Key Workplace Skills

Beneficial GIS-related Information and Skills to Help You Succeed and Advance in a Workplace Environment
People in GIS

- GIS Technician
- GIS Analyst or Specialist
- GIS Manager or Supervisor
- (GIS) Database Manager
- (GIS) Programmer
- (GIS) Cartographer
- Other Specialized Titles (e.g., Photogrammetrist, Remote Sensing Specialist)
GIS Technician/Analyst/Specialist

• Mainly builds and maintains GIS data, and uses hardware and GIS-based software to analyze both spatial and non-spatial data and phenomena

• Daily activities may include data capture/entry, analyze data to identify spatial relationships, display analysis results, maintain data for currency and accuracy, develop metadata, perform spatial modeling, and/or create various presentation-based products

• Work may take place in an office and/or in the field
Typical Detailed Tasks

- Create maps and graphs, using GIS software and related equipment
- Meet with users to define data needs, project requirements, required outputs, or to develop applications
- Conduct research to locate and obtain existing databases
- Gather, analyze, and integrate spatial data from staff and determine how best the information can be displayed using GIS
- Compile geographic data from a variety of sources including censuses, field observation, satellite imagery, aerial photographs, and existing maps
- Analyze spatial data for geographic statistics to incorporate into documents and reports
- Design and update databases, applying additional knowledge of spatial feature representations
Typical Detailed Tasks

- Enter new map data through use of a digitizer or by direct input of coordinate information using the principles of cartography including coordinate systems, longitude, latitude, elevation, topography, and map scales
- Analyze geographic relationships among varying types of data
- Prepare metadata and other documentation
- Operate and maintain GIS system hardware, software, plotter, digitizer, color printer, etc.
- Move, copy, delete, and add files, drawings, and maps to output reports in hard copy or electronic transfer
- Present information to users and answer questions
- Retrieve stored maps
Pertinent Skills

- Geography - Knowledge of various methods for describing the location and distribution of land, sea, and air masses including their physical locations, relationships, and characteristics
- Communication, Written, Oral, and Cartographic - The ability to convey GIS/spatial information to non-GIS/technical people
- Analytical Skills - The ability to solve problems using the GIS suite of tools
- Mathematics - Using mathematics to solve problems
- Information Gathering - Knowing how to find information and identify essential information, and validate the information
- Information Ordering - The ability to correctly follow a given rule or set of rules in order to arrange things or actions in a certain order
- Computer Science - Using and developing computer programs to solve problems
- Systems Evaluation - Looking at many indicators of system performance, taking into account their accuracy
“DO or FAIL” Skills

- ORGANIZATION!!!!!
- CONSISTENCY!!!!!
  - Make yourself as well-rounded as possible
Education and Training

• GIS skills should come from a formal GIS certificate program or a degree in geography (emphasizing in GIS)
• Common to supplement a degree in the applied sciences with a certificate or degree in GIS
• Continuing education is very important as well
• GIS professionals need to keep up with new technology and practices in the field through extension courses, professional associations, seminars, etc.
Professional Certification

- Geographic Information Systems Professional (GISP), issued by the Geographic Information Systems Certification Institute (GISCI)
  - [http://www.gisci.org/](http://www.gisci.org/)
- Esri Technical Certification
Professional Organizations

- California Geographical Information Association (CGIA): http://cgia.org/
- California Geographical Society (CGS): http://www.csun.edu/~calgeosoc/
- Urban and Regional Information Systems Association (URISA): http://www.urisa.org/
- Society for Conservation GIS (SCGIS): http://www.scgis.org/
Sources


• Environmental Science: http://www.environmentalscience.org/career/geographic-information-systems-specialist