

- Creating layout windows and producing paper maps through output devices
- Create / edit spatial objects such as polygons, lines, or points
- Spatial Queries; Buffering around spatial objects

Topics to be Covered: *Lecture topic in bold; Assigned reading in ()* See course web site for specific dates of assignments <http://urban.csuohio.edu/~wyles/ust-434-intro-to-gis-fall.htm>

1. **Introduction to GIS- terminology and definitions** (Read Introduction, Ch. 1, 4, & 12)
Demo/ Lab- Working in the Windows environment and MapInfo file types and characteristics.
 Open existing layers and change their display characteristics; View data in various formats; Use Menu features and "short cut" Button Pads

Data Input

2. **Base Maps- Types, Map projections** (Ch. 1 p 7-11 & Ch 3)
Demo/ Lab- Overlay TIGER, Cadastral, and Planimetric data; change map projections
3. **Digitizing, Scanning, & Registering Orthophotos;** (Ch. 2, 6, & 7)
Demo/ Lab- Scan a picture, register an orthophoto to a cadastral map
Demo/ Lab- Import DXF, open dBase and ASCII files, create a new MapInfo data table

Written Test 1 and MapInfo Practical Test 1

Data Display

4. **Thematic maps** (Ch. 11)
Demo/ Lab- Creating various types of thematic maps
5. **Geocoding** (Ch. 8 & handout)
Demo/ Lab- Geocoding by address and centroid of polygon

Data Management

6. **Attribute databases, Structured Query Language (SQL)** (Ch. 5 p 81- 97)
Demo/ Lab- Using SQL for relational joins of tables
7. **Topology & Map Design** (Ch. 9 & 10)
Demo/ Lab- Producing a finished paper map using a map layout
Demo/ Lab- Create, draw, and edit spatial (map) objects.
 Using snap to nodes and move duplicate nodes.

Written Test 2 and MapInfo Practical Test 2

Data Manipulation / Analysis

8. **Spatial Analysis** (Ch 5 p65-80 & 98-103)
Demo/ Lab- Selecting spatial objects from a map or browser;
 Spatial SQL- simple and complex; Buffering map objects

9. GIS Project description & instructions

10. Metadata (Lecture material)

Demo/ Lab- Open Lab: Project

11. Hardware/ Software Issues: Interagency GIS Cooperation (Lecture material)

Demo/ Lab- Open Lab: Project

Written Test 3 and MapInfo Practical Test 3- OPTIONAL

GIS Project:

Students will conduct a site analysis study to locate the most suitable sites for construction of a new mixed-use on the East Bank of the Flats (near west side area of Cleveland). Recommendations will be based on various layers of information such as parcel characteristics, transportation, topography, toxic sites, building footprints, tax, zoning and demographics.

- Data layers will be created or imported and placed in GIS spatial databases.
- Manipulation, analysis, and evaluation of these layers will be determined (using the Auditor's parcel map and/or the TIGER/Line files as the most appropriate base map).
- Attribute databases will be used imported, opened, or created per layer using dBase, ASCII, or ACCESS files.
- Areas best suited for development will be determined based on filtering criteria such as Auditor's parcel characteristics, land banked property, zoning, topography, population effected by proposed changes. This will be achieved through the use of GIS functions such as Structured Query Language, buffering, and spatial SQLs.
- Create maps (location, condition filtered, and thematic) indicating the most desirable area for development based on combined analysis of the integrated layers and student's ingenuity.
- Create output report browsers of the databases that support development recommendations.
- An electronic written report of GIS project results & conclusions will be submitted to the instructor.

Students with Special Needs:

“Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal opportunities for all students regardless of their disability. Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services at (216)687-2015. The Office is located in UC304. Accommodations need to be requested in advance and will not be granted retroactively.” Students should notify the instructor as soon as possible if they have been granted an accommodation through the Office of Disability Services.