

GEOG 5310
GEOGRAPHIC INFORMATION SYSTEMS
Department of Geography
University of Central Arkansas
Fall 2007

Instructor
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Office hours:
Mondays and Wednesday: 11.00-1.00
Tuesdays and Thursday: 2.30- 4.30
You can always contact me by email and telephone.

Course Conduct
ONLINE on WEBCT

Class Description

Geographic information systems are computer based systems which are used to capture, store, manipulate, retrieve, analyse and display geographic information. GIS is a very exciting, powerful technology, with applications in many fields like medical health, environmental monitoring, vehicle navigation, real estate sales and development and market research. GIS helps answers questions about location, patterns, trends and conditions. The course is designed to acquaint you with the fundamentals of GIS, how geographic data is created, analyzed and used in maps. It will give you hands on experience using GIS software to conduct spatial analysis, emphasize on spatial thinking and help create maps and will make you aware of the potential applications of geospatial technology in real world settings.

Course Goals and Objectives: Students should have the following knowledge and skills upon completion of the course.

1. Definition of GIS and related terminology
2. Familiarity with GIS theory
3. Ability to import, export and create data in GIS, and use the main components including Arc Map viewer, Arc Catalog and Arc Tool box.
4. Ability to conduct data queries, and analysis in the GIS framework
5. Ability to produce graphic output (maps, tables and charts) of GIS data analysis
6. Ability to use GEO DA and do Spatial analysis

Course Requirements and Expectations

Required Text Books:

Longley, P.A Goodchild, M. et al. (2005). *Geographic Information Systems and Sciences*. 2nd edition. New York. Wiley. ISBN 0470-87001-X

Price, Maribeth (2006). *Mastering ArcGIS*. 3rd Edition. Boston. Mcgraw Hill. ISBN: 978-0-07-305152-9(For Lab assignments)

Required Software

You will be required to purchase ESRI's Arc View 9.2 software, one year software license with extensions Arc GIS Spatial analyst or 3-D Analyst. This software is timed for one year only. It costs around \$100. Each of you should contact ESRI's regional office in St.Charles, Missouri (1-636-949-6620). They would also require the proof of enrollment and would provide the information needed to buy the software. As you receive the software please install it and make sure it is in working order prior to beginning the course.

Web CT and Email

This course is completely based on ONLINE lectures and Lab/Exercise assignment on WebCT. If you need help navigating the WebCT, go to <http://webct.uca.edu:8900/webct/public/home.pl> or let me know. I will be using the **UCA email ONLY** i.e. rkalra@uca.edu and not the WEBCT one. It is **your responsibility** to regularly check your email and browse WEBCT pages in order to get most updated information about this class. I will be posting a copy of syllabus, exercises, and labs and any other assignments, announcements on WebCT. Please send me the **email** which you would be regularly checking.

Exercises, Exam, Lab (price) and Discussion

7 **Exercises** will be given during the semester and **due date** will be mentioned on the exercise and will be mostly due by next week. There will be one FINAL comprehensive exam due at the end of the semester from discussion board questions, class lectures, and exercises and from the readings. It will be a take home exam and due on the exam week on 12th December, 2007 by Wednesday noon. You will be given a study guide in advance for the exam and posted on webct.

Course Readings

You are expected to do the required readings by every Monday of the week and every Friday I will provide you with a question for next week readings and which you will post on the discussion board by Wednesday noon. You are expected to read to each others questions.

Lab Exercise Schedule

You will do the exercises/labs from Maribeth Price. Don't forget to watch the videos and do the tutorials with each chapter before doing the lab exercise as they are very useful and helpful. I will post the questions to do every week on webct and you will send it back to me by **email** only. There will be a lab questions from price text and I will post on webct. The lab discussion board will be where you will ask questions if you have during labs. You all are expected to read it and help fellow class mates if you had similar problem. You will do the **all the expected labs and best ten** will be used for final grades.

If you have any other questions please email me.

Course Evaluation

Class Discussion(15*10)	150
Exercises(7*25)	155
Lab assignment(10*20)	200
Final Exam (Take Home)	150
Total Points	655

Grade Scale

90-100	A
80-89	B
70-79	C
60-69	D
<60	F

Tentative Course Schedule (Subject to Change)

Week	Topic	Chapters (Longley et al)	Exercise	Price
Week-1 August 23-25	Introduction and Syllabus		Exc:1	Introduction (1-16)
Week-2 August 27-31	GIS,GI sciences,GISudies/Web mapping	Chapter 1	Exc:2 (Arc Web Explorer)	
Week-3 Sept 4-7	GIS and Everyday life, its applications	Chapter 2	Exc:3	Ch:1
Week-4 Sept 10-14	Representing geography, Rasters and Vectors	Chapter 3		Ch:2
Week-5 Sept 17-21	Introduction to GEO DA, Toblers first law of Geography	Chapter :4 and Hand outs	Exc:4(GEODA)	
Week-6 Sept 24-28	Spatial Autocorrelation		EXC:5 Spatial Autocorrelation	
Week-7 Oct 1-5	Geo Referencing and Map Projections	Chapter 5		Ch:3
Week-8 Oct 8-12	Uncertainty,MAUP, Ecological Fallacy	Chapter 6		Ch:4
Week-9 Oct 15-17	GIS software	Chapter 7		Ch:5
Oct 18-19	FALL BREAK	FALL BREAK	FALL BREAK	
Week-10 Oct 22-26	Cartograms, Parallel Coordinate Plot, Box map	GEODA and Handouts	Exc:6	Ch:8
Week-11 Oct 29- Nov 1	Analysis and Map presentation	Chapter:12		Ch:9
Week-12 Nov 5- 9	Query measurement and transformation	Chapter 13		Ch:6
Week-13 Nov 12- 16	Centrographic measures: Mean Center, Standard distance ellipse	Chapter 15 and GEO DA	Exc:7	
Week-14 Nov 19-20	Spatial Modeling	Ch:16	Exc:8	Ch:10 and 11
Nov 21-23	THANKSGIVING BREAK	THANKSGIVING BREAK	THANKSGIVING BREAK	
Week-15 Nov 26- 30	Managing GIS,Knowdege economy and information	Chapter 17 and 18		Ch:7
Week-16 Dec 3-7	GIS and Law	Chapter:19		Ch:12
FINAL EXAM	11TH DECEMBER 2007	TAKE HOME EXAM		

Note: I reserve the right to change the syllabus, assignments, exercises, labs and points assigned to it.

Policies

Lateness Policy /Make Ups and Excused Absences

You are responsible for all lectures, labs, and exercises etc that take place in the class. No due date will be changed unless extreme emergency and a written excuse are given to me by doctor or professional. Turning in assignments promptly is important both for keeping current with the subject matter of the class and to keep all students on level playing fields. All assignments must be submitted on the assigned due date in order to receive credit. Exercises which are turned late. One day late will have one point deducted, two days late 2 points and so on and 10 points deduced after 5 days unless a doctor's note is obtained.

Americans with Disabilities statement:

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need accommodation under this act due to a disability, contact the Office of Disability Support Services at 450-3135." For information or advice on the services available, go to <http://www.uca.edu/divisions/student/disability/index.htm>.

Attendance Policy: If you consecutively missed a class assignment or exams without noticing me for an excused reason, without dropping the class, I will according to the undergraduate bulletin submit a withdraw failing to student services. The undergraduate bulletin:" If a student discontinues attendance without officially withdrawing, an instructor may drop the student for non attendance and report a withdrawal grade of WF.

Academic Dishonesty: Cheating and Plagiarism will not be tolerated. Please be familiarized with all the rules and the full text of the UCA Student Handbook can be found at: <http://www.uca.edu/divisions/student/handbook/> regarding academic policies, and sexual harassment policy.
