

GEOINFORMATICS AND GEOSPATIAL INTELLIGENCE, MS

Banner Code: SC-MS-GEOI

Academic Advising

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The program addresses the emerging demand for scientists trained in the collection, organization, analysis, and dissemination of information about physical features, man-made structures, moving objects, people, and events that are geo-referenced or geo-located. This program focuses primarily on the computational approaches that support the synthesis and analysis of diverse types of data in order to identify and monitor complex events and phenomena that manifest over space and time. While geospatial intelligence has a strong Department of Defense connotation, the principles behind it have a significant dual use potential, addressing the needs of a broader audience, ranging for example from intelligent navigation in urban spaces to emergency response systems for natural and man-made disasters.

The MS is designed to expose students to fundamental theoretical principles and practical applications involving:

- Geographic Information Science
- Digital image analysis as it applies to geoinformatics and geospatial intelligence
- Computational principles for geoinformatics and intelligence

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 hold a BA or BS degree in a discipline related to the program's theme from a regionally accredited university, with a minimum GPA of 3.00, including courses in differential and integral calculus. A working knowledge of a computer programming language is a plus. When the background of an individual student does not meet the program's requirements, remedial or preparatory courses tailored to student's needs may be recommended. To apply, prospective students should complete the George Mason University Admissions Application (<https://www2.gmu.edu/admissions-aid/apply-now>). Official transcripts from each college and graduate institution attended, a current résumé, and a goals statement will be required.

Applicants will also need three letters of recommendation and an official report of scores obtained on the GRE-GEN. The GRE requirement for

admission may be waived if the student holds a master's degree from a regionally accredited US institution. TOEFL scores are required of all international applicants.

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 AP.6.8 Requirements for Graduate Certificates and AP.6.9 Requirements for Master's Degrees. Faculty advisors should be contacted for further guidance and for graduate certificate program suggestions.

Requirements

Degree Requirements

Total credits: 33

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

Core Courses

Code	Title	Credits
GG5 550	Geospatial Science Fundamentals	3
GG5 553	Geographic Information Systems	3
GG5 664	Spatial Data Structures	3
GG5 684	Selected Topics in Geospatial Intelligence	3
GG5 685	Capstone Course in Geoinformatics	3
GG5 680	Earth Image Processing	3
GG5 787	Scientific Data Mining for Geoinformatics	3
Total Credits		21

Thesis

Code	Title	Credits
GG5 799	Thesis	3
Total Credits		3

Electives

Code	Title	Credits
Select three courses from the groups below (course selections must also be approved by the program coordinator), with no more than two from a single group (i.e. courses are taken from at least two groups):		9

Image Analysis:

GG5 562	Photogrammetry	
GG5 579	Remote Sensing	
GG5 740	Hyperspectral Imaging Systems	
GG5 760	Advanced Topics in Remote Sensing	
GG5 840	Hyperspectral Imaging Applications	

Geographic Information Science:	
GGG 563	Advanced Geographic Information Systems
GGG 653	Geographic Information Analysis
GGG 675	Location Science
GGG 772	Cloud Geographic Information Systems
GGG 791	Advanced Spatial Statistics
Computational Geoinformatics:	
GGG 650	Introduction to GIS Algorithms and Programming
GGG 671	Algorithms and Modeling in GIS
GGG 692	Web-based Geographic Information Systems
GGG 754	Earth Science Data and Advanced Data Analysis
GGG 773	Interoperability of Geographic Information Systems
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Total Credits	9

Accelerated Master's

Geography, BS/Geoinformatics and Geospatial Intelligence, Accelerated MS Overview

Offered by the Department of Geography and Geoinformation Sciences (GGG) in the College of Science, this bachelor's/accelerated master's degree program enables highly qualified undergraduates to obtain the Geography, BS and the Geoinformatics and Geospatial Intelligence, 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 147 credit program prepares students for professional careers where geoinformation management, geographic analysis, and geointelligence and geovisualization are of importance.

Students in this accelerated degree program must fulfill all university requirements for the Geography, BS and the Geoinformatics and Geospatial Intelligence, 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), 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).

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 the 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 27 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 21 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.