College of Science

Geographic and Cartographic Sciences, MS

Geographic Information Science Certificate (GIScience)

Department of Geography

geog.gmu.edu

Department of Geography Profile

The George Mason University Department of Geography graduate programs offer a master's of science degree in geographic and cartographic sciences and a graduate certificate in geographic information science (GIScience). The department also participates in interdisciplinary doctoral programs at Mason, including the PhD in environmental science and policy, the PhD in computational social science, the PhD in public policy, and the PhD in Earth systems and geoinformation sciences. The departmental programs focus on applied geography and the spatial, or mapping, sciences. The majority of courses support various aspects of geographic information science, including cartography, geographic information systems (GIS), remote sensing, spatial modeling, and quantitative methods. Students may prepare for further study or a variety of careers in geography and the spatial sciences with government agencies or private corporations.

The Department of Geography has associations with the vast cartographic and geographic resources of the metropolitan Washington, D.C., area. Many of the program's lecturers and students come from federal agencies and private industry, including the U.S. Geological Survey, the National Geospatial-Intelligence Agency, the Central Intelligence Agency, the U.S. Army Engineer Topographic Laboratories, the U.S. Department of Agriculture, the State Department, the Bureau of the Census, the Library of Congress, ESRI, MITRE, SAIC, Earth Satellite Corporation, and TASC.

Faculty

Allan Falconer (University of Durham), Chair—geomorphology, GIS, remote sensing, ecological and environmental mapping

Full-time Faculty

Patricia Boudinot (University of Nice)—human geography, European Union

Barry Haack (University of Michigan)—physical geography, remote sensing, resource assessment, environmental studies, developing countries

Jill Hallden-Harsha (Michigan State University)—geographic visualization, cartography

Barry Kronenfeld (SUNY at Buffalo)—environmental modeling, cartography, boundary generalization, spatial cognition

Jean A. Pilon (Université de Montréal)—physical geography, arctic landscapes, environmental studies, ground-penetrating radar

William Roper (Michigan State University)—environmental engineering, risk assessment, remote sensing and sensor systems, geospatial information

Burl Self (Oklahoma State University), Native American studies, Middle Eastern studies, planning and urban studies

Nigel Waters (University of Western Ontario)—transportation GIS; traffic safety; web-based GIS; GIS and the Sloan Digital Sky Survey; GIS and sustainability; medical applications of GIS; GIS, the media, and democracy; networks

Ed Zolnik (University of Connecticut)—economic, transportation, urban geography

Systems/Support

Na Liu (University of South Carolina), Geographic Systems Laboratory Manager

Affiliated Faculty

Claudio Cioffi-Revilla (University of Florence and SUNY), Director, Center for Social Complexity—conflict analysis and research methods, computational social science, modeling, and simulation

Kingsley E. Haynes (Johns Hopkins University), Professor and Dean, School of Public Policy—resources and environmental management, urban and economic geography

Sheryl Luzzadder Beach (University of Minnesota), School of Computational Sciences—physical geography, hydrology, ground water, geostatistics, geoarchaeology

Dawn Parker (University of California, Davis)—environmental and resource economics, agent-based modeling and land-use modeling

Adjunct Faculty (partial listing)

C. Scott Allen—GIS, remote sensing, hyperspectral, radar, mapping

Lee DeCola, U.S. Geological Survey

Francis H. Dillon III—political geography, agriculture, military geography

Charles A. Grymes—environmental science

Timothy Hosek—radar remote sensing, remote sensing, data synthesis and analysis, knowledge engineering

Susan Jampoler—GIS

Philip M. Mobley—cartography

Paul H. Salamonowicz—photogrammetry, global positioning systems

Foudan Salem—regional issues (Middle East), remote sensing

Sindi Sheers—human and cultural geography

Scott T. Shipley, Technology Inc.—Earth resources

Ian Ward—world regions, Latin America

Douglas J. Wheeler—environmental modeling, GIS

Jeffery Zinn—environmental management

Contact Information

Applications may be obtained online at *admissions.gmu.edu* or from the College of Science Graduate Admissions Office.

Graduate Admissions
College of Science
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Contact: Jennifer Maloney

GEORGE MASON UNIVERSITY

cos.gmu.edu

Programs

Master's of Science in Geographic and Cartographic Sciences

The master's of science in geographic and cartographic sciences at Mason focuses on techniques of compilation, display, and analysis of spatial data. The program's objective is to produce geographers with a solid understanding of the techniques of spatial data and the ability to apply those techniques to a variety of issues. The MS program offers two options: 36 credit hours and a comprehensive examination, or 24 credit hours and a thesis. Courses from other departments and other universities may be applied to the program with prior approval. Students may select internships as part of their program. Program graduates have proceeded to positions in government and industry and doctoral-level work.

Graduate Certificate in Geographic Information Science (GIScience)

The GIScience Graduate Certificate is designed to help students pursue careers in the rapidly expanding opportunities in the geospatial and mapping sciences. The certificate requires 15 credit hours (five courses). Three courses are required, and two are electives. Courses taken for the GIScience Certificate may be applied to the departmental master's degree.

Commonly Offered Graduate Courses

Graduate courses are generally held one evening per week, Monday through Thursday, from either 4:30 to 7:10 p.m. or 7:20 to 10 p.m. The following courses are regularly offered (descriptions of all courses can be found in the *University Catalog*:

GEOG 503 Problems in Environmental Management
GEOG 505 Transportation Geography
GEOG 525 Economics of Human/Environment Interactions
GEOG 531 Land-Use Modeling Techniques and Applications
GEOG 540 Medical Geography
GEOG 550 Geospatial Science Fundamentals
GEOG 551 Thematic Cartography
GEOG 553 Geographic Information Systems
GEOG 562 Photogrammetry
GEOG 563 Advanced Geographic Information Systems
GEOG 570 The Hydrosphere
GEOG 579 Remote Sensing
GEOG 580 Digital Remote Sensing
GEOG 581 World Food and Population
GEOG 585 Quantitative Methods
GEOG 631 Spatial Agent-Based Models of Human–Environment Interactions
GEOG 653 Geographic Information Analysis
GEOG 655 Map Design
GEOG 656 Terrain Mapping
GEOG 661 Map Projections and Coordinate Systems
GEOG 664 Spatial Data Structures
GEOG 680 Seminar in Thought and Methodology

Research Facilities

The department's laboratories house SUN workstations, PCs, and Macs with multiple input and output devices to support ARCGIS, ARCMAP, ARCVIEW, IDRISI, ERDAS, and other cartography; GIS; and image-processing software packages. In addition, the department houses an extensive collection of spatial data in different formats. Enriching the program is a network of alumni, students, guest lecturers, and adjunct faculty who work in geography-related organizations in the greater Washington, D.C., area. Specialized instructional space for geographic information science is housed in Innovation Hall on the Fairfax Campus. The department also is home to the Center of Excellence in GIS, which is, in part, assisted by a memorandum of understanding with ESRI.

Financial Assistance

For information on graduate assistantships or fellowships, please contact the department. For information on other forms of financial aid and loan programs, contact the Office of Student Financial Aid at 703-993-2353 or apollo.gmu.edu/finaid.

Why Study Geography at George Mason University?

Located 16 miles west of Washington, D.C., in Fairfax County, Virginia, the university during the regular academic year serves a student population of about 30,000, of which about 10,000 are graduate students.

Students at the university benefit from the research and cultural resources of the metropolitan Washington area. Many general and special libraries, including the Library of Congress and the libraries of the U.S. Geological Survey, the State Department, the U.S. Department of Agriculture, the Organization of American States, the Bureau of the Census, the European Economic Community, and the National Archives are available as local resources for Mason geography students.

The Washington metropolitan region has the largest concentration of professional geographers in the United States and possibly the world. Many of our graduate students currently work as professionals in the geospatial sciences; others are planning careers in the discipline. Many federal agencies have geographic interests, such as the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Department of Agriculture, the Central Intelligence Agency, and the National Geospatial-Intelligence Agency. In addition, there are many GIS and geography-related positions with state, county, and city agencies. Numerous private firms hire our graduates to support these different levels of government, and there are environmental and international development firms in the region that employ geographers. The Department of Geography web site has extensive information on many of the regional organizations that employ our graduates. Our students may also choose to further their graduate studies at Mason or other universities.