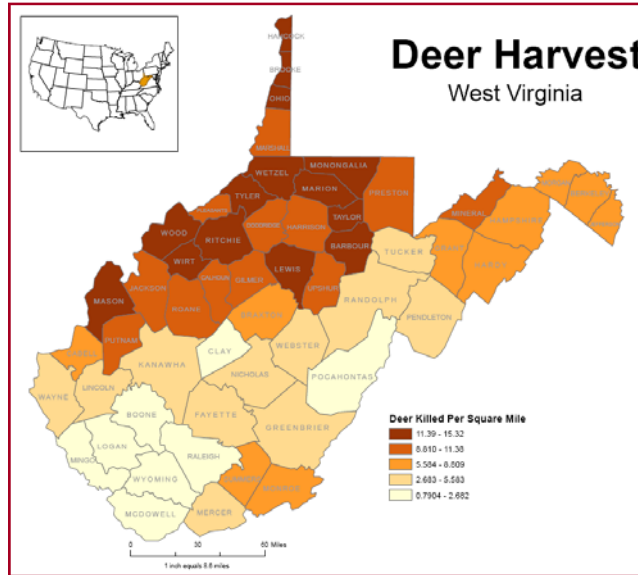


Do you want a rewarding career in a growing industry?

Geospatial Technologies have been identified by the joint US Department of Labor—Department of Education Career Voyages website (www.careervoyages.gov) as an “emerging field” of “hot jobs.” They expect growth in the geospatial technology industry to continue into the future.



Undergraduate students collect data in the field at Stony River, WV for an Integrated Science and Technology GIScience course.



An undergraduate student created this map for analysis in a Geography GIScience course.

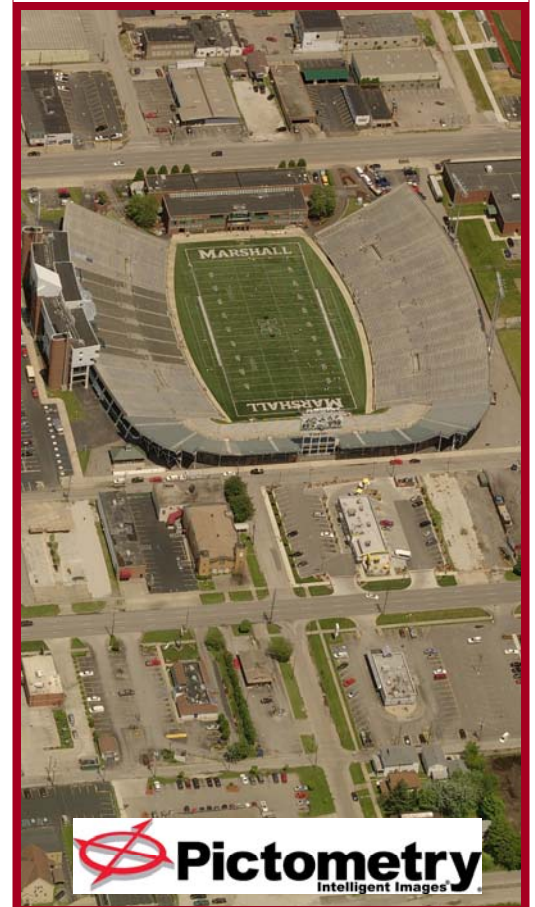


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Geospatial Information Science

Undergraduate Certificate and Minor

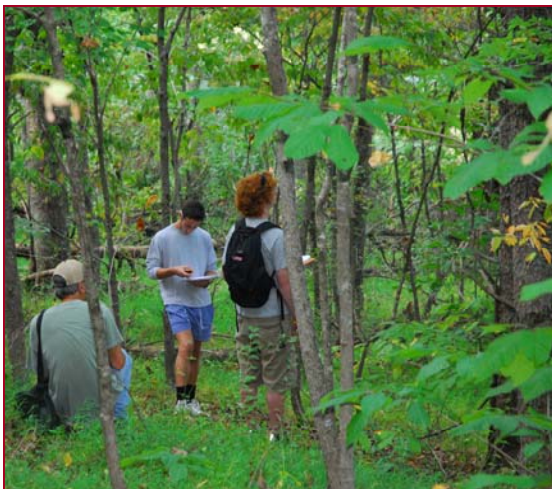


Oblique aerial photograph
Marshall Stadium, Huntington, WV
Image courtesy of Pictometry, Inc.

What is GIScience?

Geospatial Information Science is a research field utilizing computer technology for presentation and analysis of all types of science and social science data referenced to the earth's surface. GIScience uses an infinite variety of mapped data, aerial photographs, digital elevation models, satellite imagery, and more to solve problems and answer questions.

Among academic fields, Geography (both as an earth science and a social science), Environmental Science, Geology, History, Biology, Sociology, Archaeology, Engineering, Planning, Political Science, Criminal Justice, Natural Resources and Recreation Management, and Demographics are but a sampling of those using GIScience. In fact, it has been estimated that about 80% of all data has a spatial component, opening limitless potential uses for GIScience (<http://www.gis.com>).



GPS data collection in the field.

How to earn the Certificate or Minor

The requirements for the GIScience Certificate and Minor are identical. Some students at Marshall need a minor and may choose GIScience. Some students, especially returning education and non-degree seeking students, may prefer the certificate. Students may not earn a GIScience minor and a GIScience undergraduate certificate.

An undergraduate certificate or minor in Geospatial Information Science consists of a minimum of 18 hours in courses designated as GIScience Courses, including regularly offered courses as well as special topics courses. Students must take courses from at least two different departments for a GIScience certificate or minor.

Students who complete the requirements for the certificate or minor should be able to:

- perform basic and advanced GIScience techniques using vector and raster data;
- apply GIScience to display, support, and analyze research questions in the social or natural sciences;
- collect and create GIScience data using various technologies and softwares;
- employ and evaluate geographic concepts such as projections, coordinate systems, and scale;
- recognize and apply computer science concepts such as data collection, representation, queries, and storage; and
- enter GIScience employment or continue GIScience work at the graduate level.

“A GIScience Certificate or Minor from Marshall University provides evidence of achievement in the growing fields of Geographic Information Systems, Global Positioning Systems, and Remote Sensing technologies.”

GIScience Courses

GIScience Required Course(s):

Either **GEO 426 Principles of GIS** (cross-listed as ANT402) or **IST 423 GIS and Data Systems** is required. Students are encouraged to take both GEO 426 and IST 423.

GIScience Electives:

- BSC 410/PS 410/IST 420 Remote Sensing with GIS Applications (4 credit hours)
- BSC 411/PS 411/IST 421 Digital Image Processing and Computer Simulation Modeling (4 hrs.)
- CE 241 Geomatics (3 hrs.)
- GEO 110 Basic GIS (1 hr.)
- GEO 201 Introduction to GPS (1 hr.)
- GEO 429 Intermediate GIS – Vector Analysis (3 hrs.)
- GEO 430 Intermediate GIS – Raster Analysis (3 hrs.)
- GEO 431 Analysis of Digital Airborne and Space-Based Imagery (3 hrs.)
- GEO 490 Internship (3 hrs.; must be GIScience approved in advance to qualify)
- GLY 212 Geological Field Mapping (2 hrs.)
- IST 160 Introduction to Programming. (3 hrs.)
- IST 322 Terrestrial Systems (3 hrs.)
- IST 323 Aquatic Ecology (3 hrs.)
- IST 365 Database Information Management (3 hrs.)
- IST 428 CAD and Terra Modeling (3 hrs.)
- IST 470 Internship (1-4 hrs.; must be GIScience approved in advance to qualify)
- Special Topics courses as approved by the GIScience Curriculum Committee