This is the Duluth Degree Program section from the 1999-2001 Graduate School Catalog of the University of Minnesota.

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Duluth Degree Programs

General Information

At the University of Minnesota Duluth, the Graduate School offers programs for the master of arts in communication sciences and disorders, counseling psychology (emphases in college counseling, community counseling, and school counseling), and English (emphases in literary studies and English studies). Programs for the master of science are offered in applied and computational mathematics, biology, chemistry, computer science, geology, and physics. In addition, the master of business administration, master of fine arts in art (emphasis in graphic design), master of liberal studies, master of music, and master of social work are offered.

All-University M.S./Ph.D. programs in toxicology and water resources science are offered jointly with the Twin Cities campus. In addition, several graduate programs operate at the University of Minnesota Duluth under the aegis of graduate programs on the Twin Cities campus. Cooperative programs offered at both the master’s and doctoral levels include biochemistry, microbiology, pharmacology, and physiology. Students interested in these programs should see the Graduate Programs in this catalog.

All programs are under the jurisdiction of the Graduate School dean and have admission, candidacy, and degree requirements comparable to their counterpart programs on the Twin Cities campus. General Graduate School regulations, including those for minimum degree requirements, apply to programs offered on the Duluth campus (see General Information at the beginning of this catalog).

Financial Aid and Other Assistance

Assistantships are normally granted through individual departments subject to stipulations described in General Information at the beginning of this catalog. Information about these assistantships can be obtained by writing to the department director of graduate studies. With an assistantship appointment of 25 percent or more, hospitalization and medical insurance coverage is provided at no additional cost.

Some residence counseling positions may be available. For information, write to the Housing Office, 149 Lake Superior Hall, University of Minnesota Duluth, MN 55812.

Inquiries regarding loan funds, living accommodations, employment, and placement should be addressed to the Vice Chancellor for Academic Support and Student Life, 297 Darland Administration Building, University of Minnesota Duluth, MN 55812.

Program Statements

Brief descriptions of the various degree programs are listed below. Course offerings are listed in the University of Minnesota Duluth Catalog. General information concerning graduate work on the Duluth campus may be obtained from the Graduate School Office—Duluth, 431 Darland Administration Building, University of Minnesota Duluth, MN 55812. Information is also available at www.d.umn.edu/grad on the Internet.

Applied and Computational Mathematics

M.S.—Plan A and Plan B

This program is for those wishing to pursue careers that use applied mathematics and statistics in science, industry, business, and teaching, and for those wishing to go on for Ph.D. degrees in mathematics or statistics. It emphasizes the use of modern modeling techniques and computational methods, with areas of concentration available in continuous and stochastic modeling and discrete mathematics. The faculty is drawn largely from the Department of Mathematics and Statistics, but includes members from the Departments of Computer Science, Electrical and Computer Engineering, and Chemical Engineering.

Degree Requirements

The M.S. is offered under both Plan A (with thesis) and Plan B (without thesis). All students must complete at least 33 credits, of which at least 17 must be from approved mathematics or statistics courses or seminars (including a graduate seminar and two of the three core courses) and 6 must be from a minor or related field (statistics is a related field). Plan A also requires 10 thesis credits; Plan B requires a 2-credit project and an additional 8 credits from approved graduate-level mathematics, statistics, or related-field courses. There is an 8-credit limit on 4xxx credits that may be applied to the degree.

Language Requirements—None.

Final Exam—The final exams are written and oral.

Minor Requirements for Students

Majoring in Other Fields—A master’s minor requires 6 credits in approved Math or Stat courses.

Art—Graphic Design

M.F.A.

Graphic design is the manipulation of type and image for communication. Traditionally, this has meant design for the print medium, but the same skill and understanding go into design for video, computer-based presentations, and an ever-widening range of applications. The Department of Art strongly believes that, even though many graphic design M.F.A. graduates choose to practice rather than teach, the M.F.A. is a primary prerequisite for teaching at the university level, and M.F.A. programs therefore have a responsibility to prepare students for academic as well as aesthetic rigor. Consequently, although the M.F.A. is largely a studio degree, the program includes a strong analytical and intellectual component.

The department also believes that such rigor is ultimately the best approach for training graphic design practitioners as well. The field is rapidly changing, and only by being versed in the traditional capacities of the area, the skills and knowledge of related fields, and the skills of critical thought can future designers hope to lead rather than merely react to changes.

Degree Requirements

The M.F.A. program requires at least two years in residence and 60 credits. The program may be completed on a part-time basis by first taking all requirements other than the Art 8901—Graduate Seminar/Art 8980—Graduate Studio series and Art 8990—M.F.A. Creative Thesis. The 8901/8980 series must be taken within a two-year period. A final project and minimum 15-page supporting paper are required. Although a gallery exhibition is typical, the project may take forms such as a book, video, Web site, or interactive project.

Language Requirements—None.

Final Exam—An oral exam based on the project and supporting paper is required.

Minor Requirements for Students

Majoring in Other Fields—Not applicable.
Biology

M.S.—Plan A and Plan B
The program offers study toward the M.S. under either Plan A or Plan B. Plan A students must select an area of concentration from among botany, cellular and physiological biology, environmental biology, or zoology.

Degree Requirements
Plan A students must complete at least 14 course credits in the major, including at least 10 credits in courses approved for the selected area of concentration; at least 6 credits of approved coursework in one or more related fields or a minor; and at least 10 thesis credits. Plan B students must complete at least 14 course credits in the major, at least 6 credits of approved coursework in one or more related fields or a minor, and at least 10 credits of other approved coursework. Plan A requires a thesis; Plan B requires one to three Plan B approved coursework. Plan A requires a thesis; Plan B requires one to three Plan B approved coursework.

Language Requirements—None.
Final Exam—Students must present a department seminar and pass a final oral exam.
Minor Requirements for Students
Majoring in Other Fields—Any course that may be used as credit for the major may be used as credit toward the minor.

Business Administration

M.B.A.—Plan B, Coursework Only
The M.B.A. program is designed and offered to meet the needs of residents of northeastern Minnesota and northwestern Wisconsin who are currently employed full time, pursuing professional managerial careers, or seeking general management education at the graduate level part-time. To meet the needs of these practitioners, the M.B.A. core courses and electives are offered in the evening, with most courses meeting one evening per week. Full-time enrollment is possible, however, and a relatively small number of domestic and international students enroll full time.

Degree Requirements
The M.B.A. requires 32 credits. All students must complete six core and three support area courses, which provide exposure to financial reporting, analysis, and markets; the domestic and global environments of business and organizations; the creation and distribution of goods and services; and human behavior in organizations. Also required is a capstone strategic management course and a minimum of 2 credits of cross-functional experience selected from special topics, workshops, projects, or field study. Students then choose one of two options for completing an additional 6 credits of elective coursework: coursework only or field research (Plan B).

Language Requirements—None.
Final Exam—For Plan B, students meet with their faculty committee for a final review of their completed project. For coursework only, no final exam is required.
Minor Requirements for Students
Majoring in Other Fields—Not applicable.

Chemistry

M.S.—Plan A and Plan B
The M.S. program offers a broad-based education in chemistry that is well-suited to students going on to Ph.D. programs, careers in industry, or professional schools. Both Plan A (with thesis) and Plan B (without thesis) are available. For Plan A, emphasizes include analytical, biological, inorganic, organic, and physical chemistry. The faculty include members from the Department of Chemistry in the College of Science and Engineering and from the Department of Biochemistry and Molecular Biology in the School of Medicine.

Degree Requirements
All students must complete 30 credits, including a minimum of 14 credits in the major (including four core courses) and 6 credits in a related field or minor. Plan A students must also register for 10 thesis credits; Plan B students must complete an additional 10 course credits and prepare three papers. Attendance and presentation at the chemistry seminar are required. Individual programs are designed to best serve the interests of the student. 4xxx courses must be approved by the director of graduate studies.

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 chemistry courses. Individual programs must be approved by the director of graduate studies in chemistry.

Communication Sciences and Disorders

M.A.—Plan B
The graduate program in communication sciences and disorders effectively combines academic and clinical endeavors to prepare students to become speech-language pathologists. The program places a major emphasis on the development of clinical skills, although students have the opportunity to engage in a wide variety of academic and research activities as well. The curriculum is based on five semesters of study and is Educational Standards Board (ESB) accredited in speech-language pathology by the American Speech-Language Hearing Association (ASHA).

Language Requirements—None.
Final Exam—The final exams are written and oral.
Minor Requirements for Students
Majoring in Other Fields—Not applicable.

Computer Science

M.S.—Plan A and Plan B
Computer science is a discipline that involves understanding the design of computers and computational processes. The discipline ranges from the theoretical study of algorithms to the design and implementation of software at the systems and applications levels.

The M.S. is a two-year program that provides the necessary foundational studies for graduates planning to pursue either a Ph.D. in computer science or a career as a computer scientist in business or industry.

Degree Requirements
The M.S. is offered under Plan A (thesis) and Plan B (non-thesis). At least 33 credits are required, including 16 credits from 8xxx courses in computer science. 1 credit of CS 8993—Seminar, and at least 6 credits from a minor or related field outside computer science. Plan A also requires 10 thesis credits and Plan B requires a minimum of 10 credits in additional computer science courses at the 5xxx level or above. All courses are chosen in consultation with the student’s adviser, subject to approval by the director of graduate studies.

Language Requirements—None.
Final Exam—Students present a department colloquium, followed by an oral exam.
Minor Requirements for Students
Majoring in Other Fields—A minimum of 6 credits in computer science is required for a master’s minor.
Counseling Psychology

M.A.—Plan B

The M.A. in counseling psychology is based on a developmental philosophy that encourages academic learning and personal growth. The overall emphasis is on the promotion of healthy psychological functioning and the prevention of psychological disturbances. A core curriculum provides theoretical frameworks and practice in counseling skills from which students can develop their unique strategies and pursue specialty training.

Three emphases for specialty training are offered: community counseling, college counseling, and school counseling. The community and school counseling emphases are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP); the college counseling emphasis will be included in the next accreditation review.

Students select an emphasis during their second semester.

Community counseling students may elect coursework that provides a foundation for pursuing licensure as a psychological practitioner in the State of Minnesota or as a licensed professional counselor in many other states. The college counseling emphasis offers preparation for student support and development in colleges and universities. The school counseling emphasis allows for specialization in grades K-8 or 5-12. Experiential requirements for Minnesota professional school counselor licensure can be met through completion of a supervised one-year school counseling residency after completing this program or through holding a valid Minnesota teaching license and having one year of teaching experience at the level of licensure desired.

Degree Requirements

The M.A. requires 50 credits, including 31 counseling core credits, 13 professional emphasis credits, and 6 credits in a minor or related field. Counseling core credits include a 4-credit Plan B research paper (Psy 5061, 5062—Research Problems I, II) with an oral exam; professional emphasis credits include a semester practicum (2 credits) and a nine-month internship (23 hours per week, 6 credits). Core credits must include Psy 5051, 5052, 5061, 5062, 5121, 5501, 5502, 5601, 5603, 5611, 5651. Professional emphasis credits are as follows: community counseling—Psy 5125, 8001, 8101, 8197, 8297; college counseling—Psy 8003, 8101, 8397, 8497, 3-credit elective; school counseling—Psy 5201, 8005, 8101, 8597 or 8797, 8697 or 8897.

Students pursuing licensure in Minnesota as psychological practitioners or professional school counselors must complete specified courses, which can be completed as major or related field requirements. Students should consult with the program for current specified courses, as requirements are determined by state agencies and may change.

Students must also complete a national counselor exam, such as the National Counselor Examination for Licensure and Certification (NCE), before graduation.

Language Requirements—None.

Final Exam—A final oral exam on the Plan B paper is required. Students must also take a national counselor exam.

Minor Requirements for Students

Majoring in Other Fields—A master’s minor requires 8 credits of psychology and is structured to include a research component, counseling orientation, and an elective. Interested students should contact the director of graduate studies in counseling psychology.

English

M.A.—Plan B

The M.A. program offers courses in British and American literature, creative writing, linguistics, composition and rhetorical theory, and English education. Students work closely with faculty in developing their own program of study through coursework, independent readings, and related research projects. The program has two master’s emphases: a literary studies emphasis for those who wish to teach English at the community-college level.

Degree Requirements

Literary Studies Emphasis (Plan B)

Requires a minimum of 30 credits, including at least 24 credits in the major, 6-8 credits in a related field, and three Plan B projects.

English Studies Emphasis (Plan B)

Requires a minimum of 31 credits, including at least 25 credits in the major, distributed in literature, linguistics, and composition/rhetoric; 6-8 credits in a related field; and three Plan B projects.

Language Requirements—The literary studies emphasis requires a reading knowledge of Latin, Greek, French, German, Italian, Spanish, Russian, or another approved language.

The English studies emphasis requires certification in a foreign language or completion of 6 course credits beyond the 31 required credits. Certification is gained by demonstrating a reading knowledge of a foreign language appropriate to the candidate’s area of study and approved by the English graduate committee. Candidates whose professional objectives are best served by completing the additional 6 credits select courses from literature and literary analysis, linguistics, composition/rhetoric, or courses closely related to the field of concentration.

Final Exam—The final exams are written and oral.

Students must submit Plan B papers (normally three) or projects totaling 120 hours of effort before taking the exam. The projects normally are completed in connection with courses in English or in a related field. A completed project must be approved by a graduate faculty member.

Minor Requirements for Students

Majoring in Other Fields—A minimum of 8 credits in English, composition, and/or linguistics is required for a master’s minor.

Geology

M.S.—Plan A and Plan B

The M.S. program in geology encompasses areas of interest in hard-rock geology (igneous, metamorphic, and sedimentary petrology; economic geology; and Precambrian geology), Quaternary geology, hydrogeology, geoarchaeology, and physical and chemical limnology. Several of these areas are strengthened by collaboration with the Large Lakes Observatory, the Natural Resources Research Institute, and the Geoarchaeology Laboratory.

Degree Requirements

The M.S. is offered under Plan A (thesis) and Plan B (non-thesis). Courses are selected with approval of the student’s adviser and the director of graduate studies; also, no more than 25 percent of the courses may be at the 4xxx level except by their approval. For both plans, a written candidacy exam during the second semester of residency is required.

Plan A requires 30 credits, including 14 course credits in the major, 6 course credits in a minor or related field (which may be taken within geology if they are in an area different from the student’s principal area), and 10 thesis credits. All courses must be at the 4xxx or 5xxx level. Plan B requires 30 credits in approved courses, including three Plan B papers.

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 and is decided in consultation with the student’s adviser and the director of graduate studies in geology.
**Liberal Studies**

**M.L.S.—Plan B**
The interdisciplinary M.L.S. is a community outreach program that provides citizens with the opportunity to return to higher education to broaden their intellectual horizons without having to focus on specific professional goals. Students choose to write one to three papers exploring in depth an interdisciplinary topic.

**Degree Requirements**
The M.L.S. is offered under Plan B only. Students must complete at least 4 credits of IS 8001—Introduction to Liberal Studies, 4 credits of IS 8501—Seminar: Ethics and the Human Condition, 9 additional credits in humanities/classics or interdisciplinary studies courses, and 15 elective credits from any disciplines. One to three Plan B papers are required.

**Language Requirements**—None.

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

**Minor Requirements for Students Majoring in Other Fields**—Not applicable.

**Linguistics**

**Freestanding Minor**
Linguistics, offered interdepartmentally and through the Department of Interdisciplinary Programs, may be elected by graduate students as a related field, or with approval of the director of graduate studies of the major, as a designated minor.

**Degree Requirements**
The minor in linguistics requires a minimum of 12 credits selected from Engl 5811—Introduction to Modern English (4 credits), Engl 5821—Introduction to Modern English (4 credits), Ling 5802—Applied Linguistics (4 credits), Ling 5852—Practicum in Teaching Linguistics (3 credits), and Ling 8500—Graduate Seminar (3 credits).

**Music**

**M.M.—Plan B**
The M.M. program offers the practicing music teacher an opportunity to acquire advanced understanding and skill in music education theory and practice. A course of study is designed to meet the interests and objectives of the student.

**Degree Requirements**
The M.M., which is offered under Plan B only, requires 30 credits, including 14 credits in music education/education, 8 credits in the related field of music, 6 credits for the Plan B Paper, and 2 elective credits.

**Language Requirements**—None.

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

**Minor Requirements for Students Majoring in Other Fields**—Not applicable.

**Physics**

**M.S.—Plan A and Plan B**
The M.S. program provides a grounding in the fundamentals of physics, combined with significant research involvement. The primary areas of research are computational physics, experimental work in condensed-matter physics, and observational and theoretical work in physical limnology.

**Degree Requirements**
The M.S. is offered under both Plan A and Plan B. All students take 14 credits in a common core of courses (including Phys 5501, 5511, 5521, and 5522 and 2 credits in 5090) and 6 credits in a minor or related fields. Plan A also requires 10 thesis credits; Plan B requires one or more projects requiring a minimum of 120 hours work total, preparation of a written report for each project, and 10 additional course credits in physics. These courses may include 4xxx courses, if appropriate and if approved for graduate credit; for distinctly interdisciplinary programs, the courses may be outside physics. In all cases, the overall plan of study and selection of elective courses must form a coherent program and be approved by the director of graduate studies.

**Language Requirements**—None.

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

**Minor Requirements for Students Majoring in Other Fields**—A master’s minor requires 6 credits, of which no more than 1 credit can be from Phys 5090.

**Social Work**

**M.S.W.—Plan B**
The M.S.W. program offers a concentration in advanced generalist practice. The curriculum prepares students to practice at the direct service, program, and community levels of intervention. Graduates undertake a variety of professional social work functions, including counselor, community organizer, case manager, educator, and administrator. The curriculum has a special focus on services to American Indians and their communities. The M.S.W. program is accredited by the Council on Social Work Education.

**Degree Requirements**
The M.S.W., which is offered under Plan B only, requires 51 credits (34 credits for students admitted with advanced standing), including a minimum of 41 credits in social work courses (28 for students with advanced standing), at least 2 credits in a related field, and a Plan B project. The program requires two field placements in human service agencies (one field placement for students with advanced standing). A minimum GPA of 3.00 for courses included on the degree program is required. A level of personal and professional competence, considered satisfactory for entrance into the profession of social work, as indicated by course and field placement evaluations, is required. Students graduating from a B.S.W. program accredited by the Council on Social Work Education are eligible for the advanced standing program.

**Language Requirements**—None.

**Final Exam**—The final exam is oral, except for students who are over 250 miles from Duluth. They may complete an oral or written exam using distance technology.

**Minor Requirements for Students Majoring in Other Fields**—Not applicable.