

GEOGRAPHIC INFORMATION SYSTEMS

Degree Requirements

Master of Geographic Information Systems (M.G.I.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students earn the M.G.I.S. degree by successfully completing 33 credits of course work, including a supervised culminating project. Course requirements include a minimum of 18 credits at the 500 or 800 level, with at least 6 credits at the 500 level.

The culminating experience for the degree is an independent project completed while enrolled in GEOG 870. The independent project completed in GEOG 870 demonstrates the student's ability to apply advanced knowledge and skills related to geographic information systems in a way that makes a substantial contribution to their professional work. The culminating experience will include a formal presentation and scholarly paper.

Code	Title	Credits
Required Courses		
GEOG 482 or GEOG 581	Making Maps That Matter With GIS Spatial Data Science Ethics	3
GEOG 483	Problem-Solving with GIS	3
GEOG 484	GIS Database Development	3
GEOG 583	Geospatial System Analysis and Design	3
GEOG 871	Geospatial Technology Project Management	3
GEOG 586	Geographical Information Analysis	3
Electives		12
Culminating Experience		
GEOG 870	Capstone in Geographic Information Systems	3
Total Credits		33

In lieu of specified prescribed and elective courses, M.G.I.S. students may elect to substitute those for courses that comprise an option. There are two option choices: Geospatial Intelligence Option (15 credits) and Geodesign Option (12 credits).

Geospatial Intelligence Option

M.G.I.S. students who choose to complete the Geospatial Intelligence Option may substitute the 15 credits that comprise the option for 15 credits of prescribed and elective courses (including GEOG 482 or GEOG 864, GEOG 483, and GEOG 484). This option is designed for current or aspiring practitioners in government agencies, businesses, and non-governmental organizations that rely on insights produced through skillful, knowledgeable, and conscientious analysis of diverse geo-referenced data to plan for emergencies, to coordinate responses to natural and human induced disasters, to enforce the law, and to plan and conduct military operations.

Code	Title	Credits
Required Courses		
GEOG 583	Geospatial System Analysis and Design	3
GEOG 586	Geographical Information Analysis	3

GEOG 871	Geospatial Technology Project Management	3
Geospatial Intelligence Option Courses		
GEOG 571	Intelligence Analysis, Cultural Geography, and Homeland Security	3
GEOG 882	Geographic Foundations of Geospatial Intelligence	3
GEOG 883	Remote Sensing Image Analysis and Applications	3
GEOG 884	Spatial Data Science and Intelligence Analysis	3
GEOG 885	Analytical Methods and GeoAI in Geospatial Intelligence	3
Electives		6
Culminating Experience		
GEOG 870	Capstone in Geographic Information Systems	3
Total Credits		33

Geodesign Option

In lieu of 3 credits of a prescribed introductory course (GEOG 484) plus 9 additional elective credits, M.G.I.S. students may substitute 12 credits associated with courses that comprise the Geodesign Option. This option is designed for current or aspiring professionals in government agencies, businesses, and non-profit organizations who see limitations in current regional and urban planning and design approaches, and who seek a foundation in geospatially-based design through investigating the methods and collaborative nature of the Geodesign process.

Code	Title	Credits
Required Courses		
GEOG 482 or GEOG 581	Making Maps That Matter With GIS Spatial Data Science Ethics	3
GEOG 483	Problem-Solving with GIS	3
GEOG 583	Geospatial System Analysis and Design	3
GEOG 586	Geographical Information Analysis	3
GEOG 871	Geospatial Technology Project Management	3
Geodesign Option Courses		
GEOG 511	Geodesign History, Theory, Principles	3
GEOG 822	GeoDesign Models I: Evaluation and Decision	3
GEOG 487	Environmental Challenges in Spatial Data Science	3
GEOG 865	Cloud and Server GIS	3
Electives		3
Culminating Experience		
GEOG 870	Capstone in Geographic Information Systems	3
Total Credits		33