

GEOSPATIAL ANALYSIS

Degree: B.A., Geography

Department of Geography (<https://cas.umw.edu/geography/>)

The Geography Department hosts two majors and a certificate in Geographic Information Science. Majors in Geography and in Geospatial Analysis both lead to the Bachelor of Arts degree in Geography.

Geography is the study of the interaction between people and their environments, both natural and human. Geographers examine the places and regions resulting from such interaction and analyze the spatial characteristics of all manner of cultural, economic, political, and physical processes and relationships. Students in the Geospatial Analysis major take foundational thematic geography courses, and specialize in geospatial technologies.

Geospatial Analysis majors may study geographic information systems, spatial analysis, remote sensing, the global positioning system, web-GIS and GIS programming. Students will tailor their interests in geospatial technologies to one or more areas in geography, such as planning, economic development, or environmental studies. Majors are also encouraged to engage in internships, study abroad programs, and undergraduate research.

Facilities for geographic studies at Mary Washington include well-equipped laboratories for the study and practice of physical geography, GIS, cartography, and remote sensing. The department hosts a chapter of Gamma Theta Upsilon, the International Geography Honorary Society.

During the senior year qualified students may pursue Honors in Geography by completing an independent research project and writing and defending a thesis.

The knowledge and skills gained by majoring in Geospatial Analysis position graduates for careers as geospatial specialists in a variety of fields, including government agencies and private businesses, research institutions and health organizations, planning agencies and non-profit institutions.

Student Learning Outcomes

1. Students will understand the key concepts within the integrated discipline of geography.
2. Students will read, interpret, and critique a map.
3. Students will identify, understand, and critique spatial data or evidence, whether qualitative, quantitative, or cartographic.
4. Students will apply a suitable geographical approach, technique, or method within a research project.
5. Students will identify personal strengths and areas of expertise within geography.

A minimum of 41-43 credits in Geography, Geographic Information Science, and related fields.

Code	Title	Credits
Core Requirements		21
GEOG 102	Introduction to Human Geography	
GEOG 111	Landform Processes	
GEOG 245	Environment and Society	

or GEOG 240 Hazards and Resilience	
GISC 250	Introduction to Geographic Information Systems and Cartography
or GISC 200 Introduction to GIS	
GISC 351	Spatial Analysis
GEOG 490	Senior Seminar in Geography
Foundation (choose one)	
3	
CPSC 110	Introduction to Computer Science
DATA 101	Introduction to Data Science
GEOG 252	Quantitative Methods in Geography
GIS Electives	
11-12	
Take 11-12 credits of the following	
GISC 340	Remote Sensing and Air Photo Interpretation
GISC 355	Mobile Geographic Information Systems and Global Positioning Systems
GISC 450	GIS Programming
GISC 471	Special Topics
GISC 482	Web GIS: Concepts and Applications
GISC 491	Directed Study in GIS
GISC 499	GIS Internship
Geography Electives	
6-7	
Take two GEOG classes, at least one at 300- or 400-level ¹	
Total Credits	
41-43	

Certificate in Geographic Information Science can be found by using this link (<https://catalog.umw.edu/undergraduate/minors/geographic-information-science-certificate/>).

General Education Requirements

The general education requirements for Bachelor of Arts/Bachelor of Science degrees (<https://catalog.umw.edu/undergraduate/general-education/requirements-bachelor-arts-bachelor-science-degrees/>) apply to all students who are seeking to earn an undergraduate B.A., B.S. or B.S.Ed. degree.

Students seeking a Bachelor of Liberal Studies degree have a separate set of BLS general education requirements (<https://catalog.umw.edu/undergraduate/general-education/requirements-bachelor-liberal-studies-degrees/>).

Electives

Elective courses are those that are not needed to fulfill a general education requirement or major program requirement but are chosen by the student to complete the 120 credits required for graduation with a B.A./B.S./B.S.Ed. degree or the BLS degree. These courses may be taken graded or pass/fail (or S/U in the case of physical education and 100-level dance). No student in a regular B.A./B.S./B.S.Ed. program may count more than 60 credits in a single discipline toward the 120 credits required for graduation.

Total Credits Required for the Degree: 120 credits

Plan of Study

This suggested plan of study should serve as a guide to assist students when planning their course selections. It is not a substitute for a student's Degree Evaluation or the Program Requirements listed for this

major in the catalog. Academic planning is the student's responsibility, and course selections should be finalized only after speaking with an advisor. Students should familiarize themselves with the catalog in effect at the time they matriculated at the University of Mary Washington. Students should also familiarize themselves with general education requirements (<https://catalog.umw.edu/undergraduate/general-education/>) which can be fulfilled through general electives as well as major/minor course requirements. Course requirements and sequencing may vary with AP, IB, CLEP, Cambridge or previous coursework, transfer courses, or other conditions. To be considered full-time, an undergraduate student must be enrolled in 12 or more credits for the semester.

Course	Title	Credits
Freshman		
Fall		
FSEM 100	First-Year Seminar	3
GEOG 102	Introduction to Human Geography	3
General Education Courses		9
Credits		15
Spring		
GISC 250 or GISC 200	Introduction to Geographic Information Systems and Cartography or Introduction to GIS	4
General Education Courses		12
Credits		16
Sophomore		
Fall		
GISC 351	Spatial Analysis	4
Breadth Requirement (Society & Politics)		3
General Education Courses or Electives		9
Credits		16
Spring		
DATA 101 or CPSC 106 or GEOG 252	Introduction to Data Science or Digital Storytelling or Quantitative Methods in Geography	3
GEOG 111	Landform Processes	4
Breadth Requirement (Environment)		3-4
General Education Courses or Electives		4
Credits		14-15
Junior		
Fall		
Upper Level GISC Requirement		4
Breadth Requirement (Culture)		3
General Education Courses or Electives		9
Credits		16
Spring		
Upper Level GISC Requirement		4
General Electives		9
Credits		13
Senior		
Fall		
GEOG 490	Senior Seminar in Geography	3
General Electives		12
Credits		15
Spring		
Upper Level GEOG Requirement		3
General Electives		12
Credits		15
Total Credits		120-121

Dawn S. Bowen, Career Advisor

Professors

Dawn S. Bowen
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Associate Professors

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Geography Faculty

Melina A. Patterson, Chair