

GEOGRAPHIC AND CARTOGRAPHIC SCIENCES, MS

Banner Code: SC-MS-GECA

Academic Advising

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The Geographic and Cartographic Sciences, MS (GECA) focuses on the growing demand for scientists and professionals in the field of geographic information science, who use geographical approaches and tools such as geographic information systems (GIS), remote sensing, cartography, and geovisualization to address and solve geographic problems. This expertise is useful to a wide variety of employers in the federal, state, and local government sectors, as well as in business, industry, and non-profit organizations. The degree's coursework concentrates on the collection, analysis, and display of geographic data, in concert with the use of emerging geospatial technologies to address problems in the human and environmental geographic domains. Students in this program benefit from a large and diverse local employment market, as well as a network of more than 700 program alumni (1978-present) who live and work in the local area.

Research Facilities

The Department of Geography and Geoinformation Science has extensive research and teaching facilities, including several labs equipped with GIS, remote sensing, cartographic, and analytical software from leading industry vendors and open source groups. Specialized instructional space for geographic information science is housed in newly renovated labs in Exploratory Hall on the Fairfax Campus.

Admissions & Policies

Admissions

University-wide admissions policies can be found in Graduate Admissions Policies.

To apply for this program, please complete the George Mason University Admissions Application (<https://www2.gmu.edu/admissions-aid/apply-now>).

Eligibility and Application Requirements

Applicants for this master's should have a bachelor's degree in geography, cartography, or a closely related field. Applicants without an undergraduate degree in geography may be required to take one course in each of the following: physical geography, human geography, and cartography. All applicants must have a course in statistics. The program also requires GRE test scores, three letters of recommendation, transcripts of all college coursework, and a statement of interest in the degree. The GRE requirement will be waived if the student holds a master's degree from a regionally-accredited U.S. institution. TOEFL scores are required for all foreign applicants. Credit from courses taken at

other departments and other universities may be applied to the program with prior approval.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies

Secondary Program Options

Students enrolled in this master's program have the option of adding a secondary graduate certificate program. Depending upon the secondary program chosen, many courses may be applicable to both the certificate and the master's. Before adding a secondary program, students are advised to carefully review the Requirements for Graduate Certificates and the Requirements for Master's Degrees in AP.6 Graduate Policies. Faculty advisors should be contacted for further guidance and for graduate certificate program suggestions.

Requirements

Degree Requirements

Total credits: 30 or 37

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Students must complete either 30 graduate credits (with a thesis) or 37 graduate credits (without a thesis). If the non-thesis option is selected, students are required to pass a comprehensive exam.

Core Courses

Code	Title	Credits
GGG 553	Geographic Information Systems	3
GGG 560	Quantitative Methods	3
GGG 579	Remote Sensing	3
GGG 689	Seminar in Geographic Thought and Methodology	3
Total Credits		12

Thesis or Non-thesis Options

Thesis Option

Students selecting the thesis option must complete:

Code	Title	Credits
Three credits of		3
GGG 799	Thesis	
Select 15 credits of electives in 500 to 799-level GGS courses. ¹		15
Total Credits		18

¹ Electives should be selected in consultation with an advisor. With departmental approval, up to 9 credits from closely related disciplines may be applied to the degree.

Non-thesis Option

Students selecting the non-thesis option must complete:

Code	Title	Credits
GGG 700	Comprehensive Exam (1 credit)	1
Select 24 credits of electives in 500 to 799-level GGS courses. ¹		24
Total Credits		25

¹ Electives should be selected in consultation with an advisor. With departmental approval, up to 9 credits from closely related disciplines may be applied to the degree.

Accelerated Master's

Geography, BA/Geographic and Cartographic Sciences, Accelerated MS Overview

Offered by the Department of Geography and Geoinformation Sciences (GGS) in the College of Science, this bachelor's/accelerated master's degree program enables highly qualified undergraduates to obtain the Geography, BA and the Geographic and Cartographic Sciences, MS (<https://catalog.gmu.edu/colleges-schools/science/geography-geoinformation-science/geographic-cartographic-sciences-ms>) degrees within an accelerated timeframe. The program strategy enables students to undertake graduate coursework during their final year in the bachelor's degree. This 144 credit program (thesis option) or 151 credit program (comprehensive exam option) prepares students for professional careers where geoinformation management, geographic analysis, and geospatial visualization are of importance.

Students in this accelerated degree program must fulfill all university requirements for the Geography, BA and the Geographic and Cartographic Sciences, MS (<https://catalog.gmu.edu/colleges-schools/science/geography-geoinformation-science/geographic-cartographic-sciences-ms>). While the information below is largely comprehensive, students are strongly encouraged to also review AP.6.7 Bachelor's/Accelerated Master's Degrees.

Application Requirements

Students with an overall GPA of at least 3.0 may apply for provisional acceptance into this accelerated master's program after completing at least 90 undergraduate credits. Additionally, they must have completed the following courses with a GPA of 3.0 or better: GGS 102 Physical Geography (Mason Core) or GGS 121 Dynamic Atmosphere and Hydrosphere (Mason Core) or GGS 122 Dynamic Geosphere and Ecosphere, GGS 103 Human Geography (Mason Core), GGS 110 Introduction to Geoinformation Technologies, GGS 300 Quantitative Methods for Geographical Analysis, GGS 310 Introduction to Digital Cartography, and GGS 311 Introduction to Geographic Information Systems.

Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Admissions section of this catalog. However, this accelerated master's does not require GRE test scores.

While being undergraduate students, accelerated master's students must complete the two graduate courses indicated on their Accelerated Master's Program Application (obtained from the Office of Academic and Student Affairs) with a minimum grade of 3.0 in each course. They must

maintain a minimum GPA of 3.0 in all coursework and in coursework applied to their major.

At the beginning of their final undergraduate semester, they must submit the Bachelor's/Accelerated Master's Transition Form (found on the Office of the University Registrar website). Students must begin their master's program in the semester immediately following the term of undergraduate degree conferral. Students should consult with their faculty advisor in the Department of Geography and Geoinformation Science and the Office of Academic and Student Affairs to obtain further guidance.

Accelerated Option Requirements

Students admitted to this program may start taking graduate courses after completing 90 undergraduate credits. Up to 6 credits of graduate coursework may be applied to both undergraduate degree and the master's degree. If students earn at least a 3.0 in these classes, they are granted advanced standing in the master's program and must then complete 24 (thesis option) or 31 (comprehensive exam option) additional credits to receive the master's degree. All other master's degree requirements must be met.

Reserve Graduate Credit

During the bachelor's degree status, students may take up to 6 graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree, but will reduce the subsequent master's degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, the master's degree can be completed with 18 (thesis option) or 25 (comprehensive exam option) graduate credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. To apply the reserved credits to the master's degree, students must request their transfer from the undergraduate degree to the graduate degree via the Bachelor's/Accelerated Master's Transition Form found on the Office of the University Registrar website.

Geography, BS/Geographic and Cartographic Sciences, Accelerated MS Overview

Offered by the Department of Geography and Geoinformation Sciences (GGS) in the College of Science, this bachelor's/accelerated master's degree program enables highly qualified undergraduates to obtain the Geography, BS and the Geographic and Cartographic Sciences, MS degrees within an accelerated timeframe. The program strategy enables students to undertake graduate coursework during their final year in the bachelor's degree. This 144 credit program (thesis option) or 151 credit program (comprehensive exam option) prepares students for professional careers where geoinformation management, geographic analysis, and geospatial visualization are of importance.

Students in this accelerated degree program must fulfill all university requirements for the Geography, BS and the Geographic and Cartographic Sciences, MS. While the information below is largely comprehensive, students are strongly encouraged to also review AP.6.7 Bachelor's/Accelerated Master's Degrees.

Application Requirements

Students with an overall GPA of at least 3.0 may apply for provisional acceptance into this accelerated master's program after completing at least 90 undergraduate credits. Additionally, they must have completed the following courses with a GPA of 3.0 or better: GGS 102

Physical Geography (Mason Core) or GGS 121 Dynamic Atmosphere and Hydrosphere (Mason Core) or GGS 122 Dynamic Geosphere and Ecosphere, GGS 103 Human Geography (Mason Core), GGS 110 Introduction to Geoinformation Technologies, GGS 300 Quantitative Methods for Geographical Analysis, GGS 310 Introduction to Digital Cartography, GGS 311 Introduction to Geographic Information Systems, GGS 412 Air Photography Interpretation, MATH 113 Analytic Geometry and Calculus I (Mason Core), and MATH 114 Analytic Geometry and Calculus II or IT 207 Applied IT Programming or STAT 250 Introductory Statistics I (Mason Core) .

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