Geographic Information Science and Technology (GIST) Concentration
Master of Science, Geography

The Geographic Information Science and Technology (GIST) concentration within the MS-Geography at the University of Massachusetts Amherst is an accelerated, one-year master's program designed to provide a solid foundation in geospatial and geographic knowledge, skills, and practices. Through rigorous coursework in geographic information systems/science (GIS), remote sensing (RS), computer science and programming, and spatial modeling, highly-motivated students and professionals who complete this degree will emerge from the program with applied experience and a broad GIS skillset applicable towards diverse professional opportunities. This MS concentration will provide students with a background in the science, techniques, and application of geospatial skills that will enable them to embark on public and private sector careers or to undertake further studies in geography, planning, public policy, ecology, environmental science and other fields.

In this one-year concentration, students will take courses in both the Fall and Spring semesters and complete a summer internship after coursework is complete. More details about program requirements are in the 'Curriculum Overview' on the reverse of this sheet.

Application Requirements: **The deadline for applications for admission in Spring 2021 is November 1st, 2020. The deadline for applications for admissions in Fall 2021 is March 1st, 2021.** Interested applicants should complete the application form on the University of Massachusetts Amherst graduate school webpage: http://www.umass.edu/gradschool/admissions.

Students applying for this degree must hold a baccalaureate degree earned in the United States or a comparable non-U.S. degree/diploma, and include with their application:

- A personal statement;
- All college/university transcripts;
- Two letters of recommendation;
- An application fee of $75 (waived for undergraduates currently enrolled at UMass)

Students applying from outside of the United States may be required to submit TOEFL scores as well. GRE scores are optional for this degree track.

Credit Transfers: Up to **nine** credits from previous coursework at UMass and/or **six** credits from another accredited institution (though no more than **12** credits total), may be transferred and applied to this degree, as long as those credits (1) were not used for any previous degree, (2) are appropriate to fulfill the MS degree requirements, and (3) conform to the Graduate School's regulations (see https://www.umass.edu/graduate/policies/handbook/education-records).

Financial Details: The approximate cost of the year-long program for Massachusetts' residents[1] is approximately $20,000 for 30 credit hours (~$17,000) plus mandatory fees (~$2,200). Students without health insurance would need to pay an additional ~$2,900 for health coverage. See the Graduate Student Fee Schedule: http://www.umass.edu/gradschool/funding-support/graduate-assistantship-office. Students in this one-year, intensive program are not eligible for department teaching assistantships.

Contact Information: For more information, please contact **Forrest J. Bowlick** at fbowlick@umass.edu

[1] For credit hours and mandatory fees, out-of-state residents pay ~$37,000.

GIST Concentration in MS Geography
Curriculum Overview

The coursework in the GIST concentration in MS Geography is structured with four areas of emphasis. To fulfil the course requirements, you will complete 30 hours of credits while satisfying all requirements listed below. Any courses previously taken to not need to be repeated. Instead, those credits become open electives. Please refer to the UMass catalog for more details on these courses.

I. Required Core Courses (4 courses required, 12 credits)

These courses establish fundamental concepts, theory, and practice in GIS.

Course Number	Course Title and Description	Term	Credits
GEOGRAPH 604	Geographic Theory and Analysis – Module 1	Fall	1
GEOGRAPH 593G	Introduction to GIS	Fall & Spring	4
GEOGRAPH 626	Remote Sensing and Image Interpretation	Fall	4
GEOGRAPH 668	GIS and Spatial Analysis	Spring	3

II. Core Course Electives (2 courses required, 6 credits)

These courses explore technical aspects of GIS, with focuses on growing areas of emphasis in GIS practice.

Course Number	Course Title and Description	Term	Credits
ECO 697DD	Spatial Database Management	Fall	3
GEOGRAPH 691P/ECO 697K	Programming in GIS	Fall & Spring	3
GEOGRAPH 693S	Spatial Decision Making and Support	Fall	3
GEOGRAPH 693W	Web-Based GIS	Spring	3
GEOGRAPH 693A	Cartography and Geovisualization	Spring	3
GEOGRAPH 693GC	Geocomputation	Spring	3

III. GIST Applications Electives (2 courses required, 6 credits)

These courses allow topical explorations of GIS concepts with a focus on application. Two courses of applications electives are required in this concentration. Other graduate level courses may be used in this section with permission of the program director.

Course Number	Course Title and Description	Term	Credits
ECO 602/634	Analysis of Environmental Data (+ optional lab)	Fall	3+2
SPP 597B	Unmanned Aircraft Systems	Spring	3
ECO 620	Building Information Modeling	Spring	3
NRC 597	GIS Applications in Conservation	Spring	3
NRC 590LE	Landscape Ecology	Spring	3
ECO 620	Studies in Building Information Modeling	Spring	3

IV. Practicum/Internship (1 course required, 6 credits)

This concentration expects students to secure and complete a 180-hour practicum or internship. Most students will enroll in the course in the spring and complete the practicum or internship in the summer.