

## Career Guide:

# GEOGRAPHIC INFORMATION SCIENCE

One of the world's fastest growing fields, Geographic Information Science (GIS), combines cartography, data management and spatial analysis to create maps that communicate complex information. You may track the advancement of an invasive species in a river, identify business competitors in a specific area, or offer solutions to better manage natural resources. Most GIS positions will be found with federal, state and local governments.

### GIS IS USED FOR:

- Disease monitoring
- Archaeological surveying
- Development planning
- Fleet management
- Consumer profiling
- Parking availability
- Crime patterns
- Environmental impact



### 2016 MEDIAN SALARIES

- |                |          |
|----------------|----------|
| • Technician   | \$40,718 |
| • Specialist   | \$53,982 |
| • Analyst      | \$57,191 |
| • Cartographer | \$62,750 |
| • Geographer   | \$74,260 |
| • Developer    | \$87,387 |
| • Manager      | \$68,951 |

### POTENTIAL CAREERS

- GIS and cartographic specialist
- Urban and regional planner
- Resource manager
- Market researcher
- Community development specialist
- Geospatial analyst
- GIS developer
- Logistics analyst
- Transportation planner

### JOB TASKS AND DUTIES

- Create maps and graphs, using GIS software and related equipment.
- Meet with users to define data needs, project requirements and outputs.
- Gather, analyze and integrate spatial data to determine how to display it using GIS.
- Analyze spatial data for geographic statistics.
- Analyze geographic relationships among varying data types.
- Present findings to clients and answer questions.

### CHARACTERISTICS OF GIS MAJORS

- Inquisitive and analytical
- Sees relationships between data and locations
- Strong communication skills
- Able to use math and computer programs to solve problems
- Resourceful
- Able to sift through large amounts of data
- Problem solvers



## WHAT TO EXPECT IN A GIS PROGRAM

As a student in a Geographic Information Science degree program, you'll gain skills to address real-world problems by finding relationships between location and data. You'll learn the principles of cartography, database management and spatial analysis, as well as practical skills like photography and surveying, in order to create maps that communicate complex information.

### GIS MAY BE A GOOD FIT IF YOU...

- Enjoy working with computers.
- Have a strong interest in finding practical solutions to society's most pressing challenges.
- Possess a deep curiosity about the world's rich geographic diversity.
- Are fascinated by maps.
- Are a visual learner and prefer to communicate with graphics.
- Are interested in variety.
- Want to change the way people look at problems and how they fix them.

### CLASSES MAY INCLUDE:

- Cartography
- Geographic Information Systems
- Spatial analysis
- Database management
- Web technologies
- Computer programming
- Web mapping
- Urban and regional planning
- Environmental geography
- Human geography
- Statistics/Mathematics

### LOOK FOR A PROGRAM THAT OFFERS:

- Opportunities to conduct research in a state-of-the-art GIS lab where you can work side-by-side with experienced faculty.
- Chances to gain practical, hands-on experience through internships and fieldwork.
- Professors and faculty with real-world experience using GIS technologies to solve issues.

To learn about the Geography program at the University of Northern Colorado, visit us at [UNCO.EDU/PROGRAMS/GEOGRAPHY/GEOGRAPHY-BA](https://unco.edu/programs/geography/geography-ba)

### Before you declare your major in GIS:

- Talk to geographers about their specialization area to see if your interests align with what they do, or spend a day shadowing them to experience what they do firsthand.
- Volunteer with a nonprofit that relies on GIS to communicate information.
- Consult with a career counselor to learn more about the field and where graduates are working.

*"GIS is waking up the world to the power of geography, this science of integration, and has the framework for creating a better future."*

*—Jack Dangermond, businessman and environmental scientist*



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