GEOGRAPHY

GEOGRAPHY MS

GEOGRAPHY EDUCATION MS
(DISCIPLINE-BASED)

College of Social & Behavioral Sciences
Department of Geography
7 Armstrong Hall • 507-389-2617

Chair: Donald A. Friend, Ph.D.

Branko Colakovic, Ph.D.; Donald Friend, Ph.D.; Cecil Keen, Ph.D.; Changjoo Kim, Ph.D.; Jose Javier Lopez, Ph.D.; Cynthia Miller, Ph.D.; Martin Mitchell, Ph.D.; Forrest Wilkerson, Ph.D.; Fei Yuan, Ph.D.

Geography, as taught at Minnesota State University, Mankato, deals with phenomena in earth space and their areal extent, intensity and variation. Graduate programs in geography are designed to help students develop advanced skills in research design and analysis, as well as competence in using specific tools of geographic inquiry. In addition, the department provides necessary continuing education for a variety of elementary, high school and post-secondary teachers and other professionals, such as planners.

Geography graduate study emphasizes knowledge and understanding of environments and processes derived from the basic structure of Earth, as well as the cultural attributes and diversity of its peoples. Geography also examines links among economies, cultures and intellectual models that attempt to explain perceptions of Earth, along with the geographer's concepts and strategies for analyzing these interconnections.

In addition to a diverse and experienced faculty, the department supports its own reference collection of books, periodicals and maps. The department maintains a fully equipped cartography laboratory, including computer-assisted cartography software and equipment. The department supports a geographical analysis laboratory in which students have access to GIS software and Windows-based computers along with appropriate peripheral equipment. GIS software and equipment are also available.

MSU’s Weather Analysis Laboratory for Teaching and Educational Resources (WALTER) is an independent unit equipped with state-of-the-science weather observation and display equipment. Two satellite dishes feed multiple data streams to a console of computers using VISTA, Storm-Sentry and Storm-Pro (from DTN-Kovuoras), Satellite Imagery (from NVG), data analysis programs like LEADS (from IPS) and the EWB visualization program (from SSESUN). A time-lapse Sky-Cam and local observational instruments complete the total weather picture available. The facility provides one of the best teaching/learning environments in the Midwest and supports the suite of courses offered in Atmospheric Sciences. The University library holds many of the major U.S. geographical journals. The library's map and atlas holdings are formally organized in its Map Collection, which is a depository for maps produced by federal government agencies including (but not limited to) the U.S. Geological Survey, the Defense Mapping Agency, and the U.S. Department of Agriculture (including the Forest Service).

Admission. Applicants for admission to graduate programs in geography must have maintained a grade point average of 2.8/4.0 for the last two years of undergraduate work for a four-year degree. Applicants having grade point averages below the minimum who present convincing evidence of potential for success in graduate studies may be considered for provisional admission. Letters of recommendation from at least two individuals familiar with the applicant's undergraduate academic performance are required. Scores from the GRE are not required for admission unless the undergraduate grade point average is below 2.8 for the last two years of work for the baccalaureate degree.

Financial Assistance. Some graduate assistantships are available through the Department of Geography. Most are funded directly from the College of Graduate Studies and Research and the College of Social and Behavioral Sciences. Typically, assistantships carry an obligation of about ten hours per week. Further information about the availability of assistantships and about the status of applications for assistantships should be sought from the department chair.

GEOGRAPHY MS
(Thesis Plan - 30 credits)

Alternates
Geography Electives (9-11 credits)
Choose any 500/600 level electives in Geography.

Required Core and Research (6 credits)
GEOG 678 Geographic Research & Writing (3)
GEOG 680 Philosophy of Geography (3)

Required Electives (24-26 credits)
Choose any 500/600 level electives in consultation with an advisor.

Required Thesis or Alternate Plan Paper
GEOG 694 Alternate Plan Paper or Internship (1-2)
GEOG 699 Thesis (3-6)

GEOGRAPHY EDUCATION MS
(DISCIPLINE-BASED)

(Thesis Plan - 30 credits)

(Alternate Plan Paper - 34 credits)

COURSE DESCRIPTIONS

GEOG 509 (1-4) Selected Topics
The instructor will develop a specific course on a geographic topic, such as soils, landforms, water resources, energy, housing, population geography, or some other topic for the class.

GEOG 510 (3) Climatic Environments
A qualitative regional climatology of the world, including the Pleistocene Ice Ages and urban impacts upon climate. Emphasis is on the characteristics of particular climates and understanding the factors that control their spatial distribution. Prerequisite: GEOG 101 or con

GEOG 512 (4) Advanced Weather
Meteorological principles and theory are applied to the analysis and interpretation of weather data in order to better understand the structure and evolution of synoptic-scale weather systems. Basic knowledge of mathematics will be assumed. Prerequisite: GEOG 317

GEOG 514 (3) Biogeography
This course involves the global distribution of plants and animals, with emphasis
on natural and human induced causes of this distribution. The role of humans in the endangerment and extinction of species and conservation of vital habitats are also discussed.

GEOG 520 (3) Conservation of Natural Resources
Survey of natural resources emphasizing energy, metallic, fisheries, and water resources. Also addresses timber, wetlands, and wildlife on public and private lands.

GEOG 525 (3) Economic Geography
Examines national and international economic geographical order and trade activities. Topics include economic development, competition, and impacts on the environment and people.

GEOG 530 (3) Historical Geography: The U.S.
The evolving patterns of settlement, cultures, landscapes, and economies of the United States from the colonial period to 1990. An introduction to historical geography as a subfield of geography, including career opportunities in related professions.

GEOG 535 (3) Urban Geography
Hypotheses and generalization related to urban functions, structure, land use, distribution, growth, and decline. Emphasis will be mostly on the United States' urban places.

GEOG 536 (2) Rural Development
Introduction to theoretical frameworks for analyzing processes of economic, environmental, and social change in rural regions. Includes basic and advanced geographical principles and techniques for studying non-urban areas. Designed to equip students with the knowledge and skills necessary for carrying out research projects on rural environments.

GEOG 537 (3) Political Geography
Spatial problems and structure of governments, focusing on countries of the world. Covers such topics as boundary problems, strategic locations, and geopolitical explanations of international relations and conflict.

GEOG 538 (3) Social Geography

GEOG 540 (1-4) Field Studies
Various excursions to study physical and cultural landscapes inside and outside Minnesota.

GEOG 545 (3) Latin America
Regional geography covering the ecological and human environment of Central and South America and the Caribbean. Students can pick specific topics to study in detail. The geographic relations between the USA and Latin America are also covered.

GEOG 546 (3) Canada
Students will develop a knowledge of the environmental, cultural, historical, and economic geographies of Canada. Readings of best-selling fiction and scholarly works written by Canadians will provide a Canadian perspective on the nation's past, present, and future.

GEOG 550 (3) Europe
Cultural, environmental, and economic background of Europe west of the former USSR. Following a general geographic survey, the course will cover major regions and countries.

GEOG 554 (3) Russian Realm
Survey of the area of the former Soviet Union. Examines regional patterns of the physical environment, natural resources, population distribution, cities, and economic activity. Relates people to the land.

GEOG 556 (3) Africa
A survey of the physical and cultural resources and economic development of the continent with emphasis on current problems. Topics discussed will focus on Africa south of the Sahara.

Prerequisite: Jr. or Sr. status

GEOG 558 (3) Geography of East Asia
Examines the physical and human environments of eastern Asia, mainly China, Korea, and Japan. The class will be assisted by visual sources and hands-on use of primary documents.

GEOG 564 (4) Teaching Earth Science
An applied course tailored to meet practical needs of a teacher, related to curriculum development and earth science lab equipment and supplies.

GEOG 571 (4) Digital Field Mapping with GPS
This course will cover basic strategies for conducting field surveys and gathering from the real world data appropriate to mapping the earth's surface. Emphasis will be upon simple but reliable techniques, ranging from compass-and-pacing to global positioning systems (GPS).

Prerequisite: GEOG 101 or 470/570

GEOG 573 (4) Geographic Information Systems
Comprehensive examination of computer-assisted systems for manipulation and analysis of spatially-referenced data, including data structure and organization, input and output problems, data management, and strategies for analytical work.

Prerequisite: GEOG 373

GEOG 574 (4) Introduction to Remote Sensing
This is an introductory course on theories and techniques of remote sensing. Focus will be placed on providing students with a general overview of the application of remote sensing to practical problems, and hands-on experience for image processing and analysis.

GEOG 575 (4) Advanced Remote Sensing
This course provides students an opportunity to develop further knowledge of remote sensing. Emphasis will be placed on introducing advanced theories and techniques for digital image processing and helping students obtain independent research skills using remote sensing data.

GEOG 576 (3) Spatial Statistics
Descriptive statistics, probability, hypothesis testing, introduction to non-parametric statistics, correlation, introduction to regression analysis, spatial statistics and principles of data representation in graphs, tables and statistical results.

GEOG 577 (1-3) Topics in Techniques
This offering will include a variety of selected technical topics in geography, including (but not limited to) manual cartographic drafting and negative scribbing, photomechanical techniques in production cartography, aerial photo interpretation, and advanced coverage of digital analysis of satellite-derived remote sensor data and global positioning systems.

Prerequisite: permission of instructor

GEOG 578 (3) Spatial Analysis
Survey of theoretical frameworks for spatial analysis and geographic quantitative methods. Includes basic and advanced spatial analysis principles and methods for studying and examining spatial patterns. Designed to equip students with the knowledge and skills necessary for carrying out research projects that demand spatial point pattern analysis and analysis of areal units.

GEOG 579 (1-3) GIS Practicum
This offering will include supervised project work in raster-based and/or vector-based GIS, using problems and data drawn from local or regional agencies or other professional-level organizations with whom the Geography Department maintains a relationship. Students must have completed one of the prerequisite courses, or a course or professional-level experience.

Prerequisite: GEOG 373, or GEOG 473/573, or permission of instructor

GEOG 580 (1-4) Seminar
Topics vary in physical, cultural, economic, political, and historical geography, as well as environmental conservation and geographic techniques.

GEOG 597 (1-10) Internship
An applied work and learning experience. The student will provide a written intern-ship report on professional practicum and the work supervisor will be consulted on how much the student has accomplished.

Prerequisite: permission required
GEOG 609 (1-3) Selected Topics
The instructor will develop a specific course on a geographic topic (landforms, soils, waters, natural resources, cities, agriculture, or any other topic of a geographic nature.

GEOG 610 (1-4) Issues in Physical Geography
Discussion and analysis of contemporary issues in the field of physical geography. Designed to allow in-depth focus on current problems/issues that geographers will encounter in their professional practice. Topics vary according to instructor.

GEOG 620 (1-4) Issues in Cultural Geography
Discussion and analysis of contemporary issues in the field of cultural geography. Designed to allow in-depth focus on current problems/issues that geographers will encounter in their professional practice. Topics vary according to instructor.

GEOG 650 (1-4) Issues in Regional Geography
Discussion and analysis of contemporary issues in the field of regional geography. Designed to allow in-depth focus on current problems/issues that geographers will encounter in their professional practice. Topics vary according to instructor.

GEOG 670 (1-4) Issues in Geographic Techniques
Discussion and analysis of contemporary issues in the field of Geographic Techniques. Designed to allow in-depth focus on current problems/issues that geographers will encounter in their professional practice. Topics vary according to instructor.

GEOG 673 (3) GIS for Planners
To introduce URSI and Park and Rec. graduate students to geographical analysis in urban and regional planning through the use of GIS technology, particularly Arc/Info. Students will be introduced to various urban planning projects taking place in various local agencies.

GEOG 677 (1-4) Individual Study
A study assignment for a student to meet specific objectives for the student’s needs. It could be a term paper, readings, reports, field report, or mapping project.
Prerequisite: permission of instructor

GEOG 678 (3) Geographic Research & Writing
Required of MS professional degree candidates. To acquaint students with the geographer’s perspective and methods of inquiry; to examine types of geographic research; to develop student’s ability in producing research papers; to give students experience in writing research papers and to provide students experience in professional oral presentation.

GEOG 680 (3) Philosophy of Geography
The history and development of geographic thought from ancient times to the late 20th century.

GEOG 681 (3) Environmental Issues
This course surveys various environmental issues within the United States with an emphasis on state and federal legislation and policies. The forces prompting environmental legislation, its subsequent implementation and modification by the courts, and various perspectives about the problems, their possible solutions, and the assessment of current efforts are discussed.

GEOG 690 (1-4) Topics in Meteorology/Climatology
The focus of this/these course(s) will be on Meteorology/Climatology. This course may be repeated up to three times.

GEOG 694 (1-2) Alternate Plan Paper
Student culminating experience in lieu of a thesis.

GEOG 698 (1-6) Internship
An applied work and learning practicum. The student will provide a written report on his/her own learning. The work supervisor will be consulted regarding students’ accomplishments.

GEOG 699 (1-6) Thesis
A culminating project related to basic or applied research.