



*Class Code: 0893
FLSA: Non-exempt*

GIS Analyst

General Class Purpose

The GIS Analyst provides professional-level support to end users of Geographic Information Systems (GIS) within a City of Salem department, and may occasionally serve citizens. Employees analyze a variety of statistics and spatial data to create diagrams, illustrations and maps; conduct studies using geographic information systems data; and recommend program actions based on the results of geographic data analysis. Employees also program software to automate geo-processing tasks and increase the functionality of existing software; and design, build and maintain geodatabases to support GIS applications.

Distinguishing Features

The GIS Analyst performs skilled professional-level analysis using GIS tools. Employees have an in-depth understanding of GIS theory and the methods of operating GIS to develop and analyze data that can be used to support decision-making. This work includes doing limited computer programming to increase the functionality of standard software or automate standard GIS data functions. Employees coordinate multiple GIS projects and guide or train others in the operation of GIS.

The GIS Analyst is distinguished from the GIS Technician by the required depth of analysis, the need to use programming languages to increase the functionality of existing standard software and the requirement to conduct complex geospatial studies. This classification is distinct from IT - GIS Programmer Analyst positions that maintain City of Salem Geographic Information Systems. The IT - GIS Programmer Analyst positions integrate GIS with other city information systems, design and maintain GIS enterprise-level features and coordinate citywide use of geospatial data among City departments.

Supervision Received and Exercised

Employees work under the general direction of a supervisor or manager. The supervisor outlines general objectives, determines priorities and monitors the progress of projects. Employees generally do not supervise. Work involves leading or training others in the use of GIS or giving consultative advice on the methods of using GIS data to support decision-making.

Examples of Essential Duties and Responsibilities

The listed examples are illustrative of the classification level and not intended to list all duties typically assigned to this classification. Employees in this classification may do all or some of the listed duties, or other related duties.

1. Perform complex spatial analysis and database queries; design, create and maintain geodatabases; develop and maintain data layers and spatial data structures using GIS tools and relational databases; convert data into alternative formats.
2. Analyze data to design and prepare a variety of maps, illustrations and other graphic representations that display layers representing spatial data
3. Analyze user requirements and recommend or develop solutions using appropriate GIS software and tools; research developing technologies and software and recommend applicability to the department's GIS needs; research and provide technical information on GIS data elements; provide feedback to GIS software vendors, consultants or information system staff; assist in data migration and implementation of GIS and other automated mapping systems.
4. Use various programming languages to modify existing software in order to increase functionality, automate processes or build analysis tools; write and maintain scripts, AML's, routines and menus for programming GIS processes; debug application flow and design, document and test software modifications; translate geographic and demographic data into formulas for data entry; develop and maintain web pages.
5. Manage GIS projects; consult with internal staff and department managers to assess scope of requests; estimate time and resources needed to complete GIS services; research and evaluate available data and propose method to be used.
6. Provide technical support on GIS software; serve as a technical resource for other staff on difficult GIS databases and application issues; provide training and ongoing education to work groups using GIS applications and mapping; participate in work and advisory groups to coordinate data use with other City of Salem departments and external agencies.

Minimum Qualifications Upon Entry

General knowledge of:

- Principles, practices, concepts and techniques of Geographic Information Systems (GIS) theory and function; including computer mapping and attribute data conversion, transfer, manipulation and analysis
- GIS software applications, programming languages and development tools
- Principles and practices of database structures, design and database management
- Principles and practices of statistical and spatial data analysis
- Research methods and report preparation
- Principles, practices and methods of cartography, graphic illustrations and presentation
- Terminology, methods and techniques used in maps and related technical records

- Operating systems fundamentals and procedures for the use of computer systems and related equipment used with GIS

Basic knowledge of:

- Practices and principles of project management and evaluation
- Methods of training, and public presentations
- Structure and content of the English language including the meaning and spelling of words, rules and composition of grammar
- Methods and formats for writing technical reports

Skill to:

- Operate contemporary GIS software and associated computer systems sufficient to effectively carry out the duties typical to the position
- Use GIS software to develop macros and GIS tools
- Use programming language typical to GIS software applications to modify computer programs, automate geoprocessing and build data analysis tools
- Manage multiple projects; plan project work, track progress and meet associated planned outcomes
- Perform moderately complex technical computations, compile or analyze GIS data and statistics, and develop mapping products
- Operate word-processing, spreadsheet programs or other application software typical to office environments and the position

Ability to:

- Perform difficult technical research and analyze complex GIS related problems, evaluate alternatives and recommend or adopt effective courses of action
- Perform complex geospatial and tabular data analysis
- Independently perform advanced GIS assignments with initiative and creativity
- Communicate verbally and in writing with a variety of people to effectively provide information, train others and offer consultative advice
- Establish and maintain effective working relationships with individuals, coworkers, internal department personnel and the public

Experience and Education

A typical way to obtain the required knowledge, skills and abilities would be:

A Bachelor's degree in Geography, Planning, Engineering, Business, Computer Technology or related course of study; and two years GIS experience which included designing, creating, maintaining and analyzing geospatial and tabular data; and writing GIS script or applications programming.

Three years of related experience may substitute for the education requirement, or an equivalent combination of experience and education.

Physical and Mental Demands

The listed physical and mental demands are representative of those that must be met by an employee to successfully do the essential duties of this classification. Persons with disabilities may be able to carry out duties with reasonable accommodation. Reasonable accommodation will be evaluated on an individual basis

The GIS Analyst does light work requiring occasional lifting up to 20 pounds and walking. Employees regularly reach for or handle objects and use their fingers to operate equipment such as computer keyboards. They regularly talk to express or exchange ideas and use their hearing and speaking to receive and transmit information through oral communication. Employees must occasionally have clear vision at 20 feet or more, and frequently must see at distances 20 inches or less. They also need the ability to judge distance and space relationships, distinguish colors and focus on objects for detail such as printed information and computer displays.

Employees in this classification apply principles of logical or scientific thinking to define problems, collect data, establish facts and draw valid conclusions. They must interpret an extensive variety of technical instructions in mathematical or diagrammatic forms and mentally process abstract and concrete variables. Employees occasionally must work with unpleasant people.

Work Environment

Employees work primarily in an indoor office setting with moderate noise intensity, frequent interruptions and controlled environmental conditions.

Update 8/27/2007 changes to distinguishing features to allow for new job titles in Information Technology.