

LOCK HAVEN UNIVERSITY
BIOL/GEOS 213 – Introduction to GIS, Fall 2009

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Homepage: <http://www.lhup.edu/mkhalequ> (Study guides will be posted online; also on **eCollege**)
Lec: Tues. 9:00-10:40 am in Ulmer 311, **Lab for GEOS 213:** Thurs. 2:10-4:00 pm in Ulmer 311

Textbook: Chang, Kang-Tsung, 2010, Introduction to Geographic Information Systems, McGraw-Hill

Objectives: GIS is a computer system for capturing, storing, querying, analyzing, and displaying geographically referenced data. Applications of GIS are limitless, stretching anywhere from law enforcement, emergency response, planning, resource allocation, protection of ecosystems, business, recreation to natural resources exploration & management. In this course we will emphasize on the use of GIS to solve real-world problems in geology, geography, biology, recreation, health science, criminal justice, history, and other fields, depending on students' interest. As you learn about various aspects of GIS through hands-on experiences in the lab, you need to think as to how you can or will use the skills & knowledge learned to solve a real-world problem in your own field. As the semester progresses, find a way to **apply the knowledge gained from a lab exercise into your research project** (for your applications class). If you wait to the end of the semester to work on your research project you will not remember the details.

Note: You will be **expected** to come prepared (i.e. you will have to read the pertinent chapter in the textbook, posted PPP on **eCollege**, and assigned journal articles, if any) **before** coming to the class. Format of the exams (mid-term and the final exam) will be multiple choice questions, definitions, and short answer questions. Make sure to read the chapter-end key concepts and terms.

Grading: 50% of the total grade for BIOL/GEOS 213 – Intro to GIS course; other 50% will come from lab grade.

Breakdown: Mid-term = 10%
 Comprehensive Test = 20%
 Weekly Quizzes on Chapter Reading = 10%
 SCORE Presentation (more info on **eCollege** or my website) = 10%

Course Schedule:

Date	Topics	Reading (chapters)
Sept. 1	Introduction to GIS, ArcView	1
8	ArcGIS, ArcMap, ArcCatalog, ArcTool	1
15	Coordinate System & Map Projection	2
22	Georelational Vector Data Model	3
29	Geodatabase	4
Oct. 6	Data Input & Geometric Transformation	6 & 7
13	No Classes (Monday's Schedule)	
20	Mid-term Exam	
27	Spatial Data Editing	8
Nov. 3	Spatial Data Editing/Attribute Data Input	8 & 9
11	Vector Data Exploration & Analysis	11 & 12
18	Raster Data Analysis	5 & 13
24	Raster Data Analyses & SCORE Presentations	5 & 13
Dec. 1	SCORE Presentations	
8	SCORE Presentations	
Dec. 17	Comprehensive Test at 10:00-11:50 am	

SCORE (Staying Current On Research & Education) Presentation (20% of total grade):

Each student will make one 10-minute presentation on a pre-approved topic and time slot that is agreeable to me. I will set aside three lecture periods (November 24, December 1, and 8) to facilitate the presentations, but you are welcome to make a presentation earlier. The mode of the presentation will be “mini-teaching” to the class. You will select a topic and prepare necessary audio-visual aids (e.g. power point presentation or poster) to go with your presentation. You can make your presentation using the chalkboard, power point presentation, overhead transparencies, GIS poster, Microsoft Publisher, and/or Internet. The selection of topic is wide open. However, learning about practical examples or case studies where GIS is used to solve a real world problem or to plan/manage natural resources should be emphasized, when possible. The idea is to learn from each other. Therefore, you need to avoid the topics generally covered in the class. However, it will be OK if you do an in-depth discussion of a topic that is covered in the class. Below is a list of possible, but are not limited to, topics:

- (a). Discussion of case studies that used GIS in your field or in another field.
- (b). Application and/or modification of specific functionalities in GIS software (e.g. journal articles).
- (c). Application of GIS in new or unique field (e.g. news articles or online news on GIS related topics).
- (d). Reporting on an ESRI module (e.g. type of data used and analyses done, etc.).
- (e). Journal Articles or Book Chapter Review.
- (f). New Software and Hardware in GIS (i.e. what is hot and what is coming up)
- (g). In depth discussion of a lecture topic (e.g. projection in GIS, raster data, vector data, modeling in GIS, etc.)