

## Geographic Information Science and Technology (GIST) Certificate Program for Undergraduates

This certificate program will provide a solid foundation and a useful credential in the field of geospatial technologies (Geographic Information Systems (GIS), remote sensing (RS), and computer mapping (CM)) for undergraduate and non-degree students. GIS are computer systems for integrating and analyzing spatial data. RS uses satellite or airborne sensors to acquire spatial information, particularly for earth observation. Computer mapping has largely replaced traditional cartography for presenting data and analyses in maps. The GIST certificate program will provide students with a background in the science, techniques, and application of these geographical methods and techniques that will enable them to embark on public and private sector careers or to undertake further studies in geography and other fields.

### Who is qualified for this GIST certificate program?

Current matriculated undergraduate students at UMass-Amherst.

### How to proceed?

Contact the program advisor listed at the bottom of the page.

### Curriculum

The program requires 5 courses (~17 credits total), including 3 foundation courses and 2 advanced-level elective course. It will be possible for students to complete the certificate in a single year of focused study, although most students will likely integrate GIST courses into their degree program studies and complete the GIST courses over two or more years.

#### 1. Three required foundation courses (11 total credits)

##### Foundation in Cartography/Mapping

*GEOGRAPH352 Computer Mapping (Spring & Fall, 3cr)*

##### Foundation in GIS

*GEOGRAPH593GIS GIS I: Principles of GIS (Spring & Fall, 4cr)*

Other GIS courses that can be used to fulfill this requirement are:

*CEE597G: Geographic Information Systems for Engineers*

*RP625: Introduction to GIS for Planning*

##### Foundation in RS

*GEOGRAPH426 Remote Sensing and Image Interpretation (Fall, 4 cr)*

#### 2. Two advanced required course (6 total credits)

Students choose two courses from the following courses:

*GEOGRAPH 468 GIS II: GIS and Spatial Analysis*

*GEOGRAPH 597WGS Web-based GIS*

*GEOGRAPH 626 Advanced Remote Sensing*

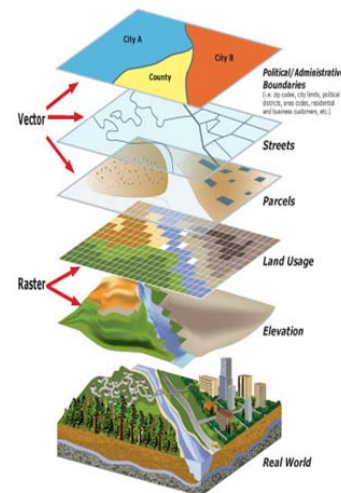
*GEOGRAPH593ARS Aquatic Remote Sensing*

*GEOGRAPH 560 Geomorphology*

*GEOGRAPH 494GISP Advanced Practicum in GIS\**

*\* This is an independent study (3 cr) that involves a GIST project in the context of a course involving spatial thinking/problem solving to fulfill this requirement, upon approval by program advisor.*

Advanced courses might not be offered every year. Meanwhile, a few new GIS related courses are planned to be offered as soon as Fall 2017, including *Spatial Database Management*. Please consult the advisor for updates.



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