



Department of Geography

COLLEGE OF SOCIAL AND BEHAVIORAL SCIENCE
THE UNIVERSITY OF UTAH

GEOGRAPHIC INFORMATION SCIENCE (GIS) MAJOR

The BS degree in Geographic Information Science (GIS) is a new degree in one of the fastest growing STEM areas of science and information technology. This degree provides the foundation for a career in the emerging field that integrates computer science, information technology with geographic concepts and techniques to support management and resilience of earth's natural environmental, urban and human systems. GIS uses massive data sets from satellite imagery, drones, digital mapping, GPS, geospatial statistics to create knowledge to analyze and solve 21st Century problems.

Geography has long used maps and images as models of the earth surface and physical/human processes. The advent of digital cartography, satellite imagery, global positioning systems and geographically-informed digital databases (Google Earth, vehicle navigation systems, etc) has transformed the use of traditional geographic theory, methodology and techniques to 21st Century science and technology to address issues confronting the earth and human societies. The Department of Labor estimates that employment for Geographic Information Scientists will increase 29% across the United States and 105% in Utah by the year 2022.

Geographic Information Science is a federally recognized STEM discipline allied with the Cartography and Geospatial Intelligence designations. The Geography Department is designated by the National Geospatial Intelligence Agency (NGA), the US Geological Survey (USGS) as a National Center of Academic Excellence in Geospatial Sciences, and the Environmental Systems Research Institute (ESRI) as a development center.

TM

REQUIRED CLASSES

Geography core requirements

- GEOG 1000** Earth Environments and Global Change (SF)
- GEOG 1005** Earth Environments Lab
- GEOG 1400** Human Geography (BF)
- GEOG 1100** Exploring the World Through Google Earth (SF)
- GEOG 1180** Introduction to Geo-Programming **OR**
- COMP 1010** Programming for All 1
- GEOG 3020** Geographical Analysis (QB,QI)
- GEOG 3100** Introduction to GIS & Cartography (QI)

One of the following: (Geography CW Choice List)

- GEOG 3/5270** Biogeography: Global Patterns of Life (CW)
- GEOG 3/5400** Population Geography (CW)

Required Allied Courses: (Allied Requirements)

- CS 1030** Foundations of Computer Science
- MATH 1210** Calculus I (QR) **OR**
- GEOG 3050** Problem Solving in Physical Geography
- PHYS 1010** The Way Things Work **OR**
- PHYS 2010** General Physics I (SF)

APPLIED GIS CORE (Applied GIS Requirements)

- GEOG 3/5170** Geospatial Field Methods: GPS and Drones
- GEOG 4140** Advanced Methods in GIS
- GEOG 5150** Geospatial Big Data
- GEOG 5165** Data Visualization
- GEOG 5680** Introduction to R Programming
- GEOG 5180** Geoprocessing with Python
- GEOG 5160** Spatial Modeling and Geocomputation
- GEOG 5162** Project Management

REMOTE SENSING CORE (Remote Sensing Requirements)

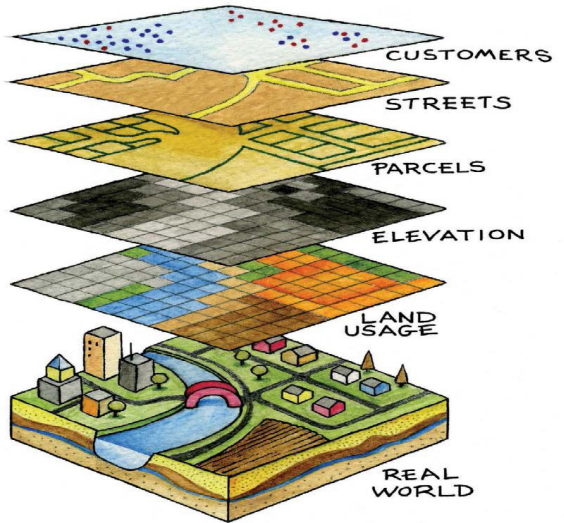
- GEOG 3110** Introduction to Remote Sensing (SF)
- GEOG 5110** Environmental Analysis through Remote Sensing

SENIOR CAPSTONE (required core course for major in final year)

- GEOG 5161** Capstone in Geographic Information Science

ELECTIVES (select at least one elective course from list)

- GEOG 5120** Advanced Optical Remote Sensing
- GEOG 5130** Advanced Active Remote Sensing
- GEOG 5190** GIS for Environmental and Public Health
- GEOG 5670** Open Source Geospatial Tools
- GEOG 5940** Internship in GIS/Remote Sensing



CAREER OUTLOOK

- Department of Defense
- US Department of Transportation
- Urban Planning
- United States Geological Survey (USGS)
- Natural Resource Management (Forest Service, Fish and Game)
- Environmental consulting and Conservation Non-Profits
- Non-Governmental Organizations (NGO's)
- Spatial Software/Environmental Systems Research Institute (ESRI)

SCHOLARSHIPS

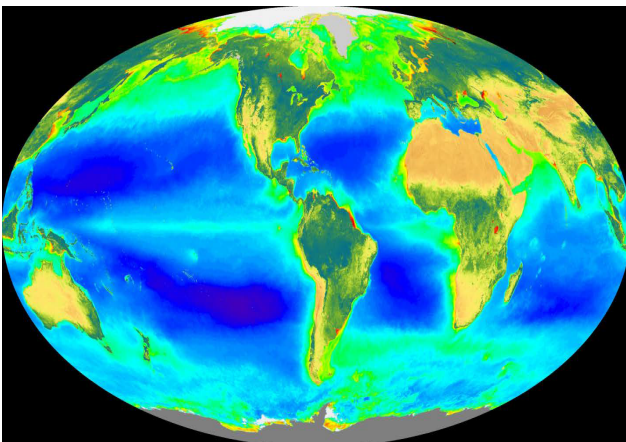
Thanks to the generous donations given by industry & alumni, The Geography department offers several scholarships to incoming and continuing students.

To apply, please visit:

<https://geog.utah.edu/undergraduate/scholarships.html>

CONTACT INFORMATION

For more information about the Geography department or to contact an Academic Advisor, please visit: geog.utah.edu



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STEM Education