

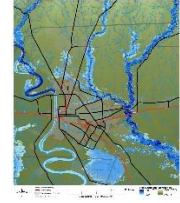


Advanced Geographic Information Systems

GEOG 4317 – Fall 2014

Lectures & Labs Mon/Wed 8:15am – 10:30am

323 Ross Hall



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Office hours: M/T: 10:30-11:30am
or by appointment

1. COURSE DESCRIPTION

This course is a continuation of the concepts learned in GEOG 3500 (Geographic Information Systems) or an equivalent course. You are therefore expected to be familiar with fundamental GIS concepts including coordinate systems, data models (vector and raster), data acquisition, geometric transformations (georeferencing, resampling) spatial data accuracy and quality, attribute data management, methods for data exploration (descriptive statistics), vector and raster data analysis, and terrain mapping and analysis. You should have familiarity with ArcGIS and Google Earth software.

You must have a copy of the textbook – Introduction to Geographic Information Systems. 2014, 7th Ed., by Kang-tsung Chang. You will also need an external hard drive (thumb drive) with at least 1 GB of free space (2+ GB recommended).

The learning objectives for this course have been carefully chosen from a list of Critical Work Functions, Technical Content Areas, and Remote Sensing Job Tasks from the Geospatial Technology Competency Model (<http://www.careeronestop.org/competencymodel/pyramid.aspx?GEO=Y>), accessed September 2013). This curriculum model was developed by industry and education leaders. It describes the skills needed for careers in the geospatial sector, and is provided to you as a separate document and available on D2L.

A. Course Format

This course combines traditional instruction organized around classroom lectures, reading material, and computer exercises in a lab format. Labs cover selected topics discussed in lectures and/or reading assignments. A mid-term project will require you to use skills learned in the first half of the semester and a final project will be an independently-chosen analysis/research project.

B. Course Requirements

Students will be evaluated according to the following:

Labs/Assignments:

Nine labs are designed to provide students with hands-on exposure to various GIS analysis tools, programs, and techniques presented during lectures and in readings. Labs will mainly utilize

mapping software available in the computer lab. Instructions and guides will be provided for completing the labs in the allotted time. Students will be expected to use the lab periods for guidance and assistance in completing the exercises.

Graduate students will also be assigned a week of lecture and lab where they will design the lesson and lab assignment.

Projects & Presentations:

The mid-term and final will be project-based and each individual is expected to turn in his or her own work. Guidance/options will be provided for the mid-term. The final project and any related data will be independently chosen and created based on skills you have learned during the class. Students will give a presentation to the class during the scheduled final exam time.

COURSE REQUIREMENTS & GRADING	
Lab Exercises	180/135 points (20/15 each)
Lecture/Lab (Grad Students Only)	45 points
Mid-term Project	50 points
Final Project	70 points
TOTAL	300 points

C. Grading Policy

Grading will follow the ETSU grading scale. Deadlines for the assignments and projects are strictly enforced and points will be deducted for each day an assignment is late. There is no make-up or late assignment policy.

Scale	Point Equivalent	Grade
92.5-100	278-300	A
89.5-92.49	269-277	A-
87.5-89.49	263-268	B+
82.5-87.49	248-262	B
79.5-82.49	239-247	B-
77.5-79.49	233-238	C+
71.5-77.49	215-232	C
68.5-71.49	206-214	C-
66.5-68.49	200-205	D+
60.0-66.49	180-199	D
<60.0	<180	F

D. Class Policies

The following policies guide this course

- Silence cell phones while in the class room.

- Respect your classmates and instructor by being on-time and prepared for class.
- Always ask questions!
- No food allowed in the class room.
- If you miss a class for any reason, you are responsible for any assignments and/or obtaining the information discussed in class.

2. TECHNOLOGY REQUIREMENTS, COMMUNICATIONS, AND SUPPORT

This course requires you to use technology as a tool for learning. It is your responsibility to familiarize yourself with the technologies.

A. Technology Support

The GIS lab is open various times throughout the day when another class is not being taught and a **GIS HelpDesk (managed by our Geospatial Graduate Students) is available in the lab M/W from 3-5pm and T/Th from 1:30-3:30pm**. Open lab times will be posted on the lab door once available and there will be open lab hours on Saturdays this semester (9am-2pm).

For technical support with a University related technical problem, contact the Office of Information Technology (OIT) at <http://www.etsu.edu/oit/>.

B. Accommodations for Disabilities

If you have a disability that may impact your work in this class and may require accommodations, please inform the instructor and contact Disability Services through the following webpage: (<http://www.etsu.edu/students/disable/>)

3. ACADEMIC RESPONSIBILITY

As a student at East Tennessee State University, you have acknowledged the standards that have been defined in the Student Code of Conduct, and thus you have agreed to adhere to its tenets.

A. Plagiarism

Students are responsible for submitting work that reflects their individual performance. Misrepresentation of your own work either through plagiarism, collusion, or data distortion is a serious breach of the code of student conduct. If you have any questions on what constitutes plagiarism, review it in the [ETSU Student Handbook](#).

4. **TENTATIVE** LECTURE/READING/LAB/PROJECT SCHEDULE

Dates	TOPICS & READINGS	ASSIGNMENTS
Aug 25/27	Introduction & Exploring GIS; Lecture: Viewshed and Watershed Analysis	
Sept 1/3	Labor Day; Viewshed/Watershed Analysis (Lab 1)	
Sept 8/10	Lecture & Lab: Spatial Interpolation (Lab 2)	Lab 1 Due
Sept 15/17	Lecture & Lab: Web-based Interactive Mapping (Lab 3) (Jeremy Menzer)	Lab 2 Due
Sept 22/24	Lecture & Lab: Geocoding, Network Analysis (Lab 4)	Lab 3 Due
Sept 29/Oct 1	Lecture & Lab: GIS Models & Mapping (Lab 5)	Lab 4 Due
Oct 6/8	Mid-Term Project Lab Time	Lab 5 Due
Oct 13/15	Fall Break , Mid-term Lab Time, TNGIC Conference	
Oct 20/22	Mid-Term Project (Oct 20), Lecture & Lab: Open source GIS (QGIS and R) Part 1 (Lab 6)	Mid-Term Project Due
Oct 27/29	Lecture & Lab: Open source GIS (QGIS and R) Part 2 (Lab 7)	Lab 6
Nov 3/5	Lecture & Lab: TBD (Graduate Student); Final Project Overview	Lab 7
Nov 10/12	Lecture & Lab: TBD (Graduate Student)	Lab 8
Nov 17/19	Final Project Decisions and Lab Time	Lab 9
Nov 24/26	Final Project Lab Time, Thanksgiving Break	
Dec 1/3	Final Project Lab Time	
Dec 6-11	Exam Week - Final Project Presentation (Dec. 10th 3:50-5:50pm)	Final Project Due

The course schedule, required readings, and procedures described in the syllabus are subject to change. Students will be informed of any such changes via the D2L course site and/or via email.