

GEOGRAPHIC INFORMATION SYSTEMS

Graduate Program Head	Anthony C. Robinson
Program Code	GIS
Campus(es)	World Campus (M.G.I.S.)
Degrees Conferred	Master of Geographic Information Systems (M.G.I.S.)
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=GIS)

The Master of Geographic Information Systems (M.G.I.S.) degree is awarded to students who demonstrate mastery of the technical competencies and leadership skills required to design, manage, and use geographic information technologies successfully in a wide range of professional fields. The M.G.I.S. program is intended specifically for working professionals who are able to participate only on a part-time basis and at a distance. It is offered exclusively through World Campus. The M.G.I.S. complements, but does not replace, the Department of Geography's research-focused Master of Science (M.S.) program, which is offered at the University Park campus. Students who expect to pursue the Ph.D. in Geography should apply for admission to the residential M.S. program.

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

Additional requirements imposed by the Department of Geography include:

- Statement of professional experience and goals including documentation of a minimum two years of professional experience, preferably (but not necessarily) related to geographic information technologies. A résumé may be attached as a supplement, but the statement itself should be an essay (two to three pages) that demonstrates the applicant's verbal communication skills;
- Three letters of recommendation that attest to the applicant's readiness for graduate study and that he or she has the requisite minimum of two years of professional experience;
- Official transcripts from all post-secondary institution attended (<http://www.gradschool.psu.edu/prospective-students/how-to-apply/new-applicants/requirements-for-graduate-admission/>), including the institution that conferred the applicant's baccalaureate degree (and any graduate degrees, if applicable).
- Official Graduate Records Examinations (GRE) score reported directly from the testing center to Penn State. GRE scores are required; however, this requirement may be waived at the discretion

of the program. Please contact the graduate program directly (info@gis.psu.edu) for information on obtaining a waiver of the GRE requirement.

Credits earned at other institutions but not used to earn a degree may be applied toward the requirements for a graduate degree, subject to restrictions outlined in GCAC-309 Transfer Credit. (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/transfer-credit/>)

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 36 credits of course work, including a supervised independent 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 596. A minimum of 6 credits and a maximum of 9 credits of GEOG 596 will count towards the degree. The independent project 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 his or her professional work. For most students, the project culminates in a formal public presentation, attended by a member of the Graduate Faculty associated with the M.G.I.S. program, which takes place at an appropriate professional conference. Alternative arrangements are made for students with special needs or constraints. For example, students who submit written reports of project aims and outcomes for publication in adviser-approved peer-reviewed journals are exempt from the public presentation requirement. Presentations and papers are preceded by dress rehearsals that are open to all students in the program through Web and audio conferencing. As part of his or her individual studies, every student is expected to contribute a formal peer review of one other student's rehearsal.

Code	Title	Credits
Required Courses		
GEOG 482 or GEOG 864	Making Maps That Matter With GIS Professionalism and Ethics in Geographic Information Science and Technology	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		12-15
Culminating Experience		
GEOG 596	Individual Studies	6-9
Total Credits		36

In lieu of specified prescribed and elective courses, MGIS 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	Advanced Analytic Methods in Geospatial Intelligence	3
Electives		3-6
Culminating Experience		
GEOG 596	Individual Studies	6-9
Total Credits		36

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 864	Making Maps That Matter With GIS Professionalism and Ethics in Geographic Information Science and Technology	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		
GEODZ 511	Geodesign History, Theory, Principles	3
GEODZ 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		0-3
Culminating Experience		

GEOG 596	Individual Studies	6-9
Total Credits		36

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>) and GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/>)
- GCAC-641 Minor - Research Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/>)
- GCAC-709 Minor - Professional Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/>)
- GCAC-741 Minor - Professional Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/>)

Student Aid

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section (<https://www.worldcampus.psu.edu/tuition-and-financial-aid/>) of the World Campus website for more information.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Geography (GEOG) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/geog/>)

Learning Outcomes

- Develop the technical and analytical competencies required to serve as leaders within private and public geospatial technology enterprises.
- Demonstrate effective design, management, and application of geographic information technologies to support complex problems solving.
- Combine prior knowledge and career experiences with technical competencies to become broadly-equipped geospatial technology practitioners.

Contact

Campus	World Campus
Graduate Program Head	Anthony C Robinson
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Anthony C Robinson
Program Contact	JULENE A. SANTIAGO John A. Dutton e-Education Institute 2217 EES University Park PA 16802 jas9616@psu.edu (814) 865-2557
Program Website	View (https://gis.e-education.psu.edu/mgis/)