

Introduction to Geographic Information Systems

Lecture & Lab: MTuWTh 9:30am – 1:30pm, 2166 (Lecture) & 1136 (lab) LeFrak Hall.

See the schedule (next page) for detailed lecture and lab schedule.

Instructor: Naijun Zhou, Ph.D., Office hours: by appointment, 1159 LeFrak, njzhou@umd.edu

Course Website: ELMS (elms.umd.edu)

Course Objectives: Geographic Information System (GIS) is widely recognized and used in almost every subject. GIS (and Remote Sensing), Nanotechnology and Biotechnology have been defined by the U.S. Department of Labor as three most important emerging and evolving fields.

This course will introduce fundamental concepts and skills of GIS including digital representation, GIS data manipulation and management, and basic spatial analyses. Labs are designed to closely relate to lectures, which provide hands-on experiences of using leading GIS software, ArcGIS Desktop 10, to collect, manage and analyze geospatial data. This course is for all students who want to learn fundamentals of GIS and develop geospatial data manipulation and application skills. The course can serve either as a termination for basic GIS learning, or as a gateway to other courses such as Geog473 (GIS and Spatial Analysis).

Course Prerequisites: NONE.

Required Textbooks: No required textbooks. The following books can be used as optional readings and can be checked out at the McKeldin Library:

- Paul Bolstad, 2008. *GIS Fundamentals: A First Text on Geographic Information Systems*, 3rd edition. Eider Press, Minnesota. ISBN: 978-0-9717647-2-9. Book website: <http://www.paulbolstad.org/gisbook.html>. Call number: G70.212 .B64 2008.
- Michael N. DeMers, 2009. *Fundamentals of Geographic Information Systems*, 4th edition. Hoboken, NJ: Wiley. Call number: G70.212 .D46 2009.
- Lo, C. P., Yeung, Albert, 2007. *Concepts and techniques of geographic information systems*, 2nd edition. Upper Saddle River, NJ: Pearson Prentice Hall. Call number: G70.212 .L627 2007.

Course Requirements

- **ONE** close book and close notes exam, which covers the theory and methods covered during lectures.
- **THREE** homework assignments. A digital copy of completed homework must be submitted on ELMS before the due date and time. Homework assignments will be distributed on ELMS, will include lab exercise result and discussion questions.
- **SEVEN** labs using ArcGIS to solve GIS problems.
- Late work and make-up exams are given for University approved excused absences, and students must notify the Instructor and make arrangement at least 24 hours **BEFORE** the due date. Students also need to provide valid documents for late work and make-ups. Otherwise, **no late work and make-up requests will be accepted.**
- All materials, including lecture slides, announcements, homeworks, lab materials (instruction and data) will be posted on ELMS. Check ELMS frequently.
- **E-mail:** for efficient communication, please give your full name and the class (i.e., geog373) in your email subject or email body. **Instead of ELMS message, please email the instructor at njzhou@umd.edu**
- **COMMUNICATE!** Feel free and do not hesitate to contact the instructor if you have any concerns, critiques and suggestions. They are ALWAYS welcome, and the earlier the better.

Tentative Lecture and Lab Schedule, and Due Dates

Date	Lecture	Lab	Homework Due
1/2 (Th)	Introduction	Lab 1: Introduction to ArcGIS	
1/6 (M)	Data Models; Map Projection & Coordinate Systems	<i>NO LAB</i>	Homework 1: 1/6, 9am, ELMS
1/7 (Tu)	<i>NO LECTURE</i>	Lab 2: Projections, Coordinate Systems	
1/8 (W)	Data Collection	<i>NO LAB</i>	
1/9 (Th)	<i>NO LECTURE</i>	Lab 3: Data Collection	
1/13 (M)	Geodatabases	Lab 4: Geodatabases	Homework 2: 1/13, 9am, ELMS
1/14 (Tu)	Computer Cartography	Lab 5: Computer Cartography	
1/15 (W)	Spatial Analysis	<i>NO LAB</i>	
1/16 (Th)	<i>NO LECTURE</i>	Lab 6: Spatial Analysis	
1/20 (M)	<i>Dr. Martin Luther King Holiday, NO CLASS</i>		
1/21 (Tu)	Raster Analysis	Lab 7: Raster Analysis	
1/22 (W)	Review; Exam		Homework 3: 1/22, 9am, ELMS

Grading: The numeric points of student's work will be evaluated as:

Assignment Type	Number of Assignments	Points Per Assignment	Total Points (sum to 100)
Homework 1	1	10	10
Homework 2, 3	2	30	60
Exam	1	25	25
Class participation	N/A	N/A	5

The final letter grade is based on the calculated numeric points in the table, and will be graded as (with variations): A: 85.0-100, B: 70.0-84.9, C: 60.0-69.9, D: 50.0-59.9, F: <50.0

Academic Honesty. The University of Maryland has a Code of Academic Integrity that all students are expected adhere to. Visit <http://www.studenthonorcouncil.umd.edu/index.html> for specific information. Within our class, students may work together on homework assignments, however, each student absolutely must turn in their own work, from their own computer, and any discussion must be theirs alone, and not attributable to another person or group. Students may not use any textual discussion, calculations or programs from any other student or group of students.