Design, Housing, and Apparel

Contact Information—Director of Graduate Studies, Design, Housing, and Apparel, University of Minnesota, 240 McNeal Hall, 1985 Buford Avenue, St. Paul, MN 55108; 612-624-1219; fax 612-624-2750; dhagradinfo@che.umn.edu; <www.che.umn.edu/dha/>

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor
Joanne B. Eicher, SM

Professor
William J. Angell, M2
Marilyn R. DeLong, SM
Edward G. Goetz, ASM
Denise A. Guerrin, SM
Kim K. P. Johnson, SM

Associate Professor
Marjory K. Fulbrook, M2
Jeffrey R. Crump, M2
Sherri A. Gahring, M2
Delores A. Ginthner, M2
Brad Haxton, M2
Karen L. LaBat, SM
Barbara E. Martinson, SM
Steven McCarthy, M2
Gloria M. Williams, SM
Becky L. Yust, SM
Ann Ziebarth, SM

Adjunct Associate Professor
Margaret K. DiBlasio, ASM

Assistant Professor
James Boyd-Brent, M2
Elizabeth Bye, M2
Saumon Chu, M2
Daniel Jasper, M2
Seung-Eun Lee, M2
Fiona L. Shen, SM
Carol C. Waldron, M2
Stephanie A. Watson, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The design, housing, and apparel graduate program focuses on the study of relationships between humans and their designed environments. This focus is based on the assumption that design and analysis of environments contributes to the improvement of the human condition. The program addresses theory, research, and application, using a shared disciplinary base from the social and behavioral sciences.

The goal of the program is for students to analyze, evaluate, and integrate theoretical frameworks related to humans and their designed environments. The M.A., M.S., and Ph.D. degrees are available with four areas of emphasis: apparel, design communication, housing, and interior design. The M.F.A. and M.A. degrees are available with an emphasis in multimedia. The emphasis in apparel advances both theoretical knowledge and applications for textile and apparel products related to human behavior. Students may focus on design, aesthetics, apparel product analysis, historic dress, social science aspects of dress, consumer behavior, or retailing. The emphasis in design communication focuses on design theory, design process and methodology, visual communication (design and analysis) of color, systems, and perception. The emphasis in housing studies advances both theoretical and applied knowledge in the housing field. Through research, students are prepared to assist people and communities in addressing housing-related issues. Courses emphasize human needs and behavior, analysis of designed environments and technology, policy and community development, and housing for special populations such as the elderly or low-income households.

Graduate study in interior design emphasizes the theory, research, and specialized practice components of design as applied to the interior environment, including culture, lighting, sustainability, and issues facing design education. Advances in theoretical knowledge and study of the interactions of humans in interior environments prepare students for teaching and research positions as well as design specializations within the profession. The emphasis in multimedia provides students with experience in designing for the electronic environment. The program integrates theory with practice in the application of emergent and established technologies to digital design solutions. Students complete a creative thesis.

Prerequisites for Admission—Individuals must have adequate undergraduate education in the area of emphasis and background in the basic disciplines of art, social science, physical science, and biological science appropriate to the area of emphasis. To pursue a degree with interior design as the emphasis area, a first professional degree in interior design is required. Students interested in pursuing a Ph.D. must first complete a master's degree. Specific requirements may be obtained by contacting the director of graduate studies.

Special Application Requirements—Consult the director of graduate studies; scores from the GRE are required. Students pursuing a degree in an emphasis related to design are required to submit a portfolio consisting of 15-20 slides. Students are admitted fall and spring semesters.

Courses—Please refer to Design, Housing, and Apparel (DHA) in the course section of this catalog for courses that pertain to this program.

Use of 4xxx Courses—No more than 30 percent of a student's official degree program may be comprised of 4xxx courses. Not all of the department’s 4xxx courses are available for graduate credit. Appropriate courses are selected in consultation with the student's advisers.

M.A. and M.S. Degree Requirements
Minimum requirements include 4 credits in courses that focus on theory building and the theoretical and philosophical bases of inquiry in the discipline; 6 credits in courses on qualitative or quantitative methods of research and evaluation; 8 credits for Plan A students, and 18 credits for Plan B students in the area of emphasis; 10 thesis credits for Plan A students; and 6 credits in a related field. Required courses include DHA 8181—Ethics and Research or the equivalent, and DHA 8101—Philosophical Foundations of Design, Housing, and Apparel. Students may be required to complete additional credits upon recommendation of their committee.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—For a master’s minor, a minimum of 9 credits in design, housing, and apparel is required, including DHA 8101. Courses are selected in consultation with the director of graduate studies.

M.F.A. Degree Requirements
Minimum requirements for the M.F.A. include 7 credits in courses that focus on theory building and the theoretical and philosophical bases of inquiry in the discipline, including DHA 8101—Philosophical Foundations of Design, Housing, and Apparel, and DHA 5399—Theory of Electronic Design. 6 credits in evaluation and analysis, including DHA 5388—Design Planning and Analysis; 27 credits in the area of emphasis, including DHA 8114—Design Studio and DHA 8181—Ethics and Research or the equivalent; 12 credits of M.F.A. creative thesis; and 8 credits in a related field. Students may be required to complete additional credits upon recommendation of their committee.

Language Requirements—None.

Final Exam—The final exam is oral.

Ph.D. Degree Requirements
Minimum requirements for the Ph.D. include 6 credits in courses that focus on theory building and the theoretical and philosophical bases of inquiry in the discipline; 9 credits in courses on qualitative and quantitative methods of research and evaluation; 12 credits in the area of emphasis; 24 thesis
Credits; and 12 credits in a supporting program. Required courses include DHA 8181—Ethics and Research or the equivalent and DHA 8101—Philosophical Foundations of Design, Housing, and Apparel. Students may be required to complete additional credits upon recommendation of their committee.

Language Requirements—None.

Minor Requirements for Students

Majoring in Other Fields—For a doctoral minor, a minimum of 12 credits in design, housing, and apparel is required, including DHA 8101—Philosophical Foundations of Design, Housing, and Apparel. Courses are selected in consultation with the director of graduate studies.

Development Studies and Social Change

Minor Only

Contact Information—MacArthur Interdisciplinary Program on Global Change, Sustainability, and Justice/ICGC, University of Minnesota, 214 Social Sciences Building, 267 19th Avenue S., Minneapolis, MN 55455 (612-624-0832; fax 612-626-2242; www.icgc.umn.edu; <www.icgc.umn.edu>)

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor

Allen Isaacman, History, M
G. Edward Schuh, Public Affairs, M
John Sullivan, Political Science, M

Professor

Dennis A. Ahlburg, Industrial Relations, M
Ronald R. Aminzade, Sociology, M
Ragui A. Assaad, Public Affairs, M
Vernon B. Cardwell, Agronomy and Plant Genetics, M
Raymond D. Duvall, Political Science, M
Lawrence Jacobs, Political Science, M
Amy K. Kaminsky, Women’s Studies, M
Anne R. D. Kapuscinski, Fisheries, Wildlife, and Conservation Biology, M
Sally Kenney, Public Affairs, M
Helga Leitner, Geography, M
John W. Mowitt, Cultural Studies and Comparative Literature, M
August H. Nimtz, Jr., Political Science, M
James A. Perry, Forest Resources, M
Philip J. Regal, Ecology, Evolution, and Behavior, M
Terry L. Roe, Applied Economics, M
Abdi I. Samatar, Geography, M
Eric S. Sheppard, Geography, M
Kathryn A. Sikkink, Political Science, M
George R. Spangler, Fisheries, Wildlife, and Conservation Biology, M
Karen B. Thompson, M
Dennis N. Valdes, Chicano Studies, M
Ann B. Waltner, History, M
Donna Wyse, Agronomy and Plant Genetics, M

Associate Professor

Fernando E. Arenas, Spanish and Portuguese Studies, M
Keletso E. Atkins, African American and African Studies, M
Daphne J. Berdahl, Anthropology, M
Elizabeth H. Boyle, Sociology, M
Bruce P. Braun, Geography, M
Rose Brewer, African American and African Studies, M
Jeffrey P. Broadbent, Sociology, M
Sarah C. Chambers, History, M
Jay S. Coggins, Applied Economics, M
Lisa J. Disch, Political Science, M
Douglas R. Hartmann, Sociology, M
Qadir Ismail, English, M
Daniel Kellihir, Political Science, M
Deborah Levison, Public Affairs, M
Carol A. Miller, American Studies, M
Richa Nagar, Women’s Studies, M
Jean M. O’Brien-Kehoe, History, M
Joanna O’Connell, Spanish and Portuguese Studies, M
Jennifer L. Pierce, Sociology, M
Ajay SKaria, History, M
Charles J. Sugnet, English, M
John S. Wright, African American and African Studies, M

Assistant Professor

Catherine C. Choy, American Studies, M
Jigna Desai, Women’s Studies, M
Vinay Gidwani, Geography, M
Ann Hironaka, Sociology, M
Kristen Nelson, Forest Resources, M
Michele Wagner, History, M

Adjunct Assistant Professor

Helene Murray, Agronomy and Plant Genetics, M

Senior Fellow

Mary Renwick, Water Resources Center, M

Other

Barbara Frey, Human Rights Program, M
Karen Brown Thompson, Interdisciplinary Center for the Study of Global Change, M

Curriculum—This structured interdisciplinary doctoral minor is offered in conjunction with the MacArthur Interdisciplinary Program on Global Change, Sustainability, and Justice. By focusing on the social bases of change in the developing world, the program engages a wide range of academic disciplines including the social sciences, humanities, and biological sciences. The minor focuses on three areas: 1) the relationships between macroscopic processes of political, economic, and social change, and the microscopic conditions of lived experience in the developing world; 2) specifically interdisciplinary perspectives (encompassing the social sciences, the biological sciences, and the humanities) on this general thematic concern; and 3) preparation of doctoral students for research on the developing world.

Prerequisites for Admission—Admission is contingent upon prior admission to a doctoral degree-granting program within the Graduate School and upon affiliation with the MacArthur Program.

Special Application Requirements—Students enrolled in a doctoral degree-granting program may apply for the minor at any time during the academic year; acceptance will take effect the following term.

Courses—Please contact the minor program office for information on relevant coursework pertaining to the program.

Use of 4xxx Courses—Courses used to fulfill minor requirements must be 5xxx or above.

Minor Only Requirements

The doctoral minor requires a sequence of three core seminars (DSSC 8111, 8211-12, 8310) for 9 credits total (8310 is taken twice). Students also take one or two courses (minimum 3 credits total) chosen from an approved list of courses from across the Graduate School curriculum that are relevant to the field of development studies and social change.

East Asian Studies

Contact Information—East Asian Studies, Area Studies Programs, University of Minnesota, 214 Social Sciences Building, 267 19th Avenue S., Minneapolis, MN 55455 (612-624-8543; igs@umn.edu)

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor

Joseph Allen, Asian Languages and Literatures, M
Edward L. Farmer, History, M
Chin-Chuan Lee, Journalism and Mass Communication, M
Michael Molasky, Asian Languages and Literatures, M
Robert J. Poor, Art History, M
Ann B. Waltner, History, M

Associate Professor

Jeffrey P. Broadbent, Sociology, M
Tsan-Kuo Chang, Journalism and Mass Communication, M
Keya Ganguly, Cultural Studies and Comparative Literature, M
Daniel Kellihir, Political Science, M
Liping Wang, History, M

Assistant Professor

Mark Anderson, Asian Languages and Literatures, M
Christopher M. Isett, History, M
Christine Marran, Asian Languages and Literatures, M
Hirona Mizuno, History, M
Maki Morinaga, Asian Languages and Literatures, M
William Schaefer, Asian Languages and Literatures, M

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The program offers an entry point for interdisciplinary study of East Asia, particularly China and Japan. It serves both as a stepping stone to advanced academic work and as a terminal degree for those with non-academic career goals related to East Asia.

Prerequisites for Admission—Ideally, an applicant’s background should include undergraduate study in fields related to East Asia or East Asian languages. Students from other academic areas may be admitted with the provision that prerequisite coursework be made up after admission.

Special Application Requirements—Three letters of recommendation, an academic writing sample, and a statement of purpose should be submitted to the department. GRE test scores are required. Students are admitted each semester.

Courses—Please refer to East Asian Studies (EAS) and Global Studies (GloS) in the course section of this catalog for courses pertaining to the program.
Degree Programs and Faculty

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.A. Degree Requirements
The program uses an interdisciplinary approach that emphasizes the humanities and social sciences and requires proficiency in a foreign language, a theoretical framework, broad knowledge of the area in question, and a concise understanding of a topical theme to be developed in the Plan A thesis or Plan B papers. Plan A requires 31 credits: a minimum of 21 course credits (seven courses), including 15 credits (five courses) in the major and 6 credits (two courses) in one or more fields outside the major, and 10 thesis credits. Coursework must include three proseminars/seminars. A Plan A thesis must be written. Plan B requires 30 course credits in order to provide a broader knowledge of the chosen field and allied subjects. It requires at least 15 credits (five courses) in the major field and 12 credits (four courses) in one or more related fields outside of the major, which must include three proseminars/seminars. Three Plan B papers must be written, at least one of them outside of the major.

Language Requirements—The language requirement may be fulfilled by successful completion of either three years (six semesters) of a Chinese or Japanese language sequence, or at least four semesters of Chinese or Japanese language study and an approved study abroad experience in East Asia. For a Korean focus, it is possible to have a comparable level of Korean language in lieu of the Chinese or Japanese requirement. (Note: Proficiency exams and evaluations are provided by relevant language departments.)

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A master's minor requires two years of language study or equivalent proficiency, plus at least three courses (minimum of 9 credits) in the field that include at least two semesters of seminars/proseminars.

Ecology, Evolution, and Behavior

Contact Information—Department of Ecology, Evolution and Behavior, Director of Graduate Studies, University of Minnesota, 100 Ecology Building, 1987 Upper Buford Circle, St. Paul, MN 55108-6097 (612-625-5700; fax 612-624-6777; EEBGrad@biosci.cbs.umn.edu; <www.cbs.umn.edu/eeb/GraduateProgram/Main_page/Index.htm>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor
G. David Tilman, SM

Professor
Donald N. Alstad, SM
David A. Andow, Entomology, SM
Franklin H. Barnwell, SM
John H. Beatty, SM
Patrick L. Brezonik, Civil Engineering, SM
James W. Curtinberger, SM
Edward J. Cushing, SM
Margaret B. Davis (emeritus), AM2
Thomas C. Johnson, Geology, Duluth, SM
Linda L. Kinkel, Plant Pathology, SM
Scott M. Lanyon, SM
Robert O. Megard, SM
Patrice A. Morrow, SM
Claudia Neushauer, SM
Raymond M. Newman, Fisheries, Wildlife, and Conservation Biology, SM
Craig Packer, SM
Stephen Polasky, SM
Anne E. Pusey, SM
Philip J. Regal, SM
Peter B. Reich, Forest Resources, SM
Michael J. Sadowsky, Soil, Water, and Climate, SM
Ruth G. Shaw, SM
Michael J. Simmons, Genetics and Cell Biology, SM
Akhoui Sinha, Genetics and Cell Biology, SM
Peter W. Sorensen, Fisheries, Wildlife, and Conservation Biology, SM
Anthony M. Starfield, SM
Robert W. Steiner, SM
Bert E. Stromberg Jr., Veterinary Pathobiology, SM
Robert M. Zink, SM

Adjunct Professor
Lee E. Frelich, SM
Diane L. Larson, SM
Clarence Lehman, SM
L. David Mech, Fisheries, Wildlife, and Conservation Biology, SM
John Pastor, Duluth, SM

Associate Professor
James B. Cotner, SM
Antony M. Dean, SM
Susan M. Galatowitsch, Horticultural Science, SM
Georgiana May, SM
David W. Stephens, SM
Susan J. Weller, SM

Assistant Professor
Jacques Finlay, SM
Sarah E. Hobbie, SM
Sharon Jansa, SM
Jennifer King, SM
Joseph McFadden, SM
Karen S. Oberhauser, Service/Outreach, SM
Andrew M. Simons, SM
Ellen Strong, Fisheries, Wildlife, and Conservation Biology, SM
Shinya Sugita, SM
Peter Tiffin, Plant Biology, SM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The graduate program in ecology, evolution, and behavior (EEB) links faculty and students interested in the biology of organisms from molecules to ecosystems. Studies address questions from molecular mechanisms of evolution, the interactions of organisms in social groups and populations, the distributions and abundances of species in communities and ecosystems, to global biogeochemical processes. The program provides broad training in the general areas of ecology, evolution, and animal behavior, and specialized courses and research in vertebrate and invertebrate zoology; behavior and ethology; evolution; population genetics; molecular evolution; systematics; population, community, and ecosystem ecology (global ecology, limnology, paleoecology, ecology of vegetation, and theoretical ecology). Opportunities for field research are available in Africa, Alaska, Central America, and other parts of the world, as well as in local ecosystems. Seminars and individually designed tutorials are an important part of student programs and provide an exciting intellectual environment.

Prerequisites for Admission—Courses in inorganic chemistry, organic chemistry, biochemistry, general physics, one year of college calculus, animal biology, genetics, physiology, and plant biology are strongly recommended and provide an important background to pursue graduate work in EEB. Proficiency in a foreign language is not required but is strongly recommended for students who expect to pursue field work in a country where English is not the native language. Deficiencies must be made up early in the graduate program.

Special Application Requirements—Students are admitted only in fall semester. Deadline for application is January 2. Three letters of recommendation evaluating the applicant’s scholarship are required, plus GRE scores (the Subject Test in biology is recommended, though not required).

Courses—Please refer to Ecology, Evolution, and Behavior (EEB) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—As preparation for their preliminary examinations, Ph.D. students are expected to acquire basic knowledge in ecology, evolution, behavior, and organismal biology by taking graduate courses or 4xxx courses that are approved by the director of graduate studies. One of these courses can be a graduate seminar or reading course, and one of these courses can be substituted by an advanced undergraduate course taken prior to entering into the EEB graduate program.

M.S. Degree Requirements
The M.S. is offered under both Plan A (with thesis) and Plan B (without thesis). Both plans require a minimum of 14 course credits in the major and a minimum of 6 course credits in one or more related fields outside the major; Plan A also requires 10 thesis credits, and Plan B requires 10 additional course credits and one to three research papers, which may be written in conjunction with graduate courses. Significant field or laboratory experience and competence in statistics, to include hypothesis testing, regression, and correlation are required. Degree programs are planned by the student and an advisory committee of three faculty members to meet the student’s interests and needs.

Language Requirements—None.

Final Exam—The final exam is oral.
Minor Requirements for Students Majoring in Other Fields—A minimum of 7 credits of EEB 4xxx, 5xxx, and 8xxx courses is required for a master’s minor in ecology.

Ph.D. Degree Requirements

A minimum of 3 course credits and 24 thesis credits are required in the major, and at least 12 course credits are required for either a minor in another field or a supporting program from several related fields. Significant field or laboratory experience, proficiency in using computers in research, and competence in advanced statistics are required. Students are expected to gain some appreciation of history or philosophy of science and are required to teach a minimum of two semesters 50 percent time. Degree programs are planned by the student and an advisory committee of three to five faculty members.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A minimum of 12 credits of EEB 4xxx, 5xxx, and 8xxx courses is required for a doctoral minor in ecology.

Economics

Contact Information—Director of Graduate Studies, Department of Economics, University of Minnesota, 1035 Heller Hall, 271 19th Avenue S., Minneapolis, MN 55455 (612-625-6833; fax 612-624-0209; econ@umn.edu; <www.econ.umn.edu> ).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor
John S. Chipman, SM
Leonid Hurwicz (emeritus), ASM
Edward C. Prescott, SM
G. Edward Schuh, Public Affairs, ASM

Professor
Beth E. Allen, SM
Michele Bouldrin, SM
Varadarajan V. Chari, SM
Zvi Eckstein, SM
Roger D. Feldman, Public Health, ASM
Edward M. Foster, SM
Thomas J. Holmes, SM
Larry E. Jones, SM
Patrick J. Kehoe, SM
Timothy Kehoe, SM
Andrew McLennan, SM
Marcel K. Richter, SM
Aldo Rustichini, SM
Craig E. Swan, SM
Jan Werner, SM

Adjunct Professor
Ellen McGrattan, AM2
Christopher Phelan, AM2
James A. Schmitz, AM2
Warren E. Weber, AM2

Associate Professor
George D. Green, History, AM2
Samuel Kortum, SM
Erzo G. J. Luttmer, SM

Assistant Professor
Marco Bassetto, M2
Maria-acristina DeNardi, M2
Matthew F. Mitchell, M2
Andrea Moro, M2
Vasiliki Skreta, M2
Julia K. Thomas, M2

Other
Simran Sahi, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The economics graduate program offers degree work in both theoretical and applied fields of economics. It is possible to pursue thesis research in microeconomic or macroeconomic theory. In addition, the following fields of specialization are offered: econometrics, economic growth and development, financial economics, game theory, industrial organization, international economics, labor economics, mathematical economics, monetary economics, and public economics. Students are admitted only for the Ph.D.; the M.A. is an optional part of the Ph.D. program.

Prerequisites for Admission—The general requirement is the capability to pursue Ph.D.-level work. Normally a student should have an undergraduate record from a recognized college that includes coursework in economic theory and mathematics (multivariate calculus and linear algebra).

Special Application Requirements—Students should submit their applications, including a record of GRE scores and three letters of recommendation, to the director of graduate studies. Applicants who would like financial aid should submit their materials no later than December 31. Students are admitted in fall semester only.

Courses—Please refer to Economics (Econ) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—4xxx or 5xxx economics courses may not be included on degree program form for the economics Ph.D. program. Students may include 4xxx, 5xxx, and 8xxx courses outside economics. Approval of the student’s adviser and the director of graduate studies are needed to use 4xxx and 5xxx courses.

M.A. Degree Requirements

The M.A. is offered under Plan A (with thesis) or Plan B (without thesis). Coursework for the M.A. is drawn from the Ph.D. program and must include at least 10 credits of economic theory from the first-year Ph.D. sequences in theory (for majors) or microeconomic analysis (for minors) and macroeconomics. Beyond these restrictions, the general Graduate School requirements govern. For the Plan B degree, a Ph.D. student will have completed requirements for the M.A. when the written preliminary exams have been completed. Two Plan B projects consisting of research papers or literature reviews are required; the Ph.D. written preliminary exams required in two fields outside of economic theory (“field exams”) may be used to satisfy either or both of the Plan B projects. Because the standards used to judge whether a preliminary exam has satisfied the requirement for the M.A. are less rigorous than those for the Ph.D., students may qualify for the master’s Plan B without having satisfied all requirements for the Ph.D. written preliminary exams.

Language Requirements—None.

Final Exam—The final exam is oral for Plan A, written for Plan B.

Minor Requirements for Students Majoring in Other Fields—A master’s minor consists of 6 credits in 4xxx, 5xxx, or 8xxx economics courses, all taken A-F and completed with grades of B or better (one 8xxx course may carry a grade of C). The 6 credits include Econ 5151 and 5152 or more advanced courses in economic theory. The economic theory requirement may be waived if, in the judgment of the director of graduate studies, the student’s previous work in economics has included courses equivalent to Econ 5151 and 5152, though the requirement to complete 6 credits would still stand.

Ph.D. Degree Requirements

Emphasis in all aspects of the program is on careful development of the theoretical basis for the work, whether the work is theoretical or applied, and whether the relevant theory is drawn from economics, econometrics, mathematics, statistics, or other related disciplines.

Before undertaking research for a doctoral thesis, the student must pass written preliminary exams in micro- and macroeconomic theory, plus in two of the fields listed under the curriculum section above. A research paper may be substituted for one of the field examinations; see the Economics Graduate Student Handbook. The program does not specify a minimum number of courses for the major; rather, the courses taken to help prepare for the preliminary exams constitute the major program. In addition, students must complete 12 credits outside the major for a supporting program, which may include economics courses not included in the major.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—Requirements for a doctoral minor include five or more from among the following courses: Econ 8001-2-3-4 or 8101-2-3-4, and 8105-6-7-8; plus completion of at least two 8xxx courses in economics other than those listed above. All courses must be taken A-F, with no grade lower than C and no more than two course grades of C. In addition, students must pass the microeconomics preliminary exam for minors or majors and either the macroeconomics preliminary exam for
Degree Programs and Faculty

Education
Advanced work leading to the professional degree of master of education (M.Ed.) is offered in several areas of study. For more information, see the College of Education and Human Development Professional Studies Catalog. This catalog can be found online at <www.education.umn.edu/catalogs/catalog_intro.html>.

Education Emphases (Twin Cities campus)—At the Ph.D. level, the education major is divided into two emphases: Recreation, Park, and Leisure Studies and Work, Community, and Family Education.

Recreation, Park, and Leisure Studies
Contact Information—Director of Graduate Studies, School of Kinesiology, University of Minnesota, 220 Cooke Hall, 1900 University Avenue S.E., Minneapolis, MN 55455 (612-625-5300; fax 612-626-7700; rpls@umn.edu; <http://education.umn.edu/kls/>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>

Professor
Dorothy H. Anderson, Forest Resources, AM2
William Gartner, Applied Economics, AM2
Mary Jo Kane, SM
Leo H. McAvoy, Jr., SM
John E. Rynders, Educational Psychology, AM2
Michael G. Wade, SM

Associate Professor
Bruce D. Anderson, SM
Carla E. S. Tabourne, SM
Diane M. Wiese-Bjornstal, SM

Assistant Professor
Kenneth Bartlett, Work, Community, and Family Education, AM2
W. Corliss Outley, SM

Lecturer
Maurice K. Fahnneckost, AM2

Other
JoAnn Buyse, M2
Stephan Paul Carlson, Forest Resources, AM2
Robert Danforth, AM2
Carol A. Leitschuh, M2
David W. Lime, Forest Resources, AM2
Ingrid Elean Schneider, Forest Resources, AM2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Ph.D. students in education with an emphasis in recreation, park, and leisure studies (RPLS) pursue an individualized program specializing in park and recreation administration, outdoor education/recreation, sport management, or therapeutic recreation.

Prerequisites for Admission—Although prospective students generally have completed undergraduate and masters’ degrees in recreation, park, and leisure studies, others with a baccalaureate degree may be admitted who have related preparation and a significant background and interest in the subject. Admitted students may be required by their adviser to complete background preparation in undergraduate and graduate recreation and related coursework.

Special Application Requirements—Applicants must submit a completed University of Minnesota, Twin Cities Graduate School application form including a clearly written statement of academic interests, goals, and objectives, scores from the General Test of the GRE (verbal and quantitative) or Miller Analogies Test that are less than five years old, three letters of recommendation from persons familiar with their scholarship and research potential, a scholarly paper, and copies of official transcripts. Students may apply at any time; however, submission of all application materials by January 15 is strongly encouraged to ensure priority consideration for admission as well as teaching and research assistantships awarded for the next academic year. The three letters of recommendation must be sent directly to the department. Students can be admitted any time.

Research Facilities—Research facilities include the Institute on Community Integration and the Tucker Center for Research on Girls and Women in Sport.

Courses—Please refer to Recreation, Park, and Leisure Studies (Rec) and Education (Educ) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

Ph.D. Degree Requirements
The Ph.D. requires at least 86 credits, which must include 12 credits in an RPLS common core [including one course from Educational Policy and Administration (EdPA) or the Preparing Future Faculty Program (GRAD)], 21 credits in an RPLS emphasis area, 17 credits in research development, 12 credits in a supporting program or minor, and 24 thesis credits (Educ 8888). A minimum GPA of 3.00 is required to maintain good standing and to graduate.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor requires at least 12 credits of graduate level courses in RPLS, including Rec 5101 (3 cr) and 8980 (2 cr).

Work, Community, and Family Education
Contact Information—Jerry McClelland, Director of Graduate Studies, Department of Work, Community, and Family Education, University of Minnesota, R-350 Vocational and Technical Education Building, 1954 Buford Avenue, St. Paul, MN 55108 (612-624-1221; fax 612-625-8140; wcfe@umn.edu; <www.education.umn.edu/wcfe>)

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
James M. Brown, SM
Judith J. Lambrecht, SM
Theodore Lewis, SM
Gary N. McLean, SM
Roland L. Peterson, SM
David J. Pacel, SM
Richard A. Swanson, SM
Ruth G. Thomas, SM

Adjunct Professor
Richard A. Krueger, SM

Associate Professor
Gary W. Leske, SM
Jerry McClelland, SM
Rosemarie I. Park, SM
Marvyn A. Rossmann, SM
Sheila K. Ruhland, SM
James R. Stone III, SM
Bayin Yang, SM

Assistant Professor
Kenneth R. Bartlett, SM
Richard M. Joerger, M2
Shari L. Peterson, SM

Other
Jeanette R. Daines, AM2
Barrycraig Johnsen, AM2
Thomas D. Peacock, Education, Duluth, AM2
Jerome A. Stein, AM2
Joyce Walker, AM2

Curriculum—The program offers specializations in adult education; agricultural food and environmental education; business and industry education; family education; human resource development; and comprehensive work, community, and family education. Students combine study and related experiences to develop, apply, analyze, synthesize, and evaluate knowledge of the purposes, practices, issues, and problems of work, community, and family education; social, economic, historical, political, cultural, educational, technological, and psychological contexts within which work, community, and family education exist; and types of research that contribute to or apply that knowledge to the specialization.

Prerequisites for Admission—Prospective students generally have completed an undergraduate degree or extensive coursework in the specialization area. Prospective doctoral degree students should have academic background and experience in at least one specialization area.

Special Application Requirements—Scores from the GRE General Test are required for applicants with a bachelor’s degree from a U.S. institution. Applicants should designate the specific specialization to which they seek admission in their goal statement. A current resume is required. Students are admitted each term.

Courses—Please refer to Adult Education (AdEd), Agricultural, Food, and Environmental Education (AFSEE), Business and Industry Education (BIE), Family Education (FE), Human Resource
Development (HRD), and Work, Community, and Family Education (WCFE) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—A maximum of 15 credits of 4xxx courses may be used in the related field or supporting program. Students who plan to use any 4xxx courses in their program are responsible for determining that the course is available for graduate credit. Degree programs must include rationale for the use of 4xxx course credits.

M.A. Degree Requirements
The M.A. is offered under Plan A and Plan B. Students in either plan complete a minimum of 30 to 34 credits of 5xxx courses, including 14 credits in the major and 6 credits in the related field. Plan A students also take 10 thesis credits; Plan B students complete a 3- to 6-credit project or paper, with remaining credits taken in either the major or related field.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students
Majoring in Other Fields—The master’s minor requires a minimum of 6 credits in one of the specializations, approved by the director of graduate studies.

Ph.D. Degree Requirements
The Ph.D. requires 60 course credits and 24 thesis credits. Course credits include a minimum of 12 credits in general aspects, a minimum of 20 credits in research, and a minimum of 16 credits in the specialization. Course credits must also include 12 elective credits and 12 credits from outside the department, which may overlap with those in general aspects, research, and the specialization.

Language Requirements—None.

Minor Requirements for Students
Majoring in Other Fields—The doctoral minor requires a minimum of 12 credits in one of the specializations, approved by the director of graduate studies.

Education, Curriculum, and Instruction
Contact Information—Department of Curriculum and Instruction, University of Minnesota, 125 Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-2545; cigs@umn.edu; <www.education.umn.edu/cgi/>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Patricia G. Anzley, SM
Richard W. Beach, SM
Carol A. Carrier, Human Resources, AM
John J. Cogan, Educational Policy and Administration, ASM
Deborah R. Dillon, SM
Lee Galda, SM
Michael F. Graves, SM
Ilene B. Harris, Medical School, ASM

Roger T. Johnson, SM
Judith J. Lambrecht, SM
Frances P. Lawrenz, Educational Psychology, ASM
John C. Manning, SM
David O’Brien, SM
R. Michael Pagel, Educational Policy and Administration, SM
Thomas R. Post, SM
Jay S. Samuels, Educational Psychology, ASM
Barbara M. Taylor, SM
Ruth G. Thomas, Work, Community, and Family Education, AM2

Associate Professor
Kathleen Cramer, M2
Margaret K. DiBlasio, SM
Frod N. Finley, SM
Patricia A. Heller, SM
Simon R. Hooper, SM
Patricia James, General College, AM2
Timothy Lensmire, SM
Rosemarie J. Park, Work, Community, and Family Education, AM2
Diane J. Tedick, SM
Constance L. Walker, SM
Susan M. Watts-Taffe, SM

Assistant Professor
Martha H. Bigelow, M2
Joan E. Hughes, M2
Jeremy Kahan, M2
Julie Kahan, M2

Lecturer
Mary Bents, Student and Professional Services, AM2
L. Joanne Buggey, M2
Faith M. Clover, M2
H. Michael Hartman, SM
Richard D. Nunneley, Educational Policy and Administration, AM

Other
Sara Dexter, Applied Research and Educational Improvement, AM2
Lesa Covington-Clarkson, M2
Tara W. Fortune, Applied Research and Educational Improvement, AM2
Helen Lydia Jorstad, AM2
Jaclyn Marie Michlin, AM
Michael Michlin, Applied Research and Educational Improvement, AM
Terrence Wyberg, M2

Curriculum—By focusing on the curricular and instructional processes central to all educational endeavors, graduate programs within the Department of Curriculum and Instruction prepare students for professional roles in pre-K-12 education, in postsecondary and research settings, and in educational service agencies.

The M.A. (Plan B only) and Ph.D. include formal tracks in art education; elementary education; instructional systems and technology; literacy education (including children’s literature, English education, language arts education, reading education, and writing education); mathematics education; science education; second languages and cultures education; and social studies education (including ESL, foreign language, bilingual, and immersion education).

Students must have an interest in educational research; students plan a program of coursework that prepares them to conduct scholarly research in an area of expertise related to curriculum and instruction.

Prerequisites for Admission—Generally a bachelor’s degree with licensure and/or teaching experience fulfill the requirement. For some areas, however, there is no equivalent undergraduate program. In that case, 15 to 20 credits of undergraduate coursework determined acceptable by advisers and the director of graduate studies is adequate.

Special Application Requirements—Scores from the GRE are required. Master’s and doctoral applications are reviewed by department faculty twice per academic year.

Courses—Please refer to Curriculum and Instruction (CI), and Mathematics Education (MthE) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval. Students from other majors may include such courses subject to their own program’s approval.

M.A. Plan B Degree Requirements
The M.A. requires a minimum of 30 credits, which includes 14 credits in the major and at least 6 credits in one or more related fields outside the major. Core and research course requirements are specified in accord with each major track and are chosen in consultation with the adviser.

Language Requirements—Although language requirements for second languages and cultures (SLC) students are not specified in terms of degrees or coursework, each SLC student must give evidence of proficiency in communicating within the second language of choice. There is no language requirement for other tracks.

Final Exam—The final exam is oral.

Minor Requirements for Students
Majoring in Other Fields—A master’s minor requires a minimum of 6 credits, selected according to the student’s needs and research interests.

Ph.D. Degree Requirements
A total of 78 credits is required for the Ph.D. Requirements including three core courses (CI 8131, 8132, 8133 for 9 credits) and at least 15 other credits in the major track. Students must also complete 12 credits in research methodology; 6 credits in educational foundations; 12 credits in a minor or supporting program; and 24 thesis credits. Specific courses and additional work vary depending upon the major track and are planned with the adviser.

Language Requirements—Although language requirements for second languages and cultures (SLC) students are not specified in terms of degrees or coursework, each SLC student must give evidence of proficiency in communicating within the second language of choice. There is no language requirement for other tracks.
Minor Requirements for Students
Majoring in Other Fields—A minimum of 12 credits is required for a minor. A demonstrated understanding of foundational knowledge related to curriculum and instruction and consultation with an adviser from the specific major track is required.

Educational Administration
Certificate of Specialist
Applications are not accepted for the certificate of specialist in this program. Students in the program are drawn from currently enrolled doctoral students who apply by submitting a Change of Status Application.

Educational Policy and Administration
Contact Information—Department of Educational Policy and Administration, University of Minnesota, 330 Wulling Hall, 86 Pleasant Street S.E., Minneapolis, MN 55455 (612-624-1006; fax 612-624-3377; edpagrad@umn.edu; <http://education.umn.edu/edpa/>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
William M. Ammentorp, SM
Ayers Bagley (emeritus), ASM
Robert H. Bruinninks, SM
David W. Chapman, SM
John J. Cogan, SM
Gerald W. Fry, SM
David R. Johnson, SM
Darrell R. Lewis, SM
Theodore Lewis, Work, Community, and Family Education, ASM
Tim L. Mazzoni (emeritus), ASM
Josef A. Mestenhauser (emeritus), ASM
Van Dyck Mueller (emeritus), ASM
Neal C. Nickerson (emeritus), ASM
R. Michael Paige, SM
Karen Rose Seashore, SM
Robert D. Tennyson, Educational Psychology, ASM
James E. Ysseldyke, Educational Psychology, ASM
Alice M. Thomas, AM2
Kyla L. Wahlstrom, AM2
Ann Z. Werner, AM2
Other
Joyce Ann Walker, AM2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The Department of Educational Policy and Administration prepares administrators, scholars, and analysts for leadership roles in education. The department is committed to the preparation of leaders who can act effectively and ethically within the structures, processes, and cultural contexts of organized education. Students in the M.A. and Ph.D. programs choose from one of four complementary but distinct program tracks: educational administration, evaluation studies, higher education, and comparative and international development education. In addition, the department offers a variety of Ed.D. programs for practicing professionals and four PK-12 administrative licensure programs.

The department also offers various certificate programs including school technology leadership and, in cooperation with other certificates (program evaluation, staff development, disability policy and services, postsecondary development education), an individualized concentration in youth leadership development, and minors in international education and program evaluation. See the department Web site address above for details on minors and certificate programs.

These graduate programs incorporate relevant knowledge from the behavioral and social sciences and the humanities, with primary reliance on sociology, management science, political science, psychology, public affairs, economics, philosophy, history, and anthropology.

Prerequisites for Admission—Applicants must have completed appropriate undergraduate and graduate study. In some cases, where previous coursework or degrees are marginally related, otherwise qualified applicants will be asked to complete additional background courses after admission. Applications are encouraged from individuals who may have completed undergraduate and/or master’s programs in related areas such as curriculum studies, public affairs, sociology, psychology, economics, political science, international relations, management science, measurement and statistics, and educational psychology. The department offers study opportunities for professionals who are employed full time as well as for those who wish to pursue graduate studies full time.

Special Application Requirements—Applicants must submit scores from the General Test of the GRE, two letters of recommendation from persons familiar with their scholarship and research potential, a complete set of official transcripts, and three brief essays (personal statement, educational issue of interest, career goals). International students must also submit a TOEFL or IELTS score, but international applicants to the M.A. program are exempt from the GRE. Applications are reviewed throughout the year; however, submission of all application materials by February 15 is strongly encouraged to ensure priority consideration for teaching and research assistantships awarded for the next academic year. All new students begin in fall semester unless permission to start earlier is granted by the program coordinator. The department application, letters of recommendation, and essays are sent directly to the department. The Graduate School application, GRE scores, transcripts, and TOEFL/IELTS score are sent to the Graduate School.

Centers—College centers directed by department faculty include the Institute on Community Integration (ICI) and the Postsecondary Education Policy Studies Center (PEPSC). Department faculty are also closely affiliated with the Center for Applied Research and Educational Improvement (CAREI). These centers provide research and graduate assistantship opportunities for department graduate students.

Courses—Please refer to Educational Policy and Administration (EdPA) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.A. Plan B Degree Requirements
The master’s is available under four program tracks: educational administration, evaluation studies, higher education, and comparative and international development education. All M.A. programs require 12 or more credits in program core courses, 6 or more credits in a related field, 6 or more credits of research methodology courses, 2 to 4 credits for the Plan B paper, and an oral exam. Within the general framework for M.A. requirements, the degree program is developed by the student and his or her adviser and is subject to approval by the department’s director of graduate studies and the Graduate School. For specific requirements see the current Student Handbook under Student Resources on the department Web site address listed above.

Language Requirements—None.

Final Exam—The final exam is oral.
Ph.D. Degree Requirements
The Ph.D. is available in four program tracks: educational administration, evaluation studies, higher education, or comparative and international development education. All Ph.D. programs include 11 credits in department core courses, 18 or more credits in program core courses, 12 or more credits of research methodology courses, 12 or more course credits in a supporting program or minor, and 24 thesis credits. The minimum total of course credits varies by track (see Student Handbook on the Web site for details). Preliminary written and oral exams are required and students must complete a dissertation and a final oral examination. Within the general framework for Ph.D. requirements, the degree program is developed by the student and his or her adviser and is subject to approval by the department’s director of graduate studies and the Graduate School.

Language Requirements—None.

Ed.D. Degree Requirements
The doctor of education (Ed.D.) is a professionally oriented degree program for those who will provide leadership in educational institutions. The program emphasizes breadth of preparation in educational policy and administration and in related fields. Through courses, seminars, and independent study, students learn to apply the products of disciplined inquiry to educational policy issues and practical situations in educational environments. The Ed.D. is offered in two areas in educational policy and administration: educational administration (PK-12 schools) and higher education. Cohorts include those in the metropolitan area, out state Minnesota, and international schools. The Ed.D. degree is offered only in the context of cohort programs of 20-30 students each.

All Ed.D. cohort programs include department core courses, program core courses, inquiry and research courses, supporting program or minor, and field research project credits. Within the overall 76 or more credit framework (some credits may be brought in from previous graduate work), specific course requirements are developed for each program emphasis and cohort. See the department Web site address for requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Program areas are counseling and student personnel psychology (CSPP); school psychology; special education; and psychological foundations of education (including research methodology, learning and cognition, human relations, social psychology, human development in education, and educational technology).

Prerequisites for Admission—There are no special prerequisites for admission at the M.A. level in any of the four program areas, or at the Ph.D. level in school psychology or psychological foundations of education. Applicants to the CSPP doctoral program should hold either a bachelor’s or master’s degree with a major in psychology, education, counseling, or a related field. CSPP applicants interested in earning the specialist certificate should hold an M.A. degree; if not, they should apply to both the M.A. and specialist certificate programs.

Special Application Requirements—Applicants must submit a department application (with clear indication of the desired program area), a statement of goals and interests, three letters of recommendation, and a Graduate School application accompanied by official transcripts from all colleges and universities attended. The GRE is required for all programs; an interview is also required for those who make the initial cut in school psychology.

Applications to CSPP, school psychology, and special education are accepted for fall admission only. Applications to psychological foundations are accepted throughout the year. Please check directly with the program offices for current deadlines.

Educational Psychology

Contact Information—Director of Graduate Studies Assistant, Department of Educational Psychology, University of Minnesota, 204 Burton Hall, 178 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-1698; fax 612-624-8241; cpsv-adm@umn.edu; <www.education.umn.edu/EdPsych>).

For specific program materials, contact the program areas as follows: Counseling and Student Personnel Psychology, University of Minnesota, 129 Burton Hall, 178 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-6827; fax 612-625-4063; ccpp-adm@umn.edu); Psychological Foundations of Education, University of Minnesota, 206 Burton Hall, 178 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-0042; fax 612-624-8241; psyl-adm@umn.edu); School Psychology, University of Minnesota, 344 Elliott Hall, 75 E. River Road, Minneapolis, MN 55455 (612-624-4156; fax 612-624-0879; schpsych@umn.edu); Special Education, University of Minnesota, 227 Burton Hall, 178 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-0367; fax 612-626-9627; sped-adm@umn.edu).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
William M. Bart, SM
Robert H. Braumink, SM
Sandra L. Christenson, SM
Eli Coleman, Family Practice and Community Health, ASM
Mark L. Davison, SM
Stanley L. Deno, SM
Byron Egeland, Child Development, ASM
Christine A. Espin, SM
Joan B. Garfield, SM
Sunny Sandal Hansen (emeritus), ASM
Michael R. Harwell, SM
Thomas J. Hammel, SM
Susan C. Hupp, SM
David R. Johnson, AM2
David W. Johnson, SM
Roger T. Johnson, Curriculum and Instruction, AM2
Frances P. Lawrenz, SM
Rodney G. Lopez, Psychology, AM2
Geoffrey M. Maruyama, SM
Scott R. McConnell, SM
Anthony Pellegrini, SM
Joe E. Reichle, Communication Disorders, AM2
John L. Romano, SM
S. Jay Samuels, SM
Thomas M. Skovholt, SM
Robert D. Tennyson, SM
Paulus W. van den Broek, SM
Patricia R. McCarthy Veach, SM
Richard A. Weinberg, Child Development, ASM
James E. Ysseldyke, SM

Associate Professor
Ernest C. Davenport, SM
V. Lois Erickson, SM
Jean A. King, Educational Policy and Administration, AM2
Jeffrey D. Long, M2
Jennifer J. McComas, AM2
Susan Rose, SM
Frank J. Symons, M2

Assistant Professor
Pearl Baner, Psychology, AM
Marika Ginsburg-Block, SM
Michael P. Goh, M2
Matthew Lau, AM2
David N. Rapp, M2

Michael C. Rodrigo, M2
Kay A. Thomas, International Programs, AM2
Sherri L. Turner, M2
Kay Herting Wahl, M2

Lecturer
Brian H. Abrey, AM2
Ann M. Casey, AM
Dara Courney, AM2
Robert C. DelMas, General College, AM2
Kristen McMaster, AM2
Salina M. Remminger, University Counseling and Consulting Services, AM
Judith Puncocar, AM2
Teresa L. Wallace, AM

Other
Diane Coursol, AM
Camilla Leh, AM2
Ronald P. Matoos, AM
Walter Roberts, AM
Richard Senese, Extension Services, AM
Richard J. Spicuzza, AM
Sandra Thompson, AM
Martha L. Thurlow, AM
Joyce D. Weinheimer, Center for Teaching and Learning Services, AM2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Degree Programs and Faculty
Courses—Please refer to Educational Psychology (EPsy) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—None of the four programs allow 4xxx or 6xxx coursework to be counted toward Graduate School degree program requirements.

Educational Psychology—Counseling/Personnel

The counseling and student personnel psychology (CSPP) program subscribes to the scientist/practitioner model, which assumes that scholarly inquiry and counseling practice are interdependent and complementary. The program’s primary mission is to prepare counseling psychologists to bring a well-trained professional’s attitude and interest to bear on the application of psychological and education knowledge. In addition to becoming skilled clinicians, students learn to be critical consumers and producers of both qualitative and quantitative research.

M.A. Degree Requirements

Students must complete at least 42 credits, including credits in EPsy core courses (statistics, measurement, learning, and social psychology), 26 credits in counseling theory and practice, and 6 credits in a related field or minor.

Language Requirements—None.

Final Exam—The final exam is written; students must also submit a portfolio.

Minor Requirements for Students Majoring in Other Fields—A master’s minor requires at least 6 credits of graduate-level EPsy courses.

Ph.D. Degree Requirements

Students must complete credits in EPsy core courses (statistics, measurement, learning, social psychology, foundations, and research methods); 51 credits in counseling theory and practice, practica, and internships; 12 credits in a supporting program or minor; and 24 thesis credits.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor requires at least 15 credits of graduate-level EPsy courses: 9 credits in psychological foundations and 6 credits in applied areas, of which at least 9 credits must be in 8xxx courses.

Certificate of Specialist Requirements

Students must complete at least 60 credits, including 13 credits in EPsy core courses (statistics, measurement, learning, and social psychology), and 26 credits in counseling theory and practice.

Language Requirements—None.

Final Exam—The final exam is oral.

K-12 School Counseling (For those seeking licensure only)

This licensure program is designed for professionals who already hold a master’s degree in counseling or a related field but want to broaden their career development with a K-12 school counseling license. It aligns with the licensing requirements of the Minnesota Department of Children, Families, and Learning and state licensing board.

Educational Psychology—Psychological Foundations

Graduate study in psychological foundations of education prepares students for research and teaching positions in colleges and universities, schools, private industry, human service organizations, health science units, government agencies, and other research and development centers. Graduates of the program are typically employed as professors, researchers, directors of testing, instructional designers, evaluation specialists, planning officers, statisticians, and computer programmers. Students may specialize in the methodological or psychological foundations of education.

The program offers M.A. and Ph.D. degrees with emphases in research methodology (with specializations in statistics, education, measurement, and evaluation), social psychology, human development in education, learning and cognition, human relations, and educational technology. Students typically choose one of these areas in addition to achieving broad competence in all aspects of the curriculum.

M.A. Degree Requirements

Students must complete at least 30 credits, including credits in EPsy core courses (statistics, measurement, learning, social psychology) and 6 credits in a related field or minor.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A master’s minor requires at least 6 credits of graduate-level EPsy courses.

Ph.D. Degree Requirements

Students must complete credits in EPsy core courses (statistics, measurement, learning, social psychology, foundations, and research methods), EPsy electives, 12 credits in a supporting program or minor, and 24 thesis credits.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor requires at least 15 credits of graduate level courses in EPsy; 9 credits in psychological foundations and 6 in applied areas, of which at least 9 credits must be in 8xxx courses.

Educational Psychology—School Psychology

School psychology is an interdepartmental program involving the Departments of Educational Psychology, Psychology, and the Institute of Child Development. It is fully accredited by the American Psychological Association, the Minnesota Board of Teaching, and the National Association of School Psychologists. Through coursework and practica/internships, students develop competencies in assessment, consultation, intervention and program development, research, and evaluation. Graduates are employed as psychologists in local schools, university clinics and hospitals, community mental health centers, and as trainers/researchers in universities. Since 1988, training has focused on the delivery of psychological services in schools and school communities to promote children’s and adolescent’s academic, social, and behavioral success.

The program integrates didactic and experiential components of training and applied research. Students develop specific competencies through a broad range of applied experiences, including field placements, practica assignments, and a full-year internship.

M.A. Degree Requirements

The M.A. is offered under Plan A (thesis) and Plan B (paper) and requires at least 30 credits: credits in EPsy core courses (statistics, measurement, learning, and social psychology) and 6 credits in a related field or minor. Plan A students must also take 10 thesis credits; Plan B students take 2 research credits (EPsy 8994).

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A master’s minor requires at least 6 credits of graduate-level EPsy courses.

Ph.D. Degree Requirements

The Ph.D. program educates future school-based researchers with emphases in family/school partnerships, outcome assessment, school dropout, and school outcomes and interventions for children/adolescents at risk. Students must complete credits in EPsy core courses (statistics, measurement, learning, social psychology, foundations, and research methods). In consultation with their advisers, students develop a curriculum and select courses and practica placements that are appropriate for their interests, prior experience, and career directions.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor requires at least 15 credits of graduate-level EPsy courses: 9 credits in psychological foundations and 6 credits in applied areas, of which at least 9 credits must be in 8xxx courses.
Certificate of Specialist Requirements

The specialist program is for students who want to become practitioners. It meets the Minnesota certification requirements for school psychologists.

Students must complete at least 60 credits, including credits in EPsy core courses (statistics, measurement, learning, social psychology, and research methods) and 6 credits of special education foundations. The remaining coursework usually focuses on two or more special education areas, determined in consultation with the adviser.

Language Requirements—None.

Final Exam—The final exam is oral.

Educational Psychology—Special Education

M.A., Ph.D., and certificate of specialist degrees are offered in special education in the following specializations: deaf/hard-of-hearing, social/emotional disabilities, early childhood special education, learning disabilities, mild/moderate disabilities, and severe/profound disabilities. Early involvement in research projects and the development of original research programs in such areas as instructional strategies, social and cognitive development, behavioral and psychological management, child development, and technology are encouraged. Special projects and training programs supplement academic studies.

The program focuses on the attainment of core competencies and related skills, since special education professionals share many common concerns and goals. A complementary emphasis is placed on problems unique to or extremely influential in the field, including social and cultural perceptions about disabilities, and federal, state, and local legislation regarding prevention and the care, treatment, education, training, and support of persons with disabilities.

M.A. Degree Requirements

Students may emphasize consulting, college teaching, or research in one or more of the specializations.

Students must complete at least 30 credits, including credits in EPsy core courses (statistics, measurement, learning, and social psychology), 6 credits in special education foundations, and 6 credits in a related field or minor. Plan A students must take 10 thesis credits.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor requires at least 15 credits of graduate-level EPsy courses: 9 credits in psychological foundations and 6 in applied areas, of which at least 9 credits must be in EPsy courses

Certificate of Specialist Requirements

Students must complete at least 60 credits, including credits in EPsy core courses (statistics, measurement, learning, social psychology, and research methods) and 6 credits of special education foundations. The remaining coursework usually focuses on two or more special education areas, determined in consultation with the adviser.

Language Requirements—None.

Final Exam—The final exam is oral.

Electrical Engineering

Contact Information—Director of Graduate Studies, Department of Electrical Engineering, University of Minnesota, 4-178 Electrical Engineering/Computer Science, 200 Union Street S.E., Minneapolis, MN 55455 (612-625-3564; fax 612-625-4583; graduate_studies@ece.umn.edu; <www.ece.umn.edu>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor

Vernon D. Albertson (emeritus), SM
Stephen A. Campbell, SM
Vladimir Cherkassky, SM
Philip I. Cohen, SM
E. Dan Dahlberg, Physics, ASM
David H. Du, Computer Science and Engineering, ASM
Tryphon T. Georgiou, SM
Georgios Giannakis, SM
Anand Gopinath, SM
Jack H. Judy (emeritus), SM
James R. Leger, SM
David J. Lilja, SM
Christine Maziar, SM
Ned Mohan, SM
Jaekyun Moon, SM
Marshall L. Nathan, SM
Hal Ottesen, Rochester, ASM
Nikolaos P. Papanikolopoulos, Computer Science and Engineering, ASM
Keshab K. Parhi, SM
Robert P. Pattler, Physical Medicine and Rehabilitation, ASM
William T. Peria (emeritus), SM
Dennis L. Polla, SM
William P. Robbins, SM
P. Paul Ruden, SM
Sachin Sapatekar, SM
Guillermo Sapiro, SM
Maran S. Stachowicz, Duluth, ASM
Ahmed H. Tewfik, SM
J. Thomas Vaughan, Radiology, Magnetic Resonance Research, ASM
Randall H. Victoria, SM
Bruce F. Wollenberg, SM
Paul R. Woodward, Astronomy, ASM
Pen-Chung Yew, Computer Science and Engineering, ASM
Ofer Zeitouni, Mathematics, ASM

Assistant Professor

Mohamed-Slim Alouini, SM
Emad Ebbini, SM
Douglas W. Erme, SM
Bruce E. Hammer, Radiology, ASM
Ramesh Harjani, SM
Ted K. Higman, SM
James E. Holte, SM
Thomas S. Lee (emeritus), ASM
Jaieet Roychowdhury, SM
Nicholas D. Sidropoulos, SM
Gerald E. Sobelman, SM
Joseph J. Talghader, SM
Jian-Ping Wang, SM
Zhi-Li Zhang, Computer Science and Engineering, ASM

Adjunct

Kiraash Bazargan, SM
Rhonda Drayton, SM
Heinrich O. Jacobs, SM
Bethanie J. Stadder, SM
Richard M. Voyles, Computer Science and Engineering, ASM
Babak Ziaie, SM

Curriculum—The Department of Electrical and Computer Engineering offers diverse educational programs that encompass nearly all aspects of modern electrical and computer engineering, ranging from the very theoretical system and information theory to highly experimental work in novel device research and microelectronics. Emphases in the major are solid state and physical electronics, surface physics, thin films, sputtering, noise and fluctuation phenomena, quantum electronics, plasma physics, automation, power systems and power electronics theory, wave propagation, communication systems and theory, optics, lasers, fiber optics, magnetism, semiconductor properties and devices, VLSI and WSI engineering in theory and practice, network theory, signal and image processing, and computer and systems engineering. Interdisciplinary work is also available in
bioelectrical sciences, control sciences, computer sciences, solar energy, applications of systems theory to urban transportation and economic planning, and biological modeling.

Prerequisites for Admission—Graduate work is open to students who have shown exceptional scholarship and ability in an accredited undergraduate curriculum in electrical engineering or physics. Consideration is given to students who have completed another curriculum in engineering, science, or mathematics that includes sufficient preparation to pursue a graduate program in electrical engineering. In some instances, additional preparatory studies may be required after admission. Students whose training is in engineering technology will not be considered for admission.

Special Application Requirements—Scores from the GRE (General Test only) are required of all international students, both those requesting financial assistance and those not needing financial assistance. For U.S. students, the GRE (General Test only) is only required for those requesting financial assistance. International students applying from within the United States should furnish letters from U.S. faculty members attesting to their ability to understand technical instruction in English. Students submitting transcripts from non-American institutions should furnish letters of recommendation that verify their academic standing in a specific way (e.g., class rank). Very few students are accepted for enrollment in spring semester or summer term. Applicants for fall semester admission should file a completed admission application with the Graduate School by December 15 for admission the following September. All students applying for graduate study should submit the Electrical Engineering Graduate Program Application form directly to the department. The form is available online at <www.ece.umn.edu> and is also available by contacting the director of graduate studies at graduate_studies@ece.umn.edu.

Courses—Please refer to Electrical Engineering (EE) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—EE 4xxx courses acceptable for major field credit: EE 4301, 4541, 4701, 4721, and 4741. Non-EE 4xxx courses acceptable for supporting/related field credit: Math 4065, 4151, 4152, 4242, 4337, 4428, 4457, 4458, 4512, 4567, and 4606; and Stat 4101. All 4xxx physics courses are acceptable for graduate credit. No 4xxx computer science, mechanical engineering, or industrial engineering courses are acceptable for graduate credit.

M.E.E. Coursework Only Degree Requirements

The M.E.E. degree requires 30 credits, including at least 14 credits from EE courses at 5xxx and higher, at least 6 credits from courses numbered 4xxx and higher in a minor or related field, and 10 credits from EE or a supporting program. Colloquium and seminar credits cannot be used in any M.E.E. program.

Language Requirements—None.

Final Exam—No final exam is required.

Minor Requirements for Students

Majoring in Other Fields—Credits for the master’s minor must be from classroom and laboratory courses graded A-F. In particular, colloquia, seminar, and special investigations credits do not count toward meeting the minor requirements.

M.S.E.E. Degree Requirements

Every M.S.E.E. degree program must include 30 credits including at least 14 credits from EE courses at 5xxx or higher (a few 4xxx EE courses can be used for the program) and at least 6 credits from courses outside EE at 4xxx or higher (normally from departments in the Institute of Technology or School of Statistics). These credits cannot come from colloquia or seminar registrations. A Plan A program (with thesis) cannot include more than 2 credits from projects, seminars, special investigations, or directed studies; in a Plan B program (without thesis), the limit is 3 credits. The Plan A program should include 10 thesis credits. Part-time students must choose Plan B; full-time students may choose either Plan A or Plan B.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students

Majoring in Other Fields—The 6 credits for the master’s minor must be from classroom and laboratory courses graded A-F. Colloquia, seminar, and special investigations credits do not count toward meeting the minor requirements.

Ph.D. Degree Requirements

The Ph.D. requires at least 40 course credits including at least 6 credits in 8xxx courses, at least 14 credits in EE courses, and at least 12 credits in the supporting program or minor, which cannot include EE courses. In addition, 24 thesis credits are required. The program may contain up to 2 credits from seminars or special investigations registrations and up to 8 credits of M.S. thesis registration, none of which can be used to meet the major requirements above. No credits can be included from colloquia or M.S. Plan B projects. At least 14 credits must be coursework taken at the University of Minnesota. The student’s degree program form listing all courses to be included toward the degree should be submitted no later than the end of the second year of the Ph.D. program. Each Ph.D. student must participate in one of the department research area seminars and make at least three oral paper presentations before the thesis proposal is approved.

Language Requirements—None.
Degree Programs and Faculty

Special Application Requirements—Three letters of recommendation; scores from the General Test of the GRE; a short essay explaining scholarly, professional, and personal goals and reason(s) for choosing the University of Minnesota; and a writing sample, such as a course paper, are required. Applications to the M.F.A. in creative writing are reviewed by the writing faculty; these applications should include a substantial portfolio of writing. Candidates for all degrees are admitted fall semester only; all materials must be received by December 20.

Courses—Please refer to English: Creative and Professional Writing (EngW), and English: Literature (EngL) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—A limited number of 4xxx courses may be included as appropriate for field and area requirements. Inclusion of 4xxx courses on degree program forms is subject to advisor and director of graduate studies approval.

M.A. Plan B Degree Requirements

The minimum requirement for the M.A. is 30 credits. Coursework must include at least 24 credits in English and 6 credits in related fields outside of English or in a minor field. All M.A. students must complete the introductory sequence EngL 5001-02 on methods and theory of literary study and three Plan B papers.

Language Requirements—A reading knowledge of one classical or modern language, approved by the director of graduate studies, is required.

Final Exam—The final exam is oral.

Minor Requirements for Students

Majoring in Other Fields—The master’s minor consists of 9 credits in English. Course selection is determined in consultation with the director of graduate studies.

Ph.D. Degree Requirements

A minimum of 66 credits, including 24 thesis credits, is required. Course requirements for the Ph.D. program are broadly defined, allowing students to shape a personal program of study. The following courses are required: EngL 5001 and 5002, preferably during the first year of doctoral study (6 credits); four English courses distributed among broad areas (minimum of 12 credits); four additional English courses in a focused area of emphasis (minimum of 12 credits); 12 credits in a supporting program. Students are encouraged to enroll in additional courses as appropriate.

Language Requirements—A reading knowledge of two languages, classical or modern, approved by the director of graduate studies, is required. Students specializing in medieval or early modern literature and culture are advised to include Latin as one of their languages.

Minor Requirements for Students

Majoring in Other Fields—The Ph.D. minor consists of 12 credits in English. Course selection is determined in consultation with the director of graduate studies.

English as a Second Language

Contact Information—Director of Graduate Studies, English as a Second Language, University of Minnesota, 215 Nolte Center, 315 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-3331; fax 612-624-4579; iles@umn.edu; <www.iles.umn.edu/esl.htm>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor

Andrew D. Cohen, M2
Elaine E. Taroné, M2

Associate Professor

Carol Klee, AM

Assistant Professor

Martha Beigelow, AM
Kathryn Kohnet, AM
Anne Lazaranton, M2

Other

Jenise Rowekamp, AM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The program in English as a second language (ESL) offers a course of study leading to an M.A. Degree holders are qualified to teach ESL to adults at the college or university level. The program emphasizes research in language analysis, language acquisition, teaching methodology, materials development, and uses of technology in language teaching. Students are expected to do independent and creative work in one or two of these areas with the aim of developing a more complete understanding of the issues facing professionals in the field of ESL today.

Prerequisites for Admission—A bachelor’s degree in the liberal arts or sciences with a strong academic record is required.

Special Application Requirements—Scores from the General (Apititude) Test of the GRE and three letters of reference, are required. Non-native speakers of English must submit either TOEFL scores (minimum 600) and TWE scores (minimum 5), or IELTS scores (minimum 7). Students may begin the program fall semester or first summer session. Applications for both admission dates are due on March 1. To be considered for special fellowship opportunities, students must apply by January 15.

Courses—Please refer to Teaching English as a Second Language (TESL) in the course section of this catalog for courses pertaining to the program.
Degree Programs and Faculty

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.A. Degree Requirements
The M.A. program in ESL normally takes at least two years to complete. The Plan A option requires a thesis demonstrating original work in areas related to the field, familiarity with research methodology, and knowledge of the effective presentation of investigative study results. The Plan B option requires two qualifying papers, usually consisting of course papers which have been rewritten under the supervision of a faculty member.

Plan A and Plan B students must complete 26 credits in required coursework and 6 credits of elective coursework in related fields. Plan A students must complete an additional 10 thesis credits for a total of 42 credits and Plan B students must complete an additional 3 credits in elective coursework for a total of 35 credits. Elective and related field courses must be chosen with the help of an adviser to ensure the relevance of courses to students’ goals.

Language Requirements—Proficiency, demonstrated by exam or coursework, in one language not native to the student is required upon completion of the program. Non-native speakers of English who are admitted to the program are considered to have fulfilled the language requirement.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—For a minor in ESL, students must take TESL 5721, 5401, and 5402, for a total of 11 credits.

Entomology
Contact Information—Director of Graduate Studies, Department of Entomology, University of Minnesota, 219A Hodson Hall, 1980 Folwell Ave., St. Paul, MN 55108 (612-624-3636; fax 612-625-5299; entodept@umn.edu; <www.entomology.umn.edu>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
David A. Andow, SM
Mark E. Ascerio, Jr., SM
Ann M. Fallon, SM
Leonard C. Ferrington, SM
Ralph W. Holzenthal, SM
William D. Hutchison, SM
Timothy J. Kurtis, SM
Karen A. Mesce, SM
Roger D. Moon, SM
Kenneth R. Ostlie, SM
Edward B. Radcliffe, SM
David W. Ragsdale, SM
David D. Walgenbach, SM

Adjunct Professor
William E. Miller, SM

Associate Professor
George E. Hempel, SM
Vera A. Krischak, SM
Ian V. MacRae, SM
Marla Spivak, SM
Susan J. Weller, SM

Adjunct Associate Professor
Susan Palchick-Silver, M2

Assistant Professor
Colleen A. Cannon, SM

Adjunct Assistant Professor
Steven A. Kadovitch, M2
Robert C. Venette, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Entomology centers on the study of insects and includes specializations in ecology, behavior, molecular biology, microbiology, neurobiology, physiology, population dynamics, systematics, and taxonomy. Specialized or applied areas include apiculture, biological control, cell culture, insect conservation, insect-vector relations, integrated pest management, and modeling. Research programs are active in aquatic systems, forest systems, crop and animal agriculture, human health, and the natural and urban environments.

Prerequisites for Admission—A bachelor’s degree with a major in a biological science is a prerequisite. Preference is given to students with a broad background in the basic sciences. Admissions depends primarily on applicant’s undergraduate record and letters of recommendation.

Special Application Requirements—Applicants must submit a complete set of official transcripts and a clearly written statement of career interests, goals, and objectives. Three letters of recommendation are required from persons well acquainted with the student’s academic record, and must be sent directly to the department. Although GRE scores are not required, they are highly recommended for applicants who may qualify for graduate school fellowships.

Students may apply at any time; however, submission of all application materials by January 15 is strongly encouraged to ensure priority consideration for fellowships awarded for the next academic year. Applications are reviewed individually when all materials are complete. Students are admitted each semester.

Courses—Please refer to Entomology (Ent) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.S. Degree Requirements
Requirements for the M.S., supplemental to general Graduate School requirements, include a minimum of 14 course credits in entomology including a core curriculum of fundamental entomology courses and 1 credit of graduate seminar. Additional requirements include 6 credits from other programs to make a total of at least 20 course credits for Plan A or at least 30 course credits for Plan B students. These courses are flexible and are determined in consultation with the adviser and other members of the student’s advisory committee. Plan A is recommended for students contemplating a career in entomological research. Written and oral preliminary exams, in addition to the final oral exam, are required for all entomology graduate degrees.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A master’s minor requires a minimum of 6 credits in 4xxx, 5xxx, or 8xxx entomology courses.

Ph.D. Degree Requirements
Ph.D. requirements include a minimum of at least 15 course credits in entomology, including a core curriculum of fundamental entomology courses and 2 credits of graduate seminar. Additional requirements include 12 credits from other programs, and are determined in consultation with the adviser and other members of the student’s advisory committee.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—The doctoral minor requires a minimum of 12 credits in 4xxx, 5xxx, or 8xxx entomology courses.

Environmental Health
Contact Information—Student Services Center, School of Public Health, University of Minnesota, MMC 819, 420 Delaware Street S.E., Minneapolis, MN 55455 (612-626-3500 or 1-800-774-8636; fax 612-624-4498; sph-ssc@umn.edu; <www.sph.umn.edu>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Susan G. Gerberich, SM
Sagar M. Goyal, Veterinary Diagnostic Medicine, ASM
Jordan L. Holtzman, Medicine, ASM
Sheldon B. Sparber, Pharmacology, ASM
Deborah L. Swackhamer, SM
William Toscano, SM
Donald Vesley, SM

Associate Professor
Lisa M. Brosseau, SM
Timothy R. Church, SM
Ian A. Greaves, SM
Lisa M. Brosseau, SM
Donald Vesley, SM

Advisor Professor
Susan G. Gerberich, SM
Sagar M. Goyal, Veterinary Diagnostic Medicine, ASM
Jordan L. Holtzman, Medicine, ASM
Sheldon B. Sparber, Pharmacology, ASM
Deborah L. Swackhamer, SM
William Toscano, SM
Donald Vesley, SM

Department of Entomology
Degree Programs and Faculty

Assistant Professor
John L. Adgate, SM
Bruce Alexander, SM
Claudio Lungu, SM
Peter Raynor, SM
Matthew Simcik, SM

Adjunct Assistant Professor
Robert R. Roy, AM2

Instructor
Debra K. Olson, SM

Other
Alan P. Bender, AM2
Hillary M. Carpenter, AM2
L. Ronald French, AM2
Jeffrey H. Mandel, AM2
Nicole V. McCullough, AM2
Robert S. Skoglund, AM2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Environmental health is the study of how exposures to external hazards, including chemical, physical, and biological agents, affect human health. Environmental health researchers and professionals seek to understand how to evaluate exposures that create risk to human health, how those exposures elicit biological responses that lead to disease and injury, and how policy is developed and used to prevent adverse health effects. This division offers academic programs at the master’s and doctoral levels, conducts research in diverse areas of environmental health, offers continuing education, and conducts outreach. The academic programs prepare students to be leaders in environmental health in academia, industry, consulting groups, and government agencies. The division’s training and research programs emphasize the importance of translating basic scientific knowledge into solutions for current societal problems and concerns.

Applicants must indicate an interest in one of the following specialties within the major: environmental chemistry, environmental health policy, infectious disease, environmental and occupational epidemiology, environmental toxicology, the general environmental health program, occupational health nursing, occupational injury epidemiology and control, or the industrial hygiene program. The industrial hygiene program is accredited by the Applied Science Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410-347-7700).

Prerequisites for Admission—Minimum requirements include a baccalaureate degree with coursework in the basic sciences. Each specialty requires slightly different preparation.

Special Application Requirements—GRE scores, a letter describing the applicant’s professional objectives, and three letters of recommendation are required.

Courses—Please refer to Public Health (PubH), particularly numbers 51xx-52xx and 81xx-82xx, in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to the approval of the adviser and the director of graduate studies. Students from other majors may include such courses subject to their own program’s approval.

M.S. Degree Requirements
The M.S. program prepares students for specialized careers in environmental and occupational health. M.S. students receive a solid technical background in their disciplines and by graduation are proficient in applied or basic research.

The minimum credits required for graduation depends on the chosen specialty area. Most specialty areas require a two-year program. M.S. students have the option of completing a Plan A with a thesis or a Plan B project.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—Students completing a minor in environmental health must complete 7 credits in environmental health, including PubH 5103, 5104, and 5105.

Ph.D. Degree Requirements
The Ph.D. focuses on research, supplemented with advanced coursework developed under the guidance of a faculty adviser and a Ph.D. committee. Students are required to register for 24 thesis credits. Students usually need a minimum of two to three years beyond the master’s degree to complete a doctorate.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—Students are required to take a minimum of 12 credits in environmental health, including PubH 5103, 5104, and 5105.

Epidemiology
Contact Information—Student Services Center, School of Public Health, University of Minnesota, MMC 819, 420 Delaware Street S.E., Minneapolis, MN 55455 (612-626-3500 or 1-800-774-8636; fax 612-626-6931; sph-ssc@umn.edu; <www.sph.umn.edu>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Donna K. Arnett, SM
Henry Blackburn, Jr. (emeritus), ASM
Richard S. Crow, M2
John R. Finnegan, Jr., SM
Aaron R. Folsom, SM
Jean L. Forster, M2
Lael C. Gatewood, M2
John H. Himes, SM
David R. Jacobs, Jr., SM
Robert W. Jeffery, SM
Robert L. Kane, SM
Harry A. Lando, SM
Russell V. Luepker, SM
Leslie L. Lyle, SM
A. Marshall McBean, M2
Cheryl L. Perry, SM
Phyllis L. Pinie, SM
B. R. Rossen, M2
Eyal Shahar, SM
Mary T. Story, SM
Alexander C. Wagenaar, SM
Carolyn L. Williams, SM

Adjunct Professor
Richard H. Grimm, Medicine, SM
Harry F. Hull, M2
Arthur S. Leon, SM
Michael T. Osterholm, SM
Leslie L. Parham, SM

Associate Professor
Kristen E. Anderson, SM
Timothy R. Church, M2
Marsha Davis, M2
Simone A. French, M2
Lisa J. Harmon, M2
Craig W. Hedberg, M2
Wendy L. Hellestedt, M2
Rhonda J. Jones-Webb, M2
DeAnn Lazovich, M2
George Maldonado, M2
Dianne Neumark-Sztainer, M2
James S. Pankow, M2
Pamela J. Schreiner, SM
Michelle van Ryn, M2
Seth L. Welles, M2

Adjunct Associate Professor
Alan P. Bender, M2
Richard N. Dandla, M2
James G. Gurney, M2
Myron D. Gross, M2
Alan R. Lifson, M2
Ann C. Mertens, M2
Joseph P. Neglia, M2
Julie A. Ross, SM
Thomas A. Sellers, ASM

Assistant Professor
Moise Desvarieux, M2
Susan J. Duval, M2
Deborah J. Hennrikus, M2
Kelli A. Komro, SM
Michael B. Miller, M2
J. Michael Oakes, M2
Kathryn H. Schmitz, M2
Lyn M. Steffen, M2
Carol Sweeney, M2
Traci L. Toomey, M2

Adjunct Assistant Professor
Sally A. Bushhouse, M2
Beth A. Virnig, M2

Senior Research Fellow
Peter J. Hannan, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The program provides students with the core methodological skills needed to address chronic or acute diseases, long-term or newly emerging health problems, and behavioral and biologic aspects of health and disease. The doctoral program is for students interested in research and teaching careers in the health sciences. Courses are also available to students from other public health and health-related programs.
Students may select areas of concentration appropriate to their academic interests and career objectives, including the epidemiology and prevention of cancer, infectious diseases, and cardiovascular diseases; nutrition; genetic epidemiology; behavioral interventions; and epidemiologic research methods. A detailed description of the course of study may be obtained online or by writing to the director of graduate studies.

Prerequisites for Admission—For the doctoral program, applicants must have completed or be about to complete a master’s degree in a related field. Applicants should have prior coursework in life or behavioral sciences. Applicants who have not completed a master’s degree in epidemiology or a related field are asked to apply to the master’s of public health in epidemiology through the School of Public Health. Because positions in the doctoral program are limited, selection is competitive with respect to academic background and experience.

Special Application Requirements—The following materials are required by the department: an acceptable score on the GRE (test results should be forwarded to the department); at least three recommendations (form and separate letter) from faculty or work supervisors with knowledge of the applicant’s scholastic and professional capabilities and potential; and a statement of goals and objectives (letter of intent) for seeking a career in epidemiology. In addition to the above materials, applicants for the Ph.D. program must submit a separate essay (statement of research interests) demonstrating evidence of their capability in or potential for original research in a specific epidemiologic area and, if possible, indicating interest in particular methodologies or study designs. Serious doctoral applicants are encouraged to contact the major coordinator at gradstudies@epi.umn.edu before applying. Students should begin their studies in the fall semester. Applications must be completed by January 15 of the same year for the doctoral program.

Courses—Please refer to the epidemiology Ph.D. curriculum sheet available on the School of Public Health Web site for courses pertaining to the program at www.epi.umn.edu/academic/grad_epi.shtm.

Use of 4xxx Courses—Inclusion of any 4xxx courses on degree program forms of majors or minors is subject to adviser and director of graduate studies approval.

M.S. Degree Requirements
Students are not admitted directly into the master’s program; it is available only by special arrangement with the program. Students interested in a master’s level degree in epidemiology should apply for the master’s of public health (M.P.H.) degree through the School of Public Health (SPH). For more information on the M.P.H. degree please go to the SPH Web site at www.sph.umn.edu.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—The minor’s requirements are as follows: 8 credits.

Ph.D. Degree Requirements
Students select one of two field concentrations; both have an applied perspective that emphasizes study of design, measurement, quantitative analysis, and interpretation. Behavioral epidemiology focuses on origins and development of human behavior patterns and how they are influenced and formed by personality, family, culture, and environment. Etiologic epidemiology focuses on the biological causes of disease states, especially determinants of cardiovascular disease, cancer, and infectious diseases.

The Ph.D. program includes a core curriculum of 67-72 credits. Students must pass written and oral preliminary exams, write and defend a dissertation, and prepare and submit a first-authored manuscript for publication. Coursework includes 16 credits in epidemiology and biostatistics core courses; 10 credits in advanced courses (epidemiological theory, teaching practicum, writing research grants, seminars on epidemiologic issues); 4-6 credits in Ph.D.-specific electives; 24 thesis credits; 6-8 credits (three courses) of epidemiologic-related interventions/methods taken from a menu of courses (e.g., cancer epidemiology, public health policy as a prevention strategy, smoking intervention); and 7-9 credits in advanced biologically or behaviorally related courses.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—The minor requires 20 credits: 16 credits in epidemiology and biostatistics, and 4 credits in epidemiology elective courses. The director of graduate studies must approve the student’s selection of elective credits. Contact the major coordinator in epidemiology for information at gradstudies@epi.umn.edu.

Experimental Surgery

Contact Information and Faculty—See Surgery.

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The general surgery program trains medical doctors for the practice of surgery and for academic positions. See the Medical School Catalog for professional degree requirements; see below for academic degree requirements. Trainees spend two to three years in laboratory research, either in a basic science or in surgery, after which they begin their senior residency and chief residency training. The Medical School’s laboratory departments offer many graduate courses closely related to surgery (see the graduate programs in biochemistry, molecular biology, and biophysics; cellular and integrative physiology; microbiology, immunology, and molecular pathobiology; and pharmacology). These fields also offer opportunities for research work. The Department of Surgery offers supervised work in its experimental research laboratories, as well as in its hospital and outpatient departments, in the areas of surgical diagnosis and operative surgery and in some surgical specialties (such as colon and rectal surgery, transplantation, thoracic and cardiovascular surgery, and pediatric surgery). The experimental surgery program provides opportunities to gain practical research experience.

Prerequisites for Admission—Prospective students must be in the general surgery training program and have two to three clinical years of training completed.

Courses—For courses pertaining to the program, please refer to Surgery (Surg) in the course section of this catalog.

Use of 4xxx Courses—4xxx courses are not permitted toward degree requirements.

M.S. Exp.Surg. Plan A Degree Requirements
The M.S. Exp.Surg. is offered under Plan A only. At least 32 course credits (26 in the major and 6 in the minor or related fields) plus 10 thesis credits are required for a total of 42 credits.

Language Requirements—None.

Final Exam—The final exam is oral.

Family Social Science

Contact Information—Department of Family Social Science, University of Minnesota, 290 McNeal Hall, 1985 Buford Avenue, St. Paul, MN 55108-6140 (612-625-3116 or 612-625-1900; fax 612-625-4227; fsosgrad@che.umn.edu;

http://fssos.che.umn.edu/graduate/). For up-to-date faculty listings, see www.grad.umn.edu/faculty_rosters/step1.asp.

Professor
Jean W. Bauer, SM
Shirley L. Baugher, ASM
Pauline G. Boss, SM
Sharon M. Danes, SM
Daniel F. Detzner, SM
William J. Doherty, SM
Harold D. Grotevant, SM
Rose M. Brewer, AM2
Kathryn D. Rettig, SM
Paul C. Rosenblatt, SM
Jean W. Bauer, SM
Joan M. Patterson, ASM

1. Jean W. Bauer, SM
2. Shirley L. Baugher, ASM
3. Pauline G. Boss, SM
4. Sharon M. Danes, SM
5. Daniel F. Detzner, SM
6. William J. Doherty, SM
7. Harold D. Grotevant, SM
8. Rose M. Brewer, AM2
9. Kathryn D. Rettig, SM
10. Paul C. Rosenblatt, SM
11. Jean W. Bauer, SM
12. Joan M. Patterson, ASM
Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The program of study uses methods of social science to examine family systems and their interactions with various environments. The curriculum supports study in several broad theme areas: family economic well-being, families and mental health, family diversity, and relationships and development across the lifespan.

Prerequisites for Admission—The master’s program requires two family courses; at least one course in economics, political science, government, or public policy; one course in sociology, anthropology, or human geography; one psychology course; and one statistics course. The doctoral program requirements include all requirements for the master’s program plus three additional social or behavioral science courses and two additional statistics or research methods courses. It is important that students, especially those applying for the Ph.D. program, present evidence of interest in research and that they have experience working with families through paid employment or volunteer work. Occasionally, the graduate faculty admits a student who lacks one or more required courses with the understanding that the missing course(s) will be made up soon, ideally before entering the program.

The marriage and family therapy program is accredited by the American Association for Marriage and Family Therapy. Admission to the program is available only to doctoral students with a clinical master’s degree. Students who enter the Ph.D. program after completing either a bachelor’s degree or a master’s degree. Students may apply for admission to the Ph.D. program after completing either a bachelor’s degree or a master’s degree. Students with a clinical master’s degree are expected to fulfill the additional statistics or research methods courses and two additional social or behavioral science courses. The inclusion of 4xxx courses is subject to approval of the instructor, the student’s adviser, and the director of graduate studies. Students from other majors may take such courses with instructor approval and include them on their degree programs subject to their own program’s approval. 4xxx courses counted on graduate programs must be taught by a member of the graduate faculty and must include assignments that are at the graduate level.

M.A. Degree Requirements
The M.A. program is offered under Plan A and Plan B. Plan A requires at least 30 credits, including at least 20 course credits, of which 6 credits are outside the department in a related field, and 10 thesis credits. The Plan A master’s is recommended for students who intend to pursue a Ph.D. degree. Plan B requires at least 30 credits, including at least 26 course credits, of which 6 credits are outside the department in a related field, and at least 4 credits for a Plan B project. It is for students who wish to further their education so that they may hold positions of responsibility serving families. Although the instruction is based on research, the Plan B degree is not intended to provide intensive research training. The Plan B program is understood to be a terminal degree and is not recommended for students who intend to pursue the Ph.D. degree. The Plan B program is available to students seeking one of two areas of specialization: family economics and resource management, and family policy. Consult the department for the most current information.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students
Majoring in Other Fields—Master’s students must complete at least 6 credits of 5xxx or 8xxx in family social science. All courses must be taken A-F and completed with a GPA of at least 3.00.

Ph.D. Degree Requirements
The courses in a Ph.D. degree program must contribute to an organized program of study and research. The program includes at least 84 credits, including 60 course credits and 24 thesis credits. Coursework includes at least 12 credits in a minor or supporting program; the remaining 48 credits include at least 18 credits in research methods and statistics and at least 30 credits in family social science. An optional teaching internship program is recommended for students who are planning for careers in higher education.

Language Requirements—None.

Minor Requirements for Students
Majoring in Other Fields—A doctoral minor requires at least 12 credits of 8xxx in family social science. All courses for the minor must be taken A-F and completed with a GPA of at least 3.00.

Feminist Studies

Contact Information—Department of Women’s Studies, University of Minnesota, 425 Ford Hall, 224 Church Street S.E., Minneapolis, MN 55455; (612-626-0332; fax 612-624-3573; student@umn.edu; <http://feminist.umn.edu>)

For up-to-date graduate faculty listings, see <http://www.umn.edu/faculty_rosters/step1.asp>.

Regents Professor
Joanne Eicher, Design, Housing, and Apparel, AM2
Professor
Lillian Bridewell-Bowles, English, AM2
Karlyn K. Campbell, Communication Studies, AM2
Anna Clark, History, AM2
Mary Dietz, Political Science, AM2
Raymond DuVall, Political Science, AM2
Sara M. Evans, History, AM2
Mary L. Fellows, Law School, AM2
Shirley N. Garner, English, AM2
Jacquelyn N. Zita, Women’s Studies, AM2

Associate Professor
Lisa Albrecht, General College, ASM
Maria M. Brewer, French and Italian, AM2
Rose M. Brewer, African American and African Studies, ASM
Sarah Chambers, History, AM2
Susan Craddock, Women’s Studies, M2
Maria Damon, English, AM2
Lisa J. Dusch, Political Science, AM2
Susanna Ferito, French and Italian, AM2
Amy Lee, General College, AM2
Josephine Lee, English, AM2
Richa Nagar, Women’s Studies, SM
Lisa A. Norling, History, AM2
Joanna O’Connell, Spanish and Portuguese Studies, AM2
Jennifer L. Pierce, American Studies, AM2
Gloria Goodwin Radeja, Anthropology, AM2
Eileen B. Sivert, French and Italian, AM2
Gary Thomas, Cultural Studies and Comparative Literature, AM2
Mary Vavrus, Communication Studies, AM2
Barbara Y. Welke, History, AM2
Monika Zagar, German, Scandinavian, and Dutch, AM2
Jacquelyn N. Zita, Women’s Studies, SM
Courses—Please refer to Women’s Studies (WoSt) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx feminist studies courses on degree program forms of feminist studies majors or minors for the Ph.D. degree is discouraged; such courses are only considered in exceptional circumstances, subject to adviser and director of graduate studies approval.

M.A. Plan B Degree Requirements
Students are not admitted to the master’s program, it is available only to students admitted to the Ph.D. program who wish to secure this credential for ABD employment purposes or who must exit the program. The courses required for the M.A. are the same as those required for the Ph.D., see below. In addition, three Plan B papers and a final oral exam on these papers are required.

Language Requirements—None, but a second language strongly encouraged.

Final Exam—The final exam is oral and is effectively identical to the Ph. D. preliminary written exam.

Ph.D. Degree Requirement
The course and credit requirements for the Ph.D. fall into roughly two categories: interdisciplinary courses satisfying core requirements, and courses constituting or enhancing a concentration. Students take 31 credits in required courses, including two elective courses that satisfy core requirements in cultural diversity and two courses that satisfy core requirements in research tools and methods. The remaining coursework includes 12 credits in an area of concentration and 12 credits in the minor field or supporting program (related to the concentration). Students are also expected to register for 4 credits of WoSt 8996 colloquium and to participate in a weekly or biweekly series of faculty, student, and guest lecturer presentations. In addition, students are expected to register for 24 thesis credits while writing the dissertation.

Because some courses may fall into more than one category (e.g., courses in the concentration may also satisfy core course requirements), students are permitted to “double count” credits in the major program in consultation with the director of graduate studies. This means that a student can graduate with less than 55 credits when double counting is approved. Students entering the Ph.D. program with a master’s degree may transfer credits from that degree and apply them to the Ph.D. requirements in consultation with the director of graduate studies. All students, however, must take WoSt 8108 and 8109.

Language Requirements—None, but a second language is strongly encouraged.

Preliminary Exams—Ph.D. students are expected to take a three-paper preliminary written exam (which includes an oral exam on these papers) and a preliminary oral exam on their dissertation proposal.

Final Exam—The final Ph.D. exam on the dissertation is oral.

Minor Requirements for Students

Majoring in Other Fields—The graduate minor focuses on skills and competencies in four areas: interdisciplinary knowledge of women and gender; feminist theories and methods; feminist research in a specific field; feminist practice through teaching or internships. To complete a Ph.D. minor, students must complete WoSt 8108 and 8109 and three graduate-level electives (9 credits), including at least one 5xxx or 8xxx course in women’s studies and at most one feminist studies-approved graduate course from a student’s home department. Students must apply for admission into the graduate minor program.

Fisheries
See Conservation Biology.

Food Science

Contact Information—Graduate Program in Food Science, Department of Food Science and Nutrition, University of Minnesota, 1334 Eckles Avenue, St. Paul, MN 55108 (612-624-1290; fax 612-625-5272; fsgrad@umn.edu; http://fsn.che.umn.edu/fsgrad/).

For up-to-date graduate faculty listings, see <http://grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Paul B. Addis, SM
Linnea Stenson, AM2
Eden Torres, Women’s Studies, M2
Karen Brown-Thompson, AM2

Associate Professor
Joellen M. Feistag, SM
Craig A. Hassel, AM2
Daniel J. O'Sullivan, SM
H. William Schaefer, SM

Assistant Professor
Francisco Diez-Gonzalez, SM
Leonard F. Marquart, SM
Larry L. McKay, SM
Gary A. Remecieus, SM
Rongsheng R. Yuan, SM
Larry L. McKay, SM

Adjunct Assistant Professor
Mary K. Schmidt, AM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Food science applies scientific principles to the manufacture, distribution, marketing, and consumer aspects of food. Food scientists apply the basic principles and techniques of many disciplines, including chemistry, physics, microbiology, and nutrition, to food...
processing and preservation, new product development, and food marketing. Food scientists are concerned with the theoretical and practical aspects of the food chain, from the production of raw materials to the use of food products by consumers. Students may emphasize the chemistry, engineering, microbiology, nutrition, or technology of food products.

**Prerequisites for Admission**—Applicants with an undergraduate major in any physical or biological science usually have completed the necessary prerequisites. The minimum requirements are general chemistry, organic chemistry with laboratory, physics with laboratory, and calculus. If preparation appears inadequate, certain additional courses may be required after admission.

**Special Application Requirements**—Submission of GRE scores is required. Submission of three letters of reference is also required whether or not the prospective student is applying for financial assistance.

**Courses**—Please refer to Food Science and Nutrition (FScN) in the course section of this catalog for courses pertaining to the program.

**Use of 4xxx Courses**—Inclusion of 4xxx food science courses on degree program forms is permitted with adviser and director of graduate studies approval.

**M.S. Degree Requirements**
The M.S. offers both Plan A (with thesis) and Plan B (without thesis) options. Both options require at least 14 course credits in the major and 6 course credits in the minor or related field. Plan A also requires at least 10 thesis credits. Plan B also requires at least an additional 10 graduate credits in approved courses and a Plan B paper. The minor may be chosen from fields such as biochemistry, chemistry, chemical engineering, microbiology, nutrition, and statistics.

**Language Requirements**—None.

**Final Exam**—The final exam is oral.

**Minor Requirements for Students Majoring in Other Fields**—For a master’s minor, two of the following courses must be taken: FScN 4111, 4121, or 4331. The minor must be approved by the food science director of graduate studies.

**Ph.D. Degree Requirements**
The number of credits required will vary depending on preparation and the research undertaken. Most students take a total of about 60 credits. Of these, at least 12 credits must be in the minor or related fields and 24 credits must be doctoral thesis credits. The student and the adviser, with the approval of the graduate studies committee, determine coursework in the major.

**Language Requirements**—None.

**Minor Requirements for Students Majoring in Other Fields**—For a Ph.D. minor, students must take FScN 4111, 4121, 4331, and 3 additional FScN credits, for a total of 12 credits. The minor must be approved by the food science director of graduate studies.

**Forestry**
See Natural Resources Science and Management.

**French and Italian**

**Contact Information**—A department general information bulletin and a projection of graduate-level courses to be offered is available from the Department of French and Italian, University of Minnesota, 260 Folwell Hall, 9 Pleasant Street S.E., Minneapolis, MN 55455 (612-624-4308; fax 612-624-6021); frit@umn.edu; <http://cla.umn.edu/frit/>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

**Professor**
F. R. P. Akehurst, SM
Susan Noakes, SM, Italian, M
Maria Pagannini, SM

**Associate Professor**
Daniel Brewer, SM
Mária M. Brewer, SM
Susanna Ferlito, SM, Italian, M
Betsy Kerr, SM
Catherine Liu, Comparative Literature, SM
Judith Preckshot, SM
Peter H. Robinson, SM
Eileen B. Sivert, SM

**Assistant Professor**
Bruno Chauvat, M2
Juliette Chebeluz, M2
Alan Smith, M2, Italian, M

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

**Curriculum**—The French program, which offers M.A. and Ph.D. degrees, covers all areas of French literature and culture from the Middle Ages to the present. Traditional areas of study and scholarship are inflected by the faculty’s interests, expertise, and research in areas that have shaped—and continue to shape—the discipline of French studies. The program fosters interdisciplinary research, has particular strengths in literary and cultural studies, critical theory, feminist studies, medieval studies, and francophone studies.

The Italian M.A. program adopts an interdisciplinary approach to the study of the literatures and cultures of Italy. The curriculum emphasizes the study of cultural identities in Italy through literary and historical discourses. The program has special strengths in Dante and Early Modern studies, and in the Romantic and Modern periods.

**Prerequisites for Admission**—A B.A. in French or Italian (or equivalent), with a literary emphasis, is required for the M.A. programs. Prospective students whose undergraduate degree is in another field, but who have taken substantial coursework in French or Italian and are strongly motivated to pursue literary studies, are invited to contact the director of graduate studies. For the Ph.D. program, an M.A. in French (or equivalent) is required.

**Special Application Requirements**—Applicants must submit scores from the General Test of the GRE; three letters of recommendation from persons familiar with their scholarship and research potential, a complete set of official transcripts, a sample of their academic writing, an audiotape of their spoken French or Italian, and a written statement of career interests and goals.

International student applicants should also submit scores for the TOEFL. Students may apply at any time; however, submission of all application materials by January 15 is encouraged to ensure priority consideration for fellowships and teaching and research assistantships awarded for the next academic year. New teaching assistants and fellowship recipients are only admitted for fall semester; others may be admitted in mid-year.

**Affiliated Research Centers**—Students are encouraged to explore interdisciplinary approaches through outside coursework or participation in one of several academic centers with which the programs are affiliated. These centers include the Center for Advanced Feminist Studies, the Center for Advanced Research in Language Acquisition, the Center for German and European Studies, the Center for Medieval Studies, the Immigration History Research Center, and the University of Minnesota Humanities Institute. Students specializing in francophone literatures and cultures may pursue these interests through the African American and African studies program or the interdisciplinary MacArthur Program.

**Courses**—Please refer to French (Fren), French and Italian (Frit), and Italian (Ital) in the course section of this catalog.

**Use of 4xxx Courses**—4xxx courses may, in exceptional cases, be used for graduate credit. Students should consult the director of graduate studies or adviser before registering.

**M.A. Degree Requirements**
In French, students may pursue Plan A (with thesis) or Plan B (with two papers). Plan A requires at least 24 credits, Plan B at least 33 credits. Both plans require at least 18 credits in the major and 6 credits in related fields or, in a minor, the number of credits required by the minor program (usually 6 credits). Plan A also requires at least 10 thesis credits. (Detailed information is available through the program office.)

In Italian, the M.A. is offered under Plan A (with thesis) or Plan B (with paper). Plan A requires at least 22 course credits and 10 thesis credits. Plan B requires at least 30 course credits. (Detailed information is available through program office.)

**Final Exam**—The final exams in both French and Italian programs are written and oral.
Language Requirements—For the M.A. degree in French, students must demonstrate proficiency in one foreign language besides English and French. For the M.A. in Italian, by the time of their final exam, students must demonstrate proficiency in one ancient or modern language besides Italian and English; French, Spanish, or Latin is recommended.

Minor Requirements for Students Majoring in Other Fields—A master’s minor in French requires at least 9 credits; a minor in Italian requires at least 6 credits.

Ph.D. Degree Requirements
The Ph.D. requires at least 57 course credits and 24 thesis credits. Coursework involves at least 45 credits in the major and at least 12 credits (usually four courses) in related fields or, in a minor, the number of credits required by the major program (usually 12 credits). Detailed information is available through program office.

Language Requirements—For the Ph.D., students must demonstrate proficiency in one foreign language besides English and French, at a level higher than for the M.A. and suitable for use in research. Doctoral students specializing in the Middle Ages, Renaissance, or Early Modern period (roughly to 1666) must also demonstrate knowledge of Latin.

Minor Requirements for Students Majoring in Other Fields—A Ph.D. minor requires at least 12 credits.

Genetics
See Molecular, Cellular, Developmental Biology, and Genetics.

Geographic Information Science
Contact Information—Master of Geographic Information Science Program, Department of Geography, University of Minnesota, 414 Social Sciences Building, 267 19th Avenue South, Minneapolis, MN 55455 (612-624-1498, 612-625-6080; fax 612-624-1044; smcmaster@geog.umn.edu; www.geog.umn.edu/graduate/mgis). For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
John S. Adams, SM
Dwight A. Brown, SM
Philip J. Gersmehl, SM
John Fraser Hart, SM
Helga Leitner, SM
Judith A. Martin, SM
Robert B. McMaster, SM
Abdi I. Samatar, SM
Earl P. Scott, SM
Eric S. Sheppard, SM
Richard H. Skaggs, SM

Adjunct Professor
Lawrence M. Knopp, Jr., Geography, Duluth, AM2
Ann R. Markusen, Public Affairs, AM2

Associate Professor
Bruce W. Braun, M2
George L. Henderson, M2
Katherine Klink, SM
Roger P. Miller, SM
Roderick H. Squires, SM
Connie H. Weil, SM

Adjunct Associate Professor
Susan L. Craddock, Women’s Studies, AM2
William J. Craig, Center for Urban and Regional Affairs, AM2
Mark B. Lindberg, Director, University of Minnesota Cartography Lab, M2
Richa Nagar, Women’s Studies, AM2

Assistant Professor
Vinay K. Gidwani, M2
Francis J. Harvey, M2
Steven M. Manson, M2
Karen E. Till, M2
Susy S. Ziegler, M2

Other
Pat Farrell, Geography, Duluth, AM
Scott Freundshuh, Geography, Duluth, AM

Adjunct Associate Professor
William J. Craig, M2

Associate Program Director
Susanna McMaster, M2

Teaching Specialist
Robert Maki, AM2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The master of geographic information science (M.G.I.S.), administered by the Department of Geography, provides graduate-level work in the theory, applications, and technology of geographic information science (GIS). Courses for the program are divided into four broad categories. Core courses provide the conceptual and theoretical underpinnings for a comprehensive, well-rounded knowledge of GIS. A set of technology courses focus on specific software and techniques of GIS. M.G.I.S. seminars include an introductory seminar for entering students (GIS 8501) and a capstone seminar (GIS 8990) focused on developing an applied project that serves as a culminating experience for the program. Elective courses provide additional breadth to the program by allowing students to take courses related to their area of interest and capstone project.

Prerequisites for Admission—Admission to the program requires a bachelor’s degree with a minimum 3.00 GPA. Prospective students also should have completed a college-level mathematics course, statistics course, and computer programming course.

Special Application Requirements—Applicants must submit an M.G.I.S. program application form, transcripts, a clearly written statement of career interests, goals, and objectives, and three letters of recommendation from persons familiar with their academic and/or employment background. The GRE is not required. All materials must be submitted by March 30 for fall semester entrance and by September 1 for spring semester entrance.

Courses—Please refer to Geography (Geog) and Geographic Information Science (GIS) in the course section of this catalog for courses pertaining to the program. Also refer to Forest Resources (FR) and Natural Resources and Environmental Studies (NRES) in the course section of this catalog for additional GIS and remote sensing courses.

Use of 4xxx Courses—No more than two 4xxx courses may be included in the program without consent of the adviser and director of graduate studies.

M.G.I.S. Plan B Degree Requirements
The degree is offered Plan B (without thesis) and requires at least 35 credits, with 18 credits in core/technology classes (a minimum of 9 credits of core courses and 3 credits of technology courses), 6 credits of electives, and 3 credits of capstone seminar

(GIS 8990). All students are required to take Geog 5561, 5563, GIS 5571 and an approved 8xxx geography seminar. Students must also take GIS 8501 during the fall semester of their first year in the program. At least 6 credits must be taken outside the geography department (Geog and GIS designators) but may include the core GIS classes (e.g., forestry and natural resources). Finally, students must complete a final oral examination with three faculty members.

Language Requirements—None

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—A master’s minor is developed in consultation with a faculty adviser. Consult the M.G.I.S. director of graduate studies about selecting an adviser. The minor requires at least 9 credits (3 courses).

Geography
Contact Information—Department of Geography, University of Minnesota, 414 Social Sciences Building, 267 19th Avenue South, Minneapolis, MN 55455 (612-625-6080; fax 612-624-1044; willif046@umn.edu; <www.geog.umn.edu>). For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
John S. Adams, SM
Dwight A. Brown, SM
Philip J. Gersmehl, SM
John Fraser Hart, SM
Helga Leitner, SM
Judith A. Martin, SM
Robert B. McMaster, SM
Abdi I. Samatar, SM
Earl P. Scott, SM
Eric S. Sheppard, SM
Richard H. Skaggs, SM

Adjunct Professor
Lawrence M. Knopp, Jr., Geography, Duluth, AM2
Ann R. Markusen, Public Affairs, AM2

Associate Professor
Bruce W. Braun, M2
George L. Henderson, M2
Katherine Klink, SM
Roger P. Miller, SM
Roderick H. Squires, SM
Connie H. Weil, SM

Adjunct Associate Professor
Susan L. Craddock, Women’s Studies, AM2
William J. Craig, Center for Urban and Regional Affairs, AM2
Mark B. Lindberg, Director, University of Minnesota Cartography Lab, M2
Richa Nagar, Women’s Studies, AM2

Assistant Professor
Vinay K. Gidwani, M2
Francis J. Harvey, M2
Steven M. Manson, M2
Karen E. Till, M2
Susy S. Ziegler, M2

Other
Pat Farrell, Geography, Duluth, AM
Scott Freundshuh, Geography, Duluth, AM
Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

**Curriculum**—The discipline of geography is rooted in concepts of place, location, and scale. Geographers draw on theories and methods from diverse fields of inquiry to form synergistic overlaps among four primary areas of geographic inquiry: human geography, physical geography, nature-society relationships, and spatial analysis and mapping.

Human geography seeks to understand the creation and changing nature of places and regions, and how peoples and places are interconnected through social, economic, political, and cultural processes. Physical geography focuses on the earth’s interrelated physical environmental systems (climate, vegetation, landforms, water, and soil), and the interactions between the physical environment and social, economic, and political systems. Nature-society geography examines how the human and biophysical worlds interact and affect one another in and across different societies, and how environments shape and are shaped by human and non-human processes. Geographic inquiry also addresses cartographic representation, such as new methods in geographic visualization, and undertakes fundamental and applied research into all aspects of geographic information science, including the societal dimensions of geographic technologies.

The program emphasizes research and teaching in political economy, international development, and globalization; urban geography; physical environmental systems; nature-society relationships; cultural and political landscapes; the geography of population and health; geographic information science and cartography; geographic education; and the history and philosophy of geography. The program is highly individualized with a limited number of requirements. Students work with their advisers to design individual programs suited to their educational and professional goals.

**Prerequisites for Admission**—Prospective students should have completed the equivalent of introductory courses in physical and human geography and at least seven upper division courses in systematic and regional geography. Students who were not undergraduate geography majors are encouraged to apply but may be required to make up deficiencies.

**Special Application Requirements**—Three letters of recommendation must be sent to the department. Scores from the General (Aptitude) Test of the GRE that are less than five years old are required of students with baccalaureate degrees from U.S. institutions. Graduate study in the program begins in the fall semester. The application deadline is January 1. All applications are evaluated once each year in early February.

**Courses**—Please refer to Geography (Geog) in the course section of this catalog for courses pertaining to the program.

**Use of 4XXX Courses**—No more than two 4xxx courses may be included on the degree program form without consent of the adviser and director of graduate studies.

**M.A. Degree Requirements**

The M.A. is offered under Plan A (with thesis) and Plan B (without thesis). Plan A requires at least 21 course credits (plus 10 thesis credits); Plan B requires at least 31 course credits and three Plan B papers. Each student is required to take Geog 8001 and 8002, plus two additional Geog 81xx and/or Geog 82xx courses. Geog 8970 and 8980 may be used for Geog 81xx or 82xx coursework with permission of the adviser. The M.A. program usually is completed within two years.

**Language Requirements**—M.A. students are expected to acquire competency in the foreign language/research methodology necessary for their graduate research. This requirement is set by the advising committee, which is also responsible for certifying that the requirement has been met before the final exam.

**Final Exam**—The final exam is oral.

**Minor Requirements for Students Majoring in Other Fields**—A master’s minor must be developed in consultation with a faculty adviser. Consult the director of graduate studies about selecting an adviser. The minor requires at least 6 credits (two courses).

**Ph.D. Degree Requirements**

Each student is required to take Geog 8001 and 8002, two additional Geog 81xx and/or 82xx courses, and a third Geog 82xx course. Geog 8970 and 8980 may be used for Geog 81xx or 82xx coursework with permission of the adviser. Students are also required to take 24 thesis credits and at least three elective courses. Course credits from the M.A. program may be transferred to the Ph.D. program. Further details on degree requirements may be found in the department publication *The Graduate Program in Geography at the University of Minnesota*.

**Language Requirements**—Ph.D. students are expected to acquire competency in the foreign language/research methodology necessary for their graduate research. This requirement is set by the advising committee, which is also responsible for certifying that the requirement has been met before the final exam.

**Minor Requirements for Students Majoring in Other Fields**—A doctoral minor program must be developed in consultation with an appropriate faculty adviser. Consult the director of graduate studies about selecting an adviser. The minor requires at least 9 credits (three courses).
Degree Programs and Faculty

Special Application Requirements—Applicants are required to submit results of the GRE in support of their applications. The TOEFL is required of foreign applicants from non-English-speaking countries. A TOEFL score of at least 550 on the paper-based test or 213 on the computer-based test is required for admission. Admission requirements also include three letters of recommendation and a statement of purpose that outlines the prospective student’s research interests, reasons for pursuing graduate studies, and career plans after graduation. Students are admitted each semester, but applicants are encouraged to begin fall semester and to submit their applications by December 31 before the year their studies are expected to begin.

Courses—Please refer to Geological Engineering (GeoE) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx departmental courses on degree program forms is subject to adviser and director of graduate studies approval. Students from other majors may include such courses subject to their own program’s approval.

M.Geo.E. Design Project Degree Requirements

The master of geological engineering (M.Geo.E.) degree is for the practicing engineer who would like to obtain an advanced degree, enrolling part-time or full-time. Students who intend to proceed to the Ph.D. program or think they may later wish to be admitted to the Ph.D. program should apply for the master of science program. Students are expected to follow a coherent program of coursework selected with the help of a faculty adviser and approved by the director of graduate studies. Students also must demonstrate professional competence by carrying out and defending a design project. The degree typically takes 12 to 18 months, full-time, to complete.

The M.Geo.E. requires at least 30 credits and is offered under two plans. One requires at least 20 course credits and preparation of a design project (10 credits); the design project must be carried out by the student in consultation with a faculty adviser. The other plan is a coursework-only degree program and requires at least 30 course credits. At least 6 of the course credits must be taken outside the department for either Plan A or Plan B.

Language Requirements—None.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—For a master’s minor, two or more 5xxx to 8xxx courses from geological engineering are required, for a total of 6 or more credits.

Ph.D. Degree Requirements

The Ph.D. degree couples independent research with coursework in a comprehensive program. Research performance, as judged by preparation of a dissertation on an independently pursued research topic, is the primary requirement for the Ph.D. degree. Students usually enter the program after completing the M.S. degree. The program is typically completed in 5 to 6 years following the bachelor’s degree.

Each program of study is designed in consultation with a faculty adviser and must be approved by the director of graduate studies. A typical program consists of 45 credits of coursework and 24 thesis credits. A supporting program or minor of at least 12 credits outside the department must be included. Credits earned in a M.S. program may be presented in partial fulfillment of the Ph.D. requirements.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—For a Ph.D. minor, four or more 5xxx to 8xxx courses are required, for a total of at least 12 credits.

Geology

Contact Information—Department of Geology and Geophysics, University of Minnesota, 310 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-1333; fax 612-625-3819; geology@umn.edu; <www.geo.umn.edu>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor

Herbert E. Wright, Jr. (emeritus), ASM

Professor

E. Calvin Alexander, Jr., SM
Subir K. Banerjee, M2
R. Lawrence Edwards, SM
Peter J. Hadlestone, SM
Emi Ito, SM
Thomas C. Johnson, Geological Sciences, Duluth, ASM
Ronald L. Morton, Geological Sciences, Duluth, ASM
V. Rama Murthy, SM
Christopher Paola, SM
Hans-Olaf Pfannkuch, SM
William E. Seyfried, SM
Robert E. Sloan (emeritus), ASM
James H. Stout, SM
Christian P. Teyssier, SM
Paul W. Weilben (emeritus), ASM

Adjunct Professor

James Almendinger, AM
Michael E. Berndt, AM
Val W. Chandler, AM2
Mark Edlund, AM
Daniel R. Engstrom, AM2
Carrie Jennings, AM
Robert G. Johnson, AM
Peter L. McSweeney, AM
James D. Miller, AM
Anthony C. Runkel, AM
Wayne C. Shanks III, AM

Associate Professor

Erik Brown, ASM
Marc Hirschmann, SM
Karen L. Kleinsehne, SM
Howard D. Mooers, Geological Sciences, Duluth, ASM
Nigel J. Watrous, Geological Sciences, Duluth, ASM
Donna L. Whitney, SM

Assistant Professor

David Fox, SM
Christina Gallup, Duluth, ASM
Lee Penn, AM2
John Swenson, ASM

Senior Research Associate

Kang Ding, AM
Paul H. Glasér, AM
Linda C. K. Shane, AM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The geology major includes the areas of Quaternary studies, structural geology, stratigraphy, paleontology, mineralogy, metamorphic geology, experimental and theoretical petrology, isotopic and aqueous geochemistry, experimental geochemistry, geomorphology, groundwater geology, hydrogeology, limnology, climate change, and sedimentology. Students may accommodate other areas of interest such as earth resources, engineering geology,
environmental geology, materials science, soil science, and paleoecology by choosing a minor or supporting field from outside the department.

Prerequisites for Admission—Most candidates for advanced degrees have completed a bachelor’s degree in geology, geophysics or in the broad field of earth and material sciences. However, applications from students in fields such as chemistry, physics, or biology are encouraged. At least one year of study in calculus, chemistry, and physics; and a full-time geological field course of at least five weeks’ duration are required. In general, an outstanding academic record is expected.

Special Application Requirements—The student’s statement of purpose, three letters of recommendation, and official GRE scores are required for admission and financial aid consideration. Applications for admission are considered at any time, although applications for financial aid should be submitted to the department by January 15 to ensure consideration. Studies may begin in any semester or summer session, although fall semester is preferable.

Courses—Please refer to Geology and Geophysics (Geo) in the course section of this catalog for courses pertaining to the program. All courses must all be taken at 4xxx and 5xxx, with several formal courses to be included at 8xxx.

Use of 4xxx Courses—For both the M.S. and Ph.D., typically no more than 30 percent of the total course credits are 4xxx.

M.S. Plan A, Plan B, and Plan C Degree Requirements
The M.S. is offered Plan A (with thesis), Plan B (with project), and Plan C (coursework only with emphasis in hydrogeology and environmental geoscience). Plan A requires a minimum of 30 course credits consisting of at least 14 credits in the major, 6 course credits in the related field, and 10 thesis credits. Plan B requires a minimum of 30 course credits consisting of at least 14 credits in the major and 8 credits in the related field. Plan C is the coursework-only option which requires a minimum of 30 course credits consisting of at least 14 credits in the major and 9 credits in the related field or a minor. Courses in the minor and related field are normally taken from outside the department, although they may be taken from within special cases.

Language Requirements—None.

Final Exam—Plan A and Plan B students must pass the final oral examination.

Minor Requirements for Students Majoring in Other Fields—The master’s minor is established individually with approval by the graduate studies committee. Typically no more than 50 percent of the total course credits are 4xxx.

Ph.D. Degree Requirements
The Ph.D. requires a minimum of 36 course credits consisting of at least 24 course credits in the major and 12 course credits in a supporting program. In addition, a minimum of 24 thesis credits is required. Courses in the minor and supporting program are normally taken from outside the department, although they may be taken from within special cases.

Language Requirements—None.

Final Exam—Ph.D. students must pass the final oral examinations in defense of their thesis.

Minor Requirements for Students Majoring in Other Fields—The Ph.D. minor is established individually with approval by the graduate studies committee. Typically, no more than 50 percent of the total course credits are 4xxx.

Geophysics
Contact Information—Department of Geology and Geophysics, University of Minnesota, 310 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-624-1333; fax 612-625-3819; geology@umn.edu; <www.geo.umn.edu>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Subir K. Banerjee, SM
David L. Kohlstedt, SM
Bruce M. Moskowitz, SM
V. Rama Murthy, SM
Chris Paola, M2
James H. Stout, SM
Christian P. Teyssier, M2
David A. Yuen, SM

Associate Professor
Marc Hirschmann, M2
Karen L. Kleinopph, M2
Renata M. Wontzicovitch, Chemical Engineering and Materials Science, AM2

Adjunct Professor
Val W. Chandler, AM2
Michael J. Jackson, AM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The geophysics major includes the areas of applied and theoretical geophysics, paleomagnetism and rock magnetism, and mineral and rock physics. Students may accommodate other areas of interest such as earth resources, engineering geology, environmental geology, materials science, soil science, and paleoecology by choosing a minor or supporting field from outside the department.

Prerequisites for Admission—Most candidates for advanced degrees have completed a bachelor’s degree in geology, geophysics, or earth and material sciences. However, applications from students in fields such as chemistry, physics, or biology are encouraged. At least one year of calculus, chemistry, and physics and a full-time geological field course of at least five weeks’ duration are required. In general, an outstanding academic record is expected.

Special Application Requirements—The student’s statement of purpose, three letters of recommendation, and official GRE scores are required for admission and financial aid consideration. Applications for admission are considered at any time, although applications for financial aid should be submitted to the department by January 15 to ensure consideration. Studies may begin in any semester or summer session, although fall semester is preferable.

Courses—Please refer to Geology and Geophysics (Geo) in the course section of this catalog for courses pertaining to the program. All courses must all be taken at 4xxx and 5xxx, with several formal courses to be included at 8xxx.

Use of 4xxx Courses—For both the M.S. and Ph.D., typically no more than 30 percent of the total course credits are 4xxx.

M.S. Degree Requirements
The M.S. is offered Plan A (with thesis) and Plan B (with project). Plan A requires a minimum of 30 course credits consisting of at least 14 course credits in the major, 6 course credits in the related field, and 10 thesis credits. Plan B requires a minimum of 30 course credits consisting of at least 14 credits in the major and 8 credits in the related field. Plan C is the coursework-only option which requires a minimum of 30 course credits consisting of at least 14 credits in the major and 9 credits in the related field or a minor. Courses in the minor and related field are normally taken from outside the department, although they may be taken from within special cases.

Language Requirements—None.

Final Exam—Plan A and Plan B students must pass a final oral exam.

Minor Requirements for Students Majoring in Other Fields—The master’s minor is established individually with approval by the graduate studies committee. Typically no more than 50 percent of the total course credits are 4xxx.

Ph.D. Degree Requirements
The Ph.D. requires a minimum of 36 course credits consisting of at least 24 course credits in the major, 12 course credits in a supporting program. In addition, a minimum of 24 thesis credits is required. Courses in the minor and supporting program are normally taken from outside the department, although they may be taken from within special cases.

Language Requirements—None.

Final Exam—Ph.D. students must pass the final oral examination in defense of their thesis.
Minor Requirements for Students Majoring in Other Fields—The Ph.D. minor is established individually with approval by the graduate studies committee. Typically, no more than 50 percent of the total course credits are 4xxx.

Germanic Studies

Contact Information—Department of German, Scandinavian, and Dutch, University of Minnesota, 205 Folwell Hall, 9 Pleasant St. SE, Minneapolis, MN 55455 (612-625-2080; fax 612-624-8297; gsd@umn.edu; www.folwell.umn.edu/gsd/).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor

Evelyn S. Firchow, German, Germanic Medieval, SM
Poul Høie, Scandinavian, SM
Ruth-Ellen B. Joeres, German, SM
Ruth M. Karras, History, Scandinavian, AM
Calvin B. Kendall, English, ASM
Anatoly Liberman, German, Germanic Medieval, Scandinavian, SM
Patrizia C. McBride, German, M2
Eric Baker, German, M2
Monika Zagar, Scandinavian, SM

Associate Professor

James A. Parente, Jr., German, Scandinavian, SM
Ray M. Wakefield, German, Germanic Medieval, SM
Evelyn S. Firchow, German, Germanic Medieval, SM
Goran K. N. Stockenstrom, Scandinavian, SM

Assistant Professor

Eric Baker, German, M2
Patrizia C. McBride, German, M2

Along with the program- and track-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—There are five tracks within the Germanic studies graduate program:

German (Ger), Scandinavian (Scan), and Dutch (Dutch) in the course section of this catalog. Germanic Studies (GSD) Majoring in Other Fields—The M.A. requires at least 35 credits, including an introductory course in contemporary literary and cultural theory (CLit 8001), and a course introducing students to graduate studies in Scandinavian (Scan 8002), five courses in different periods of Scandinavian literature/culture, a course in Old Norse or Scandinavian linguistics, a pedagogy course, two courses outside the Scandinavian track and one Plan B paper. The M.A. examination is oral.

Courses—Please refer to German (Ger); German, Scandinavian, and Dutch (GSD); Dutch (Dutch); and Comparative Literature (CLit) in the course section of this catalog for courses pertaining to this track.

Language Requirements—The track requires advanced competency in at least one Scandinavian language or Finnish, and reading knowledge of two other Scandinavian languages.
Teaching Track

M.A. Plan B Degree Requirements
The M.A. in teaching combines a disciplinary focus in Germanic studies with a concentration in foreign language teaching and second language acquisition. The track does not lead to teacher licensure. Students interested in teacher licensure should contact the College of Education and Human Development.

The M.A. requires at least 34 credits, including a pedagogy course; three courses on the history and structure of the German language; Introduction to Second Language Acquisition (Ling 5505); Issues in Second Language Curriculum Design (CLit 5652); two or more courses in language teaching, curriculum and instruction or teaching English as a second language or linguistics; two German literature and culture courses; one elective and one Plan B paper. The M.A. examination is oral.

Courses—Please refer to German (Ger); Linguistics (Ling); Curriculum and Instruction (CI); Language, Teaching, and Technology (LgTT); and Teaching English as a Second Language (TESL) in the course section of this catalog for courses pertaining to this track.

Language Requirement—Oral and written proficiency in German.

Germanic Medieval Studies Track

M.A. Plan B Degree Requirements
The M.A. offers students the opportunity to do advanced work in Germanic and Scandinavian studies and prepares them with theoretical and practical tools to serve as researchers, scholars, and teachers in either German or Scandinavian studies, with a basic foundation in the other field as well.

The M.A. requires at least 39 credits. The German emphasis requires at least four courses from the German list and one course from each of the three Scandinavian groups. The Scandinavian emphasis requires at least one course from each of the three Scandinavian groups plus an additional course from any of them and three courses from the German list. Students in both emphases are required to take a pedagogy course (if it has not been taken for the M.A.), the dissertation seminars (one before and one after the Ph.D. preliminary exams), and four courses in a designated minor or supporting field. 24 thesis credits are required.

Courses—Please refer to English (EngL, EngC); Dutch (Dutch); German (Ger); German, Scandinavian, and Dutch (GSD); and Scandinavian (Scan) in the course section of this catalog for courses pertaining to this track.

Language Requirements—Reading competence in Medieval Latin and one modern Germanic language other than German or English (e.g., Dutch or one of the Scandinavian languages).

German and Scandinavian Studies Track

Ph.D. Degree Requirements
The Ph.D. offers students the opportunity to do advanced work in Germanic medieval studies and prepares them with theoretical and practical tools to serve as researchers, scholars, and teachers. The Ph.D. requires at least 39 credits, including four courses in Germanic Medieval Studies, two courses in a third medieval Germanic language (supplementing the two languages for the M.A.), a pedagogy course (if it has not been taken for the M.A.), the dissertation seminars (one before and one after the Ph.D. preliminary exams), and four courses in a designated minor or supporting field. 24 thesis credits are required.

Courses—Please refer to English (EngL, EngC); Dutch (Dutch); German (Ger); German, Scandinavian, and Dutch (GSD); and Scandinavian (Scan) in the course section of this catalog for courses pertaining to this track.

Language Requirements—Reading competence in one language other than German, English, or a Scandinavian language.

Gerontology

Minor Only
Contact Information—Graduate Minor Program in Gerontology, Center on Aging, University of Minnesota, MMC 197, 420 Delaware Street S.E., Minneapolis, MN 55455 (612-624-3904; fax 612-624-8448; coa@umn.edu; <www.hsr.umn.edu/coa/>).

Ph.D. offers students the opportunity to do advanced work in Gerontology, Family Studies, and Gerontology studies, with a basic foundation in the other field as well.

The Ph.D. requires at least 39 credits. The German emphasis requires at least four courses from the German list and one course from each of the three Scandinavian groups. The Scandinavian emphasis requires at least one course from each of the three Scandinavian groups plus an additional course from any of them and three courses from the German list. Students in both emphases are required to take a pedagogy course (if it has not been taken for the M.A.), the dissertation seminars (one before and one after the Ph.D. preliminary exams), and four courses in a designated minor or supporting program. 24 thesis credits are required.

Courses—Please refer to English (EngL, EngC); Dutch (Dutch); German (Ger); German, Scandinavian, and Dutch (GSD); and Scandinavian (Scan) in the course section of this catalog for courses pertaining to this track.

Language Requirements—Reading competence in one language other than German, English, or a Scandinavian language.

Ph.D. Degree Requirements
The Ph.D. offers students the opportunity to do advanced work in Gerontological studies and prepares them with theoretical and practical tools to serve as researchers, scholars, and teachers. The Ph.D. requires at least 39 credits, including four courses in Gerontological Studies, two courses in a third medieval Germanic language (supplementing the two languages for the M.A.), a pedagogy course (if it has not been taken for the M.A.), the dissertation seminars (one before and one after the Ph.D. preliminary exams), and four courses in a designated minor or supporting field. 24 thesis credits are required.

Courses—Please refer to English (EngL, EngC); Dutch (Dutch); German (Ger); German, Scandinavian, and Dutch (GSD); and Scandinavian (Scan) in the course section of this catalog for courses pertaining to this track.

Language Requirements—Reading competence in one language other than German, English, or a Scandinavian language.
Degree Programs and Faculty

Terry Lyn, Social Work, M
Teresa C. McCarthy, Family Practice and Community Health, M

Clinical Assistant Professor
Patrick W. Irvine, Medicine, M

Lecturer
Wayne Caron, Family Social Science, M
Celia W. Gershenson, Psychology, M

Research Associate
Lois Cutler, Public Health, M

Other
Ursula Bea Krinke, Health, M

Curriculum—The gerontology minor is available to master’s (M.A. and M.S.) and doctoral students. The minor provides a multidisciplinary foundation in gerontology for master’s minors and a more intensive preparation in aging for Ph.D. minors. Students who have minor in gerontology have majored in many departments, including but not limited to: curriculum and instruction (adult education); communication disorders; dentistry; design, housing, and apparel; family practice and community health; family social science; journalism and mass communication; kinesiology; nursing; psychology; social work; and sociology. The program of courses is tailored in advance consultation between the student and the director of graduate studies of the gerontology minor.

Prerequisites for Admission—Students must have a degree in gerontology or a related field (e.g., biology, psychology, sociology, social work, epidemiology, and health sciences) from an accredited college or university. Applicants must have completed a minimum of 12 credits in gerontology or related fields, including Gero 5105—Multidisciplinary Perspectives on Aging (3 cr), or an alternative course approved by the director of graduate studies. The minor requires at least 12 credits, ordinarily including Nurs 8320—Multidisciplinary Seminar on Social Perspectives of Aging (3 cr). Other courses may be substituted upon the recommendation of the director of graduate studies.

Greek
See Classical and Near Eastern Studies.

Health Informatics

Contact Information—Director of Graduate Studies in Health Informatics, Division of Health Informatics, University of Minnesota, MMC 511, 420 Delaware Street S.E., Minneapolis, MN 55455 (mailing address) (612-625-8440; fax 612-625-7166; mhi@umn.edu, <www.hinf.umn.edu/MHI/mhi.htm>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Christopher G. Chute, M2
Donald P. Connelly, SM
Shawn Curley, Information and Decision Sciences, SM
Lynda B. Ellis, SM
David P. Fan, Genetics and Cell Biology, SM
Stanley M. Finkelstein, SM
John R. Finnegan, Jr., Epidemiology, SM
James R. Frichton, Diagnostic/Surgical Sciences, SM
Laël C. Gatewood, SM
Ilene B. Harris, SM
Paul E. Johnson, Information and Decision Sciences, SM
George G. Klee, M2
Robert P. Patterson, Physical Medicine and Rehabilitation, SM
Stuart M. Speedie, SM
Stephen C. Strother, Radiology, M2
Douglas R. Wholey, Health Services Research and Policy, SM
George L. Wilcox, Neuroscience, SM

Associate Professor
Sandra J. Poitthoff, Healthcare Management, SM

Assistant Professor
Marcelline Harris, M2
Stephen T. Parente, Healthcare Management, M2
Edward Ratner, Medicine, M2
Alexander Raggieri, M2
Amy Wilson, Health Sciences Research/Policy, M2

Other
Denton R. Peterson, M2
Ernest F. Retzel, M2
Brian J. Westrich, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Health informatics is an interdisciplinary field of scholarship that applies computer, information, and cognitive sciences to promote the effective and efficient use and analysis of information, ultimately improving the health, well-being, and economic functioning of society. Students take a sequence of core courses in health informatics and biostatistics, and electives in technical and health science areas. Possible areas of emphasis include health information systems, telemedicine, bioinformatics, user interface design, system impact evaluation, database construction and analysis, clinical decision-making, evaluation of health programs, image and signal processing, and physiological monitoring and control.

Prerequisites for Admission—Applicants are expected to have at least a bachelor of science or equivalent degree from a recognized institution of higher education. Although students are accepted into the program with different backgrounds and varying degrees of experience, some prerequisites are required, usually in the form of college coursework. Acceptance into the program is not precluded by minor deficiencies in background; rather it is conditional on these being made up before or during the first year of study. See the prerequisites listed in the table below for areas of study that must be completed before admission to the program. Courses used to fulfill prerequisites are not given graduate credit. Courses in the curriculum assume that these prerequisite courses have been taken.

Note: These prerequisites are subject to change. Please check our Web site for the current information on prerequisites.

<table>
<thead>
<tr>
<th>Area</th>
<th>Amount</th>
<th>For M.H.I.</th>
<th>For M.S.</th>
<th>For Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological or Life Sciences</td>
<td>1 course</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculus or equivalent</td>
<td>two semesters</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Linear Algebra (qtr or sem)</td>
<td>1 course</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Computer Programming (FORTRAN, C, C++, JAVA, etc)</td>
<td>1 course</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Special Application Requirements—The GRE or similar professional examination (e.g., MCAT, GMAT, PCAT) is required. Three letters of recommendation and a statement of purpose must be submitted with the application. Students are advised to apply for admission for fall semester, since spring semester admission may entail the student taking longer to complete the program.
Courses—Please refer to Health Informatics (HINF) in the course section of this catalog for courses pertaining to the program.

Use of 4XXX Courses—4xxx courses in computer science may be used to satisfy the elective requirements for the M.H.I., M.S., and Ph.D. degrees if the student has not previously taken a computer science course in the same sub area (e.g., database design) at a higher level. Acceptance of 4xxx courses from other departments or programs requires the approval of the adviser and the director of graduate studies.

M.H.I. Degree Requirements
The master of health informatics emphasizes the role of informatics-trained professionals as liaisons who brings both a background of medicine and a knowledge of information technology to the task of solving health care problems. The curriculum consists of 32 credits of coursework that includes: 8 credits of health informatics, 4 credits of technology-focused health administration, 3 credits of statistics and research design, 6 credits of coursework in the student’s chosen area of specialization, 6 credits of electives, 2 credits of seminar, and a 3 credit capstone course in which the student completes a project directly applicable to their own work environment. The program is designed to be completed in one calendar year for full-time students and in up to three years for part-time students. Many of the classes are offered in the late afternoon and on Saturdays; classes may also meet monthly or semi-monthly. Distance learning technologies facilitate work and class participation at off-campus locations.

M.S. Degree Requirements
The research-oriented Plan A master’s degree is available to advanced applicants, such as those with a professional degree in a health sciences discipline. It requires 32 course credits and 10 thesis credits. The Plan B option requires 42 course credits, including 6-7 credits from a technical area and 6-7 credits from the health sciences. Both plans require seven core courses, a sequence in statistics or biostatistics, and registration in the health informatics seminar (5436) for the first year and for at least two semesters after that (1 credit each semester). For most students, the program requires two academic years and one summer.

Ph.D. Degree Requirements
The Ph.D. program is for students who want to obtain advanced training and conduct research. Students are expected to complete the same requirements as those for the Plan B master’s program (a survey of health informatics, biostatistics, selected health science areas, and advanced training in selected informatics areas), as well as advanced coursework in health informatics and an area of concentration complementary to health informatics. The work is completed with an original research project reported in the doctoral dissertation. Students are expected to have earned the equivalent of at least 70 credits including 24 thesis credits.

Language Requirement—None.

Minor Requirements for Students Majoring in Other Fields—Master’s students must successfully complete the introductory sequence in health informatics (HINF 5430 and HINF 5431). Ph.D. students must take the introductory sequence and one 8xx course in health informatics.

Health Journalism
Contact Information—Graduate Studies Office, Health Journalism M.A. Program, School of Journalism and Mass Communication, University of Minnesota, 110 Murphy Hall, 206 Church Street S.E., Minneapolis MN 55455 (612-625-4054; fax 612-626-8251; simgrad@umn.edu).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
John R. Fannegan, Jr., M2
Russell V. Laueker, M2
Nancy L. Roberts, M2
Daniel J. Sullivan, M2
Douglas R. Whaley, M2

Associate Professor
Kenneth O. Doyle, Jr., M2
Ian A. Greaves, M2

Assistant Professor
Donald Brazeal, M2
Shelly L. Rodgers, M2
Gary Schwitter, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—A joint program of the School of Journalism and Mass Communication and the School of Public Health, the professional master’s in health journalism promotes improved public communication about health matters by combining knowledge, skills, and experience from both disciplines. Professionals in journalism and public health earn an M.A. degree in health journalism. Those pursuing other master’s degrees, (e.g., master’s in public health), earn the M.A. in health journalism in addition to the other degree.

Prerequisites for Admission—The minimum requirement for admission is a B.A. or equivalent.

Special Application Requirements—Applicants must submit a departmental application; a clearly written statement of career interests, goals, and objectives; three letters of recommendation; a complete set of transcripts; academic work samples; and scores from the GRE. The director of graduate studies may waive the GRE requirement for students who have at least two years of professional experience and a strong academic record. This program uses a rolling admission process; the sooner an application is received, the sooner the applicant receives a decision. The deadline for application is March 15.

Courses—Please refer to Journalism and Mass Communications (Jour) and Public Health (PubH) in the course section of this catalog for courses pertaining to this program.

Use of 4XXX Courses—Use of 4xxx courses is discouraged.

M.A. Degree Requirements
A minimum of 32 credits and a capstone project are required. All students must take a minimum of 16 credits in journalism. All coursework must be taken A-F.

Language Requirements—Foreign language study is recommended for students who plan to work internationally.

Final Exam—The final examination is oral.

Health Services Research, Policy, and Administration
Contact Information—Division of Health Services Research and Policy (HSRP), School of Public Health, University of Minnesota, MMC 729 Mayo Building, 420 Delaware Street S.E., Minneapolis, MN 55455 (612-626-3500; fax 612-624-4498; spher-sc@umn.edu; <www.sph.umn.edu>.

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
James W. Begun, Health Care Management, SM
Jon B. Christianson, Health Care Management, SM
Bryan E. Dowd, Public Health, SM
Roger D. Feldman, Public Health, SM
Judith M. Garrard, Public Health, SM
Robert L. Kane, Public Health, SM
Rosalie A. Kane, Public Health, SM
John E. Kralawski, Public Health, SM
A. Marshall McBean, Public Health, SM
Ira S. Moscovich, Public Health, SM
John A. Niman, Public Health, SM
Stuart M. Speedie, Health Informatics, SM
Vernon E. Weckwerth, Health Care Management, SM
Douglas R. Whaley, Public Health, SM

Associate Professor
Kathleen T. Call, Public Health, SM
Robert A. Connor, Health Care Management, SM
Michael D. Finch, Public Health, SM
Susan Bartlett Foote, Public Health, SM
Leslie A. Grant, Health Care Management, SM
Sandra J. Potthoff, Health Care Management, SM
William J. Riley, Public Health, M2

Assistant Professor
Jean Marie Abraham, Health Care Management, M2
Boris Bershadsky, Public Health, M2
Lynn A. Blewett, Public Health, M2
Jeremy L. Holtzman, Medicine, M
Yvonne Catharina Maria Jonk, Public Health, M
Donna D. McAlpine, Public Health, M2
Stephen T. Parente, Health Care Management, M2
David M. Radoshevich, Surgery, M
Todd H. Rockwood, Public Health, M2
Robert James Town, Public Health, SM
Beth A. Virmg, Public Health, M2
Amy Reed Wilson, Public Health, M2

Other
Tor Dahl, AM
Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Health services research focuses on the organization and delivery of cost-effective health services. It deals with policy issues related to costs, access, and quality of health services and equitable distribution of health resources. The M.S. program prepares health services researchers and health policy analysts to carry out empirical studies, formulate policy options, work in the political arena to shape and implement policies, and evaluate policies once implemented.

Health services research at the Ph.D. level is for those interested in affecting public policy related to health-care systems. Students come from a variety of educational backgrounds, including economics, political science, sociology, and public affairs. Strong quantitative skills are essential. The program is primarily for students interested in academic careers or senior research positions in government or the private sector. The core curriculum is a multidisciplinary examination of the social, political, and economic forces that affect the organization, financing, and delivery of health-care services. The emphasis is on theory, modeling, and quantitative methods. Coursework is supported by the student’s involvement with faculty on research projects. The program provides further interchange with faculty through research seminars and doctoral colloquia.

Prerequisites for Admission—The M.S. program does not have specific course prerequisites, but some college level math is recommended. The Ph.D. program requires calculus, statistics, and intermediate microeconomics. Applicants who have not completed the prerequisites, but are otherwise qualified for admission, are required to take relevant courses at the University or another accredited institution before beginning the program.

Special Application Requirements—Above average performance on the GRE is required for admission. For GRE exams taken before October 1, 2002, minimum required scores are: 1500 for the M.S., 1800 for the Ph.D. Exams taken after October 1, 2002, require a minimum combined verbal and quantitative score of 1000 (500/500) for the M.S., and an analytical score of 3.5. The Ph.D. program requires a minimum combined verbal and quantitative score of 1200 (600/600). The analytical writing section of the exam is evaluated independently; no minimum score was established at the time of this publication. Non-native English speakers also must take the TOEFL, with a minimum score of 600 (or 250 on the computer exam). All applicants submit the following: grade transcripts from all previous academic institutions, a statement indicating reasons for seeking the health services research, policy, and administration M.S. or Ph.D., three letters of reference attesting to the applicant’s academic ability and potential for a career in research or teaching, evaluation forms to accompany each letter, resume or CV. Students are admitted in fall semester only. The program is full time.

Courses—Please refer to Public Health (PubH), particularly numbers 58xx and 88xx, in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Use of 4xxx courses toward degree requirements requires the approval of the director of graduate study.

M.S. Degree Requirements
The M.S. offered under Plan A is in outcomes research. Plan A requires a thesis (publishable research paper), and a final oral exam. Plan B requires an internship and project. Both Plan A and Plan B are full-time, two-year programs.

Plan A requires 47-50 credits, including 31-34 core credits, 6 elective credits in one or more related fields outside the major, and 10 thesis credits. Plan B requires 46 credits, including 40 core credits and 6 elective credits in one or more related fields outside the major.

Ph.D. Degree Requirements
The Ph.D. requires at least 76 credits, including 40 core credits in the major, a minimum of 12 credits in the minor or supporting program, and 24 thesis credits. The minor or supporting program may be in areas such as economics, statistics, sociology, bioethics, gerontology, business administration, or epidemiology.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—The minor is developed uniquely for each student with the advice and counsel of the director of graduate studies.

Hispanic and Luso-Brazilian Literature and Linguistics

Contact Information—Department of Spanish and Portuguese Studies, University of Minnesota, 34 Folwell Hall, 9 Pleasant Street S.E., Minneapolis, MN 55455
(612-625-5858; fax 612-625-3549). For up-to-date graduate faculty listings, see <http://www.grad.umn.edu/faculty_rosters/stepl.asp>.

Professor
René Jara, SM
Amy K. Kaminsky, Women’s Studies, ASM
Antonio Ramos-Gascón (emeritus), ASM
Nicholas Spadaccini, SM
Hernán Vidal (emeritus), ASM

Associate Professor
Fernando E. Arenas, SM
Carol A. Klee, SM
Francisco A. Ocampo, SM
Joanna O’Connell, SM
Luis Ramos-García, SM
Constance A. Sullivan, SM
Barbara Weissberger, SM

Assistant Professor
Timothy Face, M2
Alberto Egea Fernández-Montesinos, M2
Ofelia Ferrán, M2
Horacio Machín, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The department offers three M.A. programs: Hispanic literature, Luso-Brazilian literature, and Hispanic linguistics. The department offers a Ph.D. in Hispanic and Luso-Brazilian literature and linguistics. The Ph.D. offers four areas of emphasis: Spanish peninsular literature, Spanish-American literature, Luso-Brazilian literature, and Hispanic linguistics.

The department integrates cultural and language areas into each degree program. Students study the main problems, issues, topics, and polemics that constitute their various fields and develop skills, theories, and methodologies to research, analyze, organize, reproduce, and communicate the material. Ph.D. students are expected to make scholarly contributions based on a thorough understanding of the history of the field of specialization and of the approaches used to study it. The department encourages and promotes a diversity of philosophies, approaches, and methods.

Prerequisites for Admission—Prospective students generally have completed an undergraduate degree or substantial coursework in the field, although individuals with other backgrounds may be admitted. The Graduate Studies Committee may require completion of background coursework, without graduate degree credit, for admitted students with insufficient preparation.

Special Application Requirements—Three letters of recommendation from previously attended institutions evaluating the applicant’s scholarship, a sample of a writing project, and a complete set of transcripts in addition to that required by the Graduate School should be sent to the director of graduate studies. The GRE is required. The deadline for application for admission and financial aid is January 15 for fall entry. Applicants who wish to be considered for teaching assistantships or Graduate School fellowships are encouraged to apply early.

Courses—Please refer to Portuguese (Port), Spanish (Span), and Spanish-Portuguese (SpPt) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

Ph.D. Degree Requirements
The Ph.D. requires at least 54 course credits (seventeen courses, excluding SpPt 5999), including 39 credits in the major and 15 credits (five courses) in either a supporting
work or a minor, depending on the requirements of the minor program. The program also requires 24 thesis credits.

Language Requirements—Normally students have proficiency in Spanish and Portuguese and at least one other foreign language. Proficiency is usually demonstrated by use of the language in written and oral forms (see the department’s Graduate Handbook).

Minor Requirements for Students Majoring in Other Fields—The doctoral minor requires at least 18 credits of 5xxx or 8xxx courses (six courses), to be determined in consultation with the director of graduate studies.

Hispanic Linguistics

Contact Information—See Hispanic and Luso-Brazilian Literature and Linguistics.

For up-to-date faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Associate Professor
Carol A. Klee, M2
Francisco A. Ocampo, M2

Assistant Professor
Timothy Face, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—See Hispanic and Luso-Brazilian Literatures and Linguistics for program description.

Prerequisites for Admission—Prospective students generally have completed an undergraduate degree or substantial coursework in the field, although individuals with other backgrounds may be admitted. The Graduate Studies Committee may require completion of background coursework, without graduate degree credit, for admitted students with insufficient preparation.

Special Application Requirements—Three letters of recommendation from previously attended institutions evaluating the applicant’s scholarship, a sample of a writing project, and a complete set of transcripts in addition to that required by the Graduate School should be sent to the director of graduate studies. The GRE is required. The deadline for application for admission and financial aid is January 15 for fall entry. Applicants who wish to be considered for teaching assistantships or Graduate School fellowships are encouraged to apply early.

Courses—Please refer to Portuguese (Port), Spanish (Sp), and Spanish-Portuguese (SpPt) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.A. Degree Requirements

The M.A. is offered under Plan A and Plan B. Plan A requires at least 33 credits, including 15 credits in the major field taken from among designated 5xxx core courses, 6 credits outside the program, and 12 thesis credits. Plan B requires at least 33 course credits and two Plan B papers. Most students pursue Plan B.

Language Requirements—Students must have a reading knowledge of English and at least one foreign language in addition to Spanish and Portuguese.

Final Exam—The final exams are written and oral.

Minor Requirements for Students Majoring in Other Fields—For a master’s minor, students may choose any 6 credits (two courses), preferably in related areas, in consultation with the director of graduate studies.

Hispanic Literature

Contact Information—See Hispanic and Luso-Brazilian Literature and Linguistics.

For up-to-date faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
René Jara, M2
Antonio Ramos-Gascón (emeritus), AM2
Nicholas Spadaccini, M2
Hernán Vidal (emeritus), M2

Associate Professor
Fernando E. Arenas, M2
Joanna O’Connell, M2
Luis A. Ramos-García, M2
Constance A. Sullivan, M2
Barbara Weissberger, M2

Assistant Professor
Alberto Ega Fernández-Montesinos, M2
Ofelia Ferrán, M2
Horacio Machín, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—See Hispanic and Luso-Brazilian Literatures and Linguistics for program description.

Prerequisites for Admission—Prospective students generally have completed an undergraduate degree or substantial coursework in the field, although individuals with other backgrounds may be admitted. The Graduate Studies Committee may require completion of background coursework, without graduate degree credit, for admitted students with insufficient preparation.

Special Application Requirements—Three letters of recommendation from previously attended institutions evaluating the applicant’s scholarship, a sample of a writing project, and a complete set of transcripts in addition to that required by the Graduate School should be sent to the director of graduate studies. The GRE is required. The deadline for application for admission and financial aid is January 15 for fall entry. Applicants who wish to be considered for teaching assistantships or Graduate School fellowships are encouraged to apply early.

Courses—Please refer to Portuguese (Port), Spanish (Sp), and Spanish-Portuguese (SpPt) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—Inclusion of 4xxx courses on degree program forms is subject to adviser and director of graduate studies approval.

M.A. Degree Requirements

The M.A. is offered under both Plan A and Plan B. Plan A requires at least 33 credits, including 15 credits in the major field taken from among designated 5xxx core courses, 6 credits outside the program, and 12 thesis credits. Plan B requires at least 33 course credits and two Plan B papers. Most students pursue Plan B.

Language Requirements—Students must have a reading knowledge of English and at least one foreign language in addition to Spanish and Portuguese.

Final Exam—The final exams are written and oral.

Minor Requirements for Students Majoring in Other Fields—A master’s minor requires at least 6 credits.

History

Contact Information—Department of History, University of Minnesota, 646 Social Sciences Building, 267 19th Avenue S., Minneapolis, MN 55455 (612-624-5840; fax 612-624-7096; histdgs@umn.edu; <www.hist.umn.edu>.

For up-to-date faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Regents Professor
Allen F. Isaacman, SM

Professor
Josef L. Altholz, SM
Frederich Ascher, Art History, AM2
Bernard S. Bachrach, SM
Hyman Berman, SM
Clarke A. Chambers (emeritus), ASM
Anna K. Clark, SM
Gary Cohen, SM
John K. Evans, SM
Sara M. Evans, SM
John M. Eyler, History of Medicine, ASM
Caesar E. Farah, SM
Edward L. Farmer, SM
Stephen C. Feinstein, Holocaust and Genocide Studies, AM
David F. Good, SM
Ruth M. Karras, SM
Sally G. Kohlstedt, History of Science and Technology, ASM
Elaine Tyler May, American Studies, SM
Lary May, American Studies, SM
Mary Jo Maynes, SM
Robert E. McCaa, SM
Russell R. Menard, SM
John K. Munholland, SM
David W. Noble, American Studies, ASM
Carla R. Phillips, SM
William D. Phillips, Jr., SM
Kathryn L. Reyerson, SM
Degree Programs and Faculty

Steven Ruggles, SM
Joel B. Samaha, SM
Theofanis G. Stavrou, SM
James D. Tracy, SM
Dennis N. Valdes, ASM
Rudolph J. Vecoli, SM
Ann B. Walter, SM
Eric D. Weitz, SM

Associate Professor
Catherine Asher, Art History, AM2
Kelesto E. Atkins, African American and African Studies, AM2
Sarah C. Chambers, SM
Brenda Child, American Studies, AM2
Kirsten Fischer, SM
George D. Green, SM
Lisa A. Norling, SM
Jean M. O’Brien-Kehoe, SM
Ajay Skaria, SM
Liping Wang, SM
Barbara Welke, SM

Assistant Professor
Jennifer Alexander, History of Science and Technology, AM2
David Chang, M2
Catherine Choy, American Studies, AM2
Victoria B. Cofman, African American and African Studies, AM2
Tracey Deutsch, M2
Christopher H. Jett, M2
Erika Lee, M2
Michael Lower, M2
Patrick J. McNamara, M2
Hiromi Mizuno, M2
Kevin Murphy, M2
Helena Pohlantl, AM
J.B. Shank, M2
Eva Von Dassow, Classical and Near Eastern Studies, AM2
Michele Wagner, M2
Thomas C. Wolfe, M2

Post Doctoral Associate
Renee E. Worringen, AM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Areas of concentration include: Africa, ancient; East and South Asia; British Isles; comparative women’s history; medieval, early modern, and modern Europe; early modern world; Latin America; and the United States and its colonial background. Scholarly resources include Center for Austrian Studies, Center for Advanced Feminist Studies, Center for German and European Studies, Center for Medieval Studies, Immigration History Research Center, Minnesota Population Center, Modern Greek Studies, Center for Early Modern History, and Social Welfare History Archives.

Prerequisites for Admission—Applicants for the M.A. and the Ph.D. degree(s) normally should have completed general undergraduate survey courses in two or three broad areas of history, two years of advanced undergraduate work in two areas of history, and training in a foreign language. Some prerequisites may be made up after admission. In admitting students, priority is given to applicants who are likely to continue on to a doctoral degree even if they are originally admitted to the M.A. program.

Special Application Requirements—The following are required by the department: a statement of purpose, three letters of recommendation, a writing sample, training in a foreign language, a statement of specific areas and subareas of interest, and scores from the General (Aptitude) Test of the GRE. Deadline for applications is December 15. Forms and instructions should be requested from the department or may be downloaded from the Web site at <www.hist.umn.edu>.

Courses—Please refer to History (Hist) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—4xxx history courses may not normally be included on degree program forms for the History graduate major or minor.

M.A. Degree Requirements
The M.A. is offered under Plan A and Plan B. Both plans require six history courses (one of which is 8015) and two courses in other departments (at least 6 credits). Plan A includes 10 thesis credits, for a total of at least 31 credits, and Plan B requires an additional two courses in history or another department, for a total of at least 30 credits.

Language Requirements—A reading knowledge of one foreign language is required before admission to the master’s exam.

Final Exam—The final exam is oral.

Minor Requirements for Students Majoring in Other Fields—The master’s minor in history typically involves a concentration in a single sub area of history and the completion of a minimum of three graduate courses in history (6 credit minimum). Normally, there is a representative from the history department on the student’s oral examining committee.

Ph.D. Degree Requirements
The Ph.D. requires 36 credits in twelve history courses (including Hist 8015) plus 12 credits in four supporting program courses; 24 thesis credits are also required.

Language Requirements—A reading knowledge of two foreign languages is required before admission to the preliminary exam. Some areas of concentration may require additional foreign languages. In some cases, competence in quantitative methods may replace one of the foreign languages.

Minor Requirements for Students Majoring in Other Fields—For the doctoral minor, students are expected to take four to five history courses including Hist 8015. Students must prepare for a written examination or substantial written project either in one general area and an associated sub area, or in two sub areas. The selections must be logically related to the student’s major work. One or two representatives from the history department must serve on the student’s preliminary oral examining and thesis committees. The preliminary oral exam also serves as the exam for the minor.

History of Medicine and Biological Sciences

Contact Information—Program in the History of Medicine, University of Minnesota, MMC 506, 420 Delaware Street S.E., Minneapolis, MN 55455 (612-624-4416; fax: 612-625-7938; <www.med.umn.edu/history/home.htm>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
John H. Beatty, Ecology and Behavioral Biology, SM
C. Carlyle Clawson, Pediatrics, M2
John M. Eyler, SM
Sally Gregory Kohlstedt, History of Science and Technology, SM
Elaine Tyler May, American Studies, SM

Assistant Professor
Jennifer L. Gunn, SM

Adjunct Assistant Professor
Jon Harkness, M2
Jole Shackelford, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalogue for Graduate School requirements that apply to all major fields.

Curriculum—The history of medicine explores the changing ideas of health and disease, the evolution of health care, and the changing patterns of disease from antiquity to the present. It employs the methods of intellectual, social, and cultural history to explicate the forces that created the biomedial world in which we live. Students enter with diverse backgrounds, typically in medicine, science, or history. Some begin their graduate study immediately after receiving the bachelor’s degree. Others do their training in mid-career. The Ph.D. program is for those who seek a career in historical research and teaching. The M.A. is especially suitable for those who intend to combine historical pursuits with a career in one of the health sciences.

Prerequisites for Admission—There are no universal prerequisites for admission, but some training in both history and the biological sciences is desirable.

Special Application Requirements—Applicants must submit scores from the General Test of the GRE and have three persons who know their academic work well submit letters of recommendation on their behalf to the director of graduate studies for the program. Applicants should submit a statement describing their historical interests and their goals for graduate study. They are also encouraged to submit a writing sample. New students are ordinarily admitted for fall semester. For an applicant to be considered for financial aid, the applicant’s materials must be received by December 31.

Courses—Please refer to History of Medicine (HMed) in the course section of this catalog for courses pertaining to the program.
Use of 4xxx Courses—Use of 4xxx courses is permitted only with permission of the director of graduate studies.

M.A. Degree Requirements
The M.A. is offered under Plan A or Plan B. The degree is normally completed in two to three semesters of full-time study or its part-time equivalent.

For Plan A, 12 credits of required courses in the history of medicine, plus 2 elective credits in the history of medicine, 6 credits in a minor or related field, and 10 thesis credits.

For Plan B, 12 credits of required courses in the history of medicine, plus an approved program of 12 credits of electives in history of medicine and related subjects, and 6 credits in a minor or related field.

Language Requirements—M.A. students must demonstrate competence in one foreign language, preferably French or German.

Final Exam—The final exam is oral. For Plan A, the examination centers on the thesis. For Plan B, it focuses on two or more revised course or seminar papers.

Minor Requirements for Students
Majoring in Other Fields—A master’s minor requires 6 credits in the history of medicine and biological sciences.

Ph.D. Degree Requirements
Twelve credits of required courses in the history of medicine, plus 9 additional elective credits in history of medicine, a minor or related field of 12 credits, and 24 thesis credits. A comprehensive written and oral preliminary examination precedes admission to candidacy.

Language Requirements—Ph.D. students must demonstrate competence in two foreign languages, preferably French and German. One language examination must be passed before the end of the first academic year.

Final Exam—The final exam is oral.

Minor Requirements for Students
Majoring in Other Fields—A Ph.D. minor requires at least 12 credits in the history of medicine and biological sciences.

History of Science and Technology
Contact Information—Program in History of Science and Technology, University of Minnesota. Tate Laboratory of Physics, 116 Church Street S.E., Minneapolis, MN 55455 (612-624-7069; fax 612-624-4578; HST@physics.umn.edu; <http://groups.physics.umn.edu/hsci>). For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
John Beatty, Ecology, Evolution, and Behavior, SM
John M. Eylar, History of Medicine, SM
Ronald N. Gere, Philosophy, AM
Evelyn Fox Keller, Philosophy, AM
Sally Gregory Kohlstedt, Geology and Geophysics, SM
Helen E. Longino, Women’s Studies, Philosophy, AM

Arthur L. Norberg, Computer Science, SM
Robert W. Seidel, Chemical Engineering, SM
Alan E. Shapiro, Physics, SM

Assistant Professor
Jennifer Karns Alexander, Mechanical Engineering, SM
Michel H. P. Janssen, Physics, SM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—The program offers opportunities for advanced research and study in four general areas: history of the physical sciences, history of the biological sciences, history of technology, and history of American science and technology. Students focus on the following approaches: conceptual development of the disciplinary fields; social, economic, and cultural contexts; the interactions among science, technology, and society; or a combination of these. The faculty’s interests span the period from the Scientific Revolution into the twenty-first century.

Prerequisites for Admission—Students must have a bachelor’s degree with a minimum grade average of B and should be capable of interdisciplinary study. Depending on background and career objectives, additional preparatory studies may be necessary in either the science-technology area or in the humanities and social sciences.

Special Application Requirements—In addition to the application sent to the Graduate School, a complete copy of the application must be submitted to the program including three letters of recommendation. A writing sample and GRE scores are also recommended.

Courses—Please refer to History of Science and Technology (HSci) in the course section of this catalog for courses pertaining to this program.

Use of 4xxx Courses—Use of 4xxx courses on degree programs is subject to approval by the director of graduate studies.

M.A. Degree Requirements
The M.A. is offered under Plan A and Plan B. Plan A requires a minimum of 20 course credits and 10 thesis credits; Plan B requires a minimum of 30 course credits. M.A. students must choose two of the general areas (history of the physical sciences, biological sciences, technology, or American science and technology). Six courses (18 credits) must be taken in these two areas with at least two courses (6 credits) in any one area. Two courses (6 credits) must cover the pre-1800 period and two courses (6 credits) the post-1800 period. Courses used to satisfy the area requirements also can be used to satisfy these period requirements. Therefore, of this possible overlap, these course credits may not add up to 18 credits. In addition, each student must take the historiography course (HSci 8111) and two courses (6 credits) in a minor or related field. Under the Plan A option, students must also take 10 thesis credits. All of the courses selected for the requirements must be passed with a grade of B or better. HSci 4xxx courses may be included as appropriate for the area and period requirements.

Language Requirements—M.A. students must demonstrate reading proficiency in one foreign language, normally French or German.

Final Exam—The final exam is oral.

Minor Requirements for Students
Majoring in Other Fields—The master’s minor requires 6 credits and is structured for the student’s interests.

Ph.D. Degree Requirements
The Ph.D. is for those planning professional careers that require a high degree of scholarly competence, including teaching and research. Students must choose two of the major areas (history of the physical sciences, the biological sciences, technology, or American science and technology) in preparation for preliminary written and oral exams. Six courses (18 credits) must be taken in these two areas with at least two courses (6 credits) in any one area. Two courses (6 credits) must cover the pre-1800 period and two courses (6 credits) the post-1800 period. Courses used to satisfy the area requirements also can be used to satisfy these period requirements. In addition, each student must take the historiography course (HSci 8111) and a minor or supporting program consisting of four courses (12 credits). Students must also take 24 thesis credits. All of the courses selected for the requirements must be passed with a grade of B or better.

Language Requirements—Before taking the preliminary exams, students must demonstrate reading proficiency in two foreign languages, preferably French and German.

Minor Requirements for Students
Majoring in Other Fields—The doctoral minor requires 12 credits and is structured for each student’s interests in discussion with the director of graduate studies.

Housing Studies
Postbaccalaureate Certificate
Contact Information—Housing Studies Certificate, College of Continuing Education, Student Support Services, 101 Wesbrook Hall, 77 Pleasant Street S.E., Minneapolis, MN 55455 (612-624-4000; adv@cce.umn.edu; <www.cce.umn.edu /certificates>). For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
William Angel, M

Associate Professor
Marilyn Bruin, M
Jeff Crump, M
Becky Yast, M
Ann Ziebarth, M
Curriculum—The housing studies certificate is designed for individuals interested, or currently working in, housing related professions to expand their knowledge in areas including housing and community development, housing policy, residential environment and energy use, rural housing issues, housing management, and housing finance.

Prerequisites for Admission—Students must have a bachelor’s degree from an accredited U.S. university or its foreign equivalent. A GPA of 3.00 is required. Students must apply for admission to the Graduate School after completing no more than one course.


Certificate Requirements
The certificate consists of at least 15 credits; 2 credits in the required course and at least 13 credits from the elective options. Courses are drawn primarily from the Department of Design, Housing, and Apparel. Some elective courses require prerequisites that may be waived with instructor permission following University policy.

Early in the program, students should file a certificate program plan with CCE indicating the courses they plan to take, subject to faculty approval. All courses must be completed with a grade of B or better and an overall GPA of 2.80 or better.

Human Factors/ Ergonomics
Minor Only
Contact Information—Doctoral Minor Program in Human Factors/Ergonomics, Human Factors Research Laboratory, School of Kinesiology, College of Education and Human Development, University of Minnesota, 141 Mariucci Arena, 1901 Fourth Street S.E., Minneapolis, MN 55455 (612-625-5300).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Assistant Professor
John C. Carmody, AM
Senior Research Fellow
Vctor Koscheyev, Kinesiology, M
Senior Research Fellow
Thomas Smith, Kinesiology, M

Curriculum—Human factors/ergonomics (HF/E) is an interdisciplinary area of study focusing on how human performance and behavior are influenced by design factors in the performance environment. HF/E has its roots in psychology, engineering, physiology, kinesiology, cognitive science, computer science, software engineering, and operations research. The minor, which is available to master’s (M.A. and M.S.) and doctoral students, provides integrated coursework that emphasizes conceptual, empirical, and practical aspects of HF/E. The minor complements graduate training in traditional disciplines as a foundation for diverse career opportunities in the field.

Coursework addresses the question of how and why variability in human performance— with quality, productivity, efficiency, safety, and health implications—is influenced by interaction with designs of systems and system components such as machines and tools, computers and software, complex technological systems, jobs and working conditions, organizations, and sociotechnical institutions.

Prerequisites for Admission—Admission to the minor is contingent upon prior admission to a doctoral degree-granting program within the Graduate School. Admission is limited and only by permission of the director of graduate studies in the human factors/ergonomics minor.

Courses—Please refer to Human Factors/ Ergonomics (HumF) in the course section of this catalog for courses pertaining to this program.

Use of 4xxx Courses—Use of 4xxx courses is permitted based on adviser and director of graduate studies approval.

Minor Only Requirements
A master’s minor requires 10 graduate credits, including 7-8 credits of core courses and 2-3 credits of electives. A doctoral minor requires 16 credits, including the three core courses (7-8 credits) and 8-9 credits of electives. The core courses consist of HumF 5001, 8001, and 8002.

Human Resources and Industrial Relations
Contact Information—Industrial Relations Center, University of Minnesota, 3-300 Carlson School of Management, 321 19th Avenue S., Minneapolis, MN 55455-0438 (612-624-5810; fax 612-624-8360; hrirgrad@umn.edu; <www.irr.csom.umn.edu>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Denis A. Ahlburg, SM
Richard D. Arvey, SM
Avner Ben-Ner, SM
Hyman Berman, History, SM
Mario F. Bognanno, SM
John W. Budd, SM
John P. Campbell, Psychology, SM
Zvi Eckstein, Economics, SM
John A. Fossom, SM
Jo-Lda C. Hansen, Psychology, SM
Morris M. Klein, Public Affairs, SM
Brian P. McCall, SM
Jeylan T. Mortimer, Sociology, SM
John Remington, SM
Paul R. Sackett, Psychology, SM
James G. Scoville, SM
Andrew F. Whitman, SM
Mahmoud A. Zaoui, SM

Associate Professor
Ross E. Azevedo, SM
Maria J. Hanratty, Public Affairs, SM
Denz S. Ones, Psychology, SM
Connie R. Waember, SM
Yijiang Wang, SM

Assistant Professor
Joyce E. Bono, Psychology, AM2
Theresa M. Glohm, M2
Stephanie Lluis, M2
Andrew G. Miner, M2

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Human resources and industrial relations studies the employment relationship. Teaching and research are guided by the belief that the employment relationship must be investigated through the lenses of different disciplines using systems thinking. The professional M.A. degree is for individuals interested in private and public sector careers in human resource management, labor relations, and related fields. The Ph.D. degree is a research degree for individuals interested in academic careers.

The curriculum is structured around five areas: staffing, training, and development; organization behavior and theory; compensation and benefits; labor market analysis; and labor relations and collective bargaining. Research methods and quantitative analysis of employment problems and issues are also included. Specialization in two areas is required for Ph.D. candidates, while M.A. candidates are encouraged to choose electives to support a generalist orientation.

Prerequisites for Admission—An undergraduate course in microeconomics must be completed with a grade of at least C before enrolling.

Special Application Requirements—Applicants must submit three letters of recommendations, a complete set of transcripts, a résumé, GRE scores, and a clearly written statement of career interests, goals, and objectives. M.A. applicants may substitute the GMAT for the GRE. Applicants whose native language is not English must also submit score results from the TOEFL.
Entry in both the day and evening M.A. programs is in fall or spring semester, and the application deadlines are June 15 and October 15. The M.A. financial aid deadline for fall semester is February 1. Entry in the Ph.D. program is only in the fall, and the application deadline is January 1. Applicants for all programs are encouraged to apply early, particularly for fall semester.

Courses—Please refer to Human Resources and Industrial Relations (HRIR) in the course section of this catalog for courses pertaining to the program.

Use of 4xxx Courses—4xxx courses are not permitted toward M.A. or Ph.D. degree requirements.

M.A. Degree Requirements
The M.A. is offered under Plan A (thesis) and coursework only (capstone project) in day (full-time) and evening (part-time) programs. Coursework only requires at least 48 credits and a capstone project. Major coursework includes 8011, 8012, 8031, 8041, 8051, 8061, and 8071 and 14 credits of HRIR electives. At least 8 credits must be earned in related fields. Plan A requires at least 38 course credits and 10 thesis credits. Major coursework includes 8011 and 8012; three courses from among 8031, 8041, 8051, 8061, and 8071; and 10-14 additional HRIR credits. Also required are 6-10 credits in an approved field or fields of study related to human resources and industrial relations. Plan A is generally limited to students who have considerable related graduate coursework. Commonly-selected related fields include accounting, finance, operations management, managerial communications, economics, human resource development, law, psychology, public affairs, sociology, and research methods.

Language Requirements—None.

Final Exam—The final exam is oral.

Ph.D. Degree Requirements
Students must complete at least 12 credits of research methods (most complete 18 or more credits); at least 6 credits of human resources and industrial relations doctoral seminars in each of two areas of specialization and other credits in these areas as needed; at least 3 credits in each of the other three subfields; and at least 12 credits in a minor or supporting program in one or more of the following behavioral sciences—anthropology, business administration, economics, history, political science, psychology, and sociology. Research methods courses taken outside the program may be applied toward the minor or supporting program requirement. Specific coursework is planned in consultation with the student’s adviser, the Ph.D. coordinator, and the director of graduate studies. Students must pass preliminary exams in each of their subfields and research methods.

Language Requirements—None.

Minor Requirements for Students Majoring in Other Fields—A doctoral minor or supporting program may be selected by students majoring in business administration, education, hospital and healthcare administration, or the social and behavioral sciences. The minor must consist of at least 21 credits, including five courses in at least four subfields, plus a doctoral seminar.

Human Rights

Minor Only
Contact Information—Graduate Minor in Human Rights, Institute for Global Studies, University of Minnesota, 232 Social Science Building, 267 19th Avenue South, Minneapolis, MN 55455 (612-626-1879; fax 612-626-2242; hrp@umn.edu; <http://hrp.cla.umn.edu/>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor
Stephen Feinstein, Holocaust and Genocide Studies, M Dario Menanteau, Social Work, M Kathryn Sikking, Political Science, M Hernan Vidal, Spanish and Portuguese Studies, M David Weissbrodt, Law, M Mahmood A. Zaidi, Human Resources and Industrial Relations, M

Associate Professor
Elizabeth Heger Boyle, Sociology, Law, M Eric D. Weitz, History, M

Assistant Professor
Michele D. Wagner, History, M

Other
Laura M. Sayles, Institute for Global Studies, M Karen B. Thompson, Institute for Global Studies, M John R. Vreyens, Agricultural, Food and Environmental Sciences, M

Curriculum—The human rights minor, available to master’s (M.A. and M.S.) and doctoral students, provides an interdisciplinary foundation in human rights studies and practical experience in human rights work. The core requirements include two three-credit courses (Pol 8460—Topics in International Relations and Glos 5900—Topics in Global Studies) and one six-week internship. A guide to human rights internships can be found at <http://hrp.cla.umn.edu/internships.htm>. Students select at least two additional electives outside their major field from a designated course list and may take other courses with the approval of the program director. Qualifying courses taken prior to approval of the minor will be applied retroactively.

Prerequisites for Admission—Admission to a master’s or doctoral degree-granting program within the Graduate School. Admission is limited and only by permission of the director of graduate studies in human rights.

Special Application Requirements—Contact the director of graduate studies in human rights for an Intent to Enroll form. Students are encouraged to submit the form by the end of fall semester the year before initiating the coursework. Late submissions are considered as space permits.

Courses—Elective courses are taken from a designated course list at <http://hrp.cla.umn.edu/minor.html#elective>.

Use of 4xxx Courses—4xxx courses may not be included on degree program forms for the minor.

Minor Only Requirements
A master’s minor in human rights requires 9 credits: 1 core course, at least 2 elective courses taken from a designated course list, and one six-week internship approved by the program director. A doctoral minor requires 12 credits: 2 core courses, at least 2 elective courses, and one six-week internship approved by the program director.

Immunology
See Microbiology, Immunology, and Cancer Biology.

Industrial Engineering
Contact Information—Mechanical Engineering and Industrial Engineering Graduate Programs, University of Minnesota, 1120 Mechanical Engineering, 111 Church Street S.E., Minneapolis, MN 55455 (612-625-2009; fax 612-624-2010; gradinfo@me.umn.edu; <www.me.umn.edu/>).

For up-to-date graduate faculty listings, see <www.grad.umn.edu/faculty_rosters/step1.asp>.

Professor

Associate Professor
Caroline C. Hayes, SM

Assistant Professor
William C. Cooper, SM Karen L. Donohue, Operations and Management Sciences, ASM

Along with the program-specific requirements listed below, please read the General Information section of this catalog for Graduate School requirements that apply to all major fields.

Curriculum—Industrial engineering offers coursework and research in industrial engineering, operations research, and human factors. Special emphasis is on methodologies for design, planning, and management of manufacturing and production systems. Additional emphases are in logistics, transportation, computer-aided design and manufacturing, health systems, and management of technology.

Prerequisites for Admission—An undergraduate degree in engineering or in a closely related scientific field such as mathematics, statistics, business, or psychology, is required. Unusually well-qualified students with a baccalaureate degree may be admitted directly to the Ph.D. program.