based on academic excellence and demonstrated interest in the study of electronic media. Amounts vary from $200 to $2,000.

Marguerite Garden Jones Award—For graduate or undergraduate students based on excellence in pursuing study and application of coursework in speech-communication. About $2,000.

Stuart A. Lindman Award—For graduate or undergraduate students who intend to pursue a career in electronic media. Based on academic excellence and real-life application of coursework in speech-communication. About $500.

STATISTICS
Statistics Alumni Fellowship Fund—For second- or third-year full-time graduate student in statistics. Amount variable depending on funds, approximately commensurate with research assistantship.

THEATRE ARTS
Ken Bryant Directing Scholarship—For a graduate student who has expressed an interest in directing. About $1,000.

Oscar W. Firkins Scholarship—For currently enrolled graduate students in theatre arts. Award based on service, potential in theatre, and need. About $1,500.

Kenneth L. Graham Graduate Theatre Fellowship—For an outstanding graduate theatre major in residence. About $1,500.

Haeberle Scholarships—For graduate students in theatre arts. Selection is based on basis of outstanding artistic and/or scholarly potential or achievement. About $3,000.

Paul Joncas Technical Theatre Scholarship—For a currently enrolled student, junior through graduate, to benefit technical theatre students attending the annual USITT Conference. About $500.
Elsie Kelley Lindquist Scholarship—For an outstanding undergraduate or graduate theatre major in residence. Award based on service, potential in theatre, and need. About $1,000.

Dorothy Lamberton Fellowship—For a first-year MFA Acting student with outstanding potential. About $1,000.

Dorothy Magnus Scholarship Fund—For deserving graduate students at the discretion of members of the Theatre Arts Department. About $1,400.

Robert Moulton Scholarship 50—Funded by alumni and patrons for outstanding theatre students with financial need. Variable amount.

Frank M. Rarig, Sr., Graduate Fellowship in Oral Interpretation—For a currently enrolled, worthy graduate student with a major interest in oral interpretation. About $1,250.

Scott-Norcostco Theatre Fund—For a currently enrolled student, junior through graduate, in technical theatre. About $750.

Frank and Josinette Whiting Scholarship—For an outstanding undergraduate or graduate major in residence. Award based on service, potential in theatre, and need. About $1,800.

August Wilson Fellowship in Dramaturgy and Literary Criticism—For an African-American graduate student in the area of literary criticism and dramaturgy. Support is for up to three years of graduate study leading to the M.A. or Ph.D. with internships in dramaturgy at the Penumbra and Guthrie Theatres. About $10,000 per year in fellowship and/or assistantship support.

VETERINARY BIOLOGY AND VETERINARY PATHOBIOLOGY
Alvin F. Weber Scholarship—For graduate students accepted to, or currently enrolled in, the combined Ph.D./D.V.M. program. $11,150.

OTHER FELLOWSHIPS
Foreign Language and Area Studies Fellowships—See International Studies above.

Housing

Students interested in living in a residence hall on campus or in off-campus housing in Minneapolis or St. Paul should contact Housing & Residential Life, Comstock Hall-East, 210 Delaware Street S.E., Minneapolis, MN 55455 (612/624-2994; fax 612/624-6987; e-mail housing@tc.umn.edu). Centennial and Middlebrook Halls offer residential living space predominantly for graduate/professional school students. Listings of apartments, duplexes, houses, sleeping rooms, shared units, and sublets are also maintained. Information on temporary housing, living costs, transportation, and day-care centers in the Twin Cities area is also available. A comprehensive booklet, The Housing Resource Guide, may be purchased for $2.00. Information is also available at the Housing & Residential Life Web site at <www.umn.edu/housing/home.html>.

For information on University family housing, contact Commonwealth Terrace Cooperative, 1250 Fifield Avenue, St. Paul, MN 55108 (651/646-7526), or Como Student Community, 1024 27th Avenue S.E., Minneapolis, MN 55414 (612/378-2434).

Student Grievance Procedures

Academic Grievances—An all-University Student Academic Grievance Policy exists to resolve “complaints brought by students regarding the University’s provision of education and academic services affecting their role as students.” Copies of the policy and information about its implementation are available from the Grievance Office, 658 Management & Economics, Twin Cities campus (612/624-1030).

Sexual Harassment—Policies and procedures pertaining to sexual harassment are contained in the University Senate’s policy statement of May 17, 1984. As the introduction to the statement notes, sexual harassment undermines the mission of the University and jeopardizes the careers of students, faculty, and staff. The statement defines sexual harassment in this manner:

“Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual’s employment or academic advancement, (2) submission to or rejection of such conduct by an individual is used as the basis for employment decisions or academic decisions affecting such individual, or (3) such conduct has the purpose or effect of unreasonably interfering with an individual’s work or academic performance or creating an intimidating, hostile, or offensive working or academic environment.”

Individuals seeking information and guidance in matters involving sexual harassment should contact the sexual harassment officer, 419 Morrill Hall. All inquiries are held in strictest confidence.
### Majors and Degrees

#### Twin Cities Campus

**Research Degrees (Ph.D., M.A., M.S.)**

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<th>Majors</th>
<th>Degrees Offered</th>
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<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>M.S., Ph.D.</td>
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<td>Agricultural and Applied Economics</td>
<td>M.S., Ph.D.</td>
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<td>American Studies</td>
<td>M.A., Ph.D.</td>
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<td>Ancient and Medieval Art and Archaeology</td>
<td>M.A., Ph.D.</td>
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<td>Animal Sciences</td>
<td>M.S., Ph.D.</td>
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<td>Anthropology</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>Applied Plant Sciences</td>
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<td>Art History</td>
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<td>Astrophysics</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Biochemistry, Molecular Biology and Biophysics</td>
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<td>Biomedical Engineering</td>
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<td>Biomedical Sciences and Medical Physics</td>
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<td>Biostatistics</td>
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<td>Biosystems and Agricultural Engineering</td>
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<td>Business Administration</td>
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<td>Cellular and Integrative Physiology</td>
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<td>Chemistry</td>
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<td>Child Psychology</td>
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<td>Chinese</td>
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<td>Civil Engineering</td>
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<td>Classics</td>
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<td>Communication Disorders</td>
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<td>Comparative Literature</td>
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<td>Comparative Studies in Discourse and Society</td>
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<td>Control Science and Dynamical Systems</td>
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<td>Design, Housing, and Apparel</td>
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<td>Electrical Engineering</td>
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<td>Entomology</td>
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<td>Feminist Studies</td>
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<td>Hispanic and Luso-Brazilian Literatures and Linguistics</td>
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<td>History</td>
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<td>History of Science and Technology</td>
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<td>Human Resources and Industrial Relations</td>
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<td>Japanese</td>
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<td>Latin</td>
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<td>Rhetoric and Scientific and Technical</td>
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<td>Social and Administrative Pharmacy</td>
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<td>Wildlife Conservation</td>
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<td>Zoology</td>
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#### Research Degrees (Master's Only)

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<th>Majors</th>
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<td>Clinical Laboratory Science</td>
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<td>English as a Second Language</td>
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<td>Family Practice and Community Health</td>
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<td>Italian</td>
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<td>Luso-Brazilian Literature</td>
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<td>Music Education</td>
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<tr>
<td>Physical Therapy</td>
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<tr>
<td>Recreation, Park, and Leisure Studies</td>
<td>M.A.</td>
</tr>
<tr>
<td>Russian Area Studies</td>
<td>M.A.</td>
</tr>
</tbody>
</table>

<sup>1</sup>Also see Certificate of Specialist in Education offerings near the end of this list.
Professional Degrees

<table>
<thead>
<tr>
<th>Majors</th>
<th>Degrees Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>M.Aero.E.</td>
</tr>
<tr>
<td>Architecture</td>
<td>M.Arch.</td>
</tr>
<tr>
<td>Art</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>Biological Science</td>
<td>M.B.S.</td>
</tr>
<tr>
<td>Biosystems and Agricultural Engineering</td>
<td>M.B.A.E.</td>
</tr>
<tr>
<td>Business Taxation</td>
<td>M.B.T.</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>M.Ch.E.</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>M.C.E.</td>
</tr>
<tr>
<td>Computer and Information Sciences</td>
<td>M.C.I.S.</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>M.Comp.E.</td>
</tr>
<tr>
<td>Creative Writing</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>Dentistry</td>
<td>M.S.</td>
</tr>
<tr>
<td>Design, Housing, and Apparel</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>Educational Policy and Administration</td>
<td>Ed.D.</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>M.E.E.</td>
</tr>
<tr>
<td>English as a Second Language</td>
<td>M.A.</td>
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<tr>
<td>Experimental Surgery</td>
<td>M.S.Exp.Surg.</td>
</tr>
<tr>
<td>Forestry</td>
<td>M.F.</td>
</tr>
<tr>
<td>Geographic Information Science</td>
<td>M.G.I.S.</td>
</tr>
<tr>
<td>Geological Engineering</td>
<td>M.Ge.E.</td>
</tr>
<tr>
<td>Geology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Health Informatics</td>
<td>M.S.</td>
</tr>
<tr>
<td>Health Services Research, Policy, and Policy</td>
<td>M.S.</td>
</tr>
<tr>
<td>Human Resources and Industrial Relations</td>
<td>M.A.</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>M.L.A.</td>
</tr>
<tr>
<td>Liberal Studies</td>
<td>M.L.S.</td>
</tr>
<tr>
<td>Management of Technology</td>
<td>M.S.MOT.</td>
</tr>
<tr>
<td>Manufacturing Systems</td>
<td>M.S.M.S.</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>M.Mat.S.E.</td>
</tr>
<tr>
<td>Molecular, Cellular, Development</td>
<td>M.S.</td>
</tr>
<tr>
<td>Biology and Genetics</td>
<td>M.M., D.M.A.</td>
</tr>
<tr>
<td>Music</td>
<td>M.S.</td>
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<tr>
<td>Occupational Therapy</td>
<td>M.S.</td>
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<td>Physical Therapy</td>
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<tr>
<td>Political Science</td>
<td>M.A.</td>
</tr>
<tr>
<td>Public Affairs</td>
<td>M.P.A.</td>
</tr>
<tr>
<td>Public Policy</td>
<td>M.P.P.</td>
</tr>
<tr>
<td>Science, Technology, and Environmental Policy</td>
<td>M.S.</td>
</tr>
<tr>
<td>Scientific and Technical Communication</td>
<td>M.S.</td>
</tr>
<tr>
<td>Social Work</td>
<td>M.S.W.</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>M.S.S.E.</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>Urban and Regional Planning</td>
<td>M.U.R.P.</td>
</tr>
<tr>
<td>Work, Community, and Family Education</td>
<td>Ed.D.</td>
</tr>
</tbody>
</table>

Certificate of Specialist in Education

Counseling
General Educational Administration
School Psychological Services
Special Education
Special Education Administration

Freestanding Minors

Anatomy
Bioethics
Cognitive Science
Composition, Literacy, and Rhetorical Studies
Conflict Management
Development Studies and Social Change
Gerontology
Human Factors/Ergonomics
International Education
Interpersonal Relationships Research
Law
Medieval Studies
Microbial Ecology
Museum Studies
Political Psychology
Public Health
Quaternary Paleoecology
Religious Studies
Social and Philosphic Studies of Education
Studies in Africa and the African Diaspora
Studies of Science and Technology
Sustainable Agriculture Systems

Duluth Campus

Research Degrees (Master's Only)

<table>
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<tr>
<th>Majors</th>
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<tbody>
<tr>
<td>Applied and Computational Mathematics</td>
<td>M.S.</td>
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<tr>
<td>Biology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>M.S.</td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.S.</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>M.A.</td>
</tr>
<tr>
<td>English</td>
<td>M.A.</td>
</tr>
<tr>
<td>Geology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Music</td>
<td>M.M.</td>
</tr>
<tr>
<td>Physics</td>
<td>M.S.</td>
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<tr>
<td>Business Administration</td>
<td>M.B.A.</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>M.A.</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>M.A.</td>
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<tr>
<td>Liberal Studies</td>
<td>M.L.S.</td>
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<tr>
<td>Music</td>
<td>M.M.</td>
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</tbody>
</table>

Freestanding Minor

Linguistics