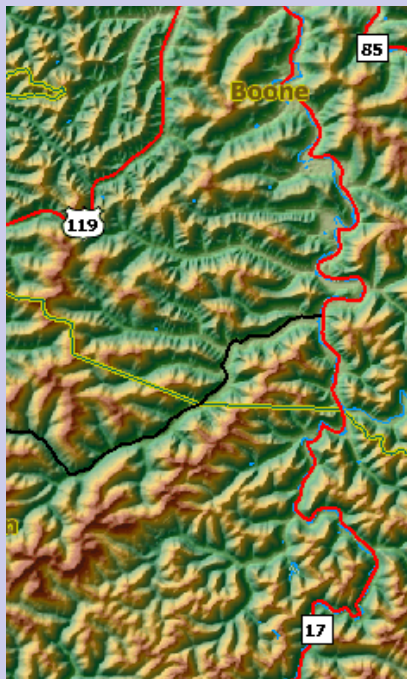
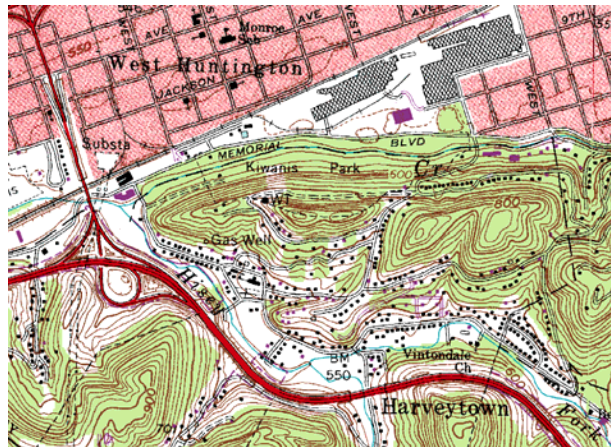


## Can GIScience advance my career?

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



Digital Elevation Model  
Boone and Logan Counties, WV  
Map from <http://www.mapwv.com>



Digital Raster Graphic of a USGS 7.5' Topographic Map  
Huntington, WV



**Marshall University**  
**1 John Marshall Drive**  
**Huntington, WV 25755**

GIScience Certificate Programs  
James Leonard, Director  
Harris Hall 208

Phone: 304-696-4626  
E-mail: [Leonard@marshall.edu](mailto:Leonard@marshall.edu)

## Geospatial Information Science

**Undergraduate and  
Graduate Certificate  
Programs**



True Color Aerial Photograph  
Marshall Stadium, Huntington, WV

## What is GIScience?

Geospatial Information Science is a field of inquiry 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 Sciences, Geology, History, Archaeology, Engineering, Planning, Political Science, Criminal Justice, Leisure Services, and Demographics are but a sampling of GISciences. 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>).

## About the Certificates

The GIScience Certificate Programs are designed to:

- offer GIScience study in a variety of disciplines with a variety of applications;
- teach students GIScience techniques;
- encourage students to apply GIScience to solve scientific research problems;

- encourage students to gain experience in the GIScience field before graduation by means of internships and work study programs;
- integrate GIScience applications with appropriate computer science training;
- prepare students for GIScience employment or GIScience work at the graduate level.

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

## Undergraduate Certificate

An undergraduate certificate 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 three different departments for a GIScience Certificate.

### Undergraduate GIScience Courses:

BSC 410/PS 410/IST 420 Physical Principles of Remote Sensing with Applications (4 credit hours)  
BSC 410/PS 411/IST 421 Digital Image Processing and Computer Simulation Modeling (4 hrs.)  
GEO 110 Basic GIS (1 hr.)  
GEO 201 Introduction to GPS (1 hr.)  
GEO 426 Principles of GIS (3 hrs.)  
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 a GIS-related internship to qualify)  
GLY 212 Geological Field Mapping (2 hrs.)  
IST 322 Terrestrial Systems (3 hrs.)  
IST 323 Aquatic Ecology (3 hrs.)  
IST 480 GIS and Integrated Data Systems (3 hrs.)  
IST 483 CAD and Geomodeling (3 hrs.)  
Special Topics courses as approved

## Graduate Certificate

A graduate certificate in Geospatial Information Science consists of a minimum of 12 graduate 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 graduate GIScience certificate.

### Graduate GIScience Courses:

BSC 510/PS 510 Remote Sensing/GIS Applications (4 credit hours)  
BSC 511/PS 511 Digital Image Processing/GIS Model (4 hrs.)  
GEO 526 Principles of GIS (3 hrs.)  
GEO 529 Intermediate GIS – Vector Analysis (3 hrs.)  
GEO 530 Intermediate GIS – Raster Analysis (3 hrs.)  
GEO 531 Analysis of Digital Airborne and Space-Based Imagery (3 hrs.)  
GEO 631 Applied Geographic Information Systems Projects (3 hrs.)  
GEO 690 Internship (1-6 hrs.; must be a GIScience-related internship to qualify)  
IS 645 Geographic Information Systems (3 hrs.)  
Special Topics courses as approved

\*Courses taken as an undergraduate may not count for a Graduate Certificate.