Introduction to Geographic Information System and Mapping: 202
Fall 2008
Department of Geography and Environmental Studies
California State University, San Bernardino.
Total Unit-5

Instructor: Dr Rajrani Kalra

Class Location: SB 359

Class Time
Lecture: Tuesday and Thursday: 6.00-7.50 PM
Lab: Tuesday and Thursday: 8.00-9.25 PM

Office Location: SB 319.

Office Hours: Tuesday and Thursday: 9.30-11.30 am. You can always contact me by email, telephone and or by appointment.

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Class Description and Objectives

Geographic information systems as Burrough, defines are " a set of tools for collecting, storing, retrieving at will, transforming and displaying spatial data from the real world for a particular set of purposes". 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 and to make maps and will make you aware of the potential applications of GIS in real world settings.

Though, GIS is computer based, you really do not have to be a computer hardware expert, nor do you have to be a computer programmer using a computer. You should however feel comfortable using a computer, saving and retrieving files and performing basic word processing functions.

Class Format:

This is a lecture and lab based class. Teaching will be with lectures, labs, films and or guest speaker based. The lab module comprises of Labs, hand outs, and in class exercises to gain hands on experiences in using GIS software (Arc view 9.2) to handle analyze geo-spatial information and make maps. You are expected to do the lab assignments in assigned lab session after the class lecture (TR 8.00-9.25 PM).
Prerequisites: There are no pre requisites for this course.

Black Board and Email
I will also be posting a copy of syllabus, exercises, and labs and any other assignments, announcements on Blackboard (http://blackboard.csusb.edu/webapps/login). If you need help navigating the Black board contact the student technology support center at the above link or 909-537-3995. I will be using the **CSUSB email ONLY**
i.e. rkalra@csusb.edu. It is **your responsibility** to regularly check your email and browse Blackboard pages in order to get most updated information about this class.

Course Requirements:

Required Text Book (Class lecture and Lab)
Heywood, Ian, Cornelius, Sarah and Carver, Steve (2006). *An Introduction to Geographical Information Systems.* Third Edition. Pearson Education Limited: England. ISBN: 13:978-0-13-129317-5
ISBN: 10:-0-13-129317-6

Ormsby, T. Napoleon, E. et al. (2004). *Getting to Know Arc GIS Desktop.* ESRI Press. Redlands, CA. (For Labs).
Please bring this text to the class (This text comes with six month software of Arc GIS 9.2 and data which you can upload on your PC too).

Lab Requirement
Flash memory drive. This is a required item. I suggest buying one that is at least 512 MB. Please also prepare a notebook for both lecture and lab sessions. Please always save your work in the **assigned lab web space(if available) and or in your flash drive.**

Attendance
Consistent class attendance and enthusiastic participation is required. Class and or lab attendance will be taken randomly every week (Exams and Quizzes will be based on class lecturers, lab texts and readings from the book).

Required Readings and Lab Assignments
You are expected to do the required readings before the class and participate in class discussions. These ***readings*** will be available online on Blackboard which are required for the course.

You are required to complete the entire given lab assignments in the class and complete the lab challenges before or on the due date. If you miss the class and lab you will be on your own in completing it before the due date. Lab challenges will be given in the lab sessions and a lab handout will be given for general instructions by the instructor. Students are expected to read and understand the handout before they start to work on the lab assignment and to remain in the lab for the full class period or until permitted by the instructor. Although students will be able to complete the lab exercises during class time, you also might have to work outside the class period. You can download the evaluation version of GIS software on your desktop (comes with Getting to know GIS text).

Please go over the tentative schedule for the labs and the class lectures.

Exercises, Quizzes, Article reviews and Exams

1. **GIS Application Project**: Each student will review at least five articles or at least three books (if combination of one book and three articles/need approved by me) on any one application of GIS, for eg health, real-estate, natural resources, business etc. The articles/book selected will be from professional, academic and high quality journals/publisher. You will first get the topic and the selected texts approved by me by **30th October 2008. Without my approval you loose points. You will be given a handout/uploaded on blackboard on the format of the project. You will submit a 10-15 page paper and give a 5-6 minute presentation of your project. Due Date for Project: 8th December 08.**
2. Six **Lab Challenges** will be given during the entire quarter.
3. There will be four **quizzes** throughout the quarter.
4. There will be **ONE FINAL COMPREHENSIVE EXAM.**
5. Attendance and class/lab participation.
6. Your Final Exam is on December 11 at 6.00-7.50 pm.

A word of Advise: Start your exercises, assignments and labs on time so that you don't lag behind. Use the labs in after class hours. Don't wait for the due dates.

Course Evaluation

Evaluation	Percent
Class Attendance/class participation	10
Lab Challenges	25
GIS Application review and Presentation	20
Quiz	20
Final Exam	25
Total	100

Grade Scale

Percentage	Grade
93-100	A
90-92.5	A-
87-89.5	B+
83-86.5	B
80-82.5	B-
77-79.5	C+
73-76.5	C
70-72.5	C-
67-69.5	D+
63-66.5	D
60-62.5	D-
Below 60	F

Policies:

Syllabus: I reserve the right to change any and all part of the syllabus, labs including assignments and their points.

Lateness Policy /Make Ups and Excused Absences
You are responsible for all lectures, labs, and exercises etc that take place in the class. 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. As such, this class will adopt strict grading policy towards late lab assignments. All assignments/labs challenges/in class exercises must be submitted on the assigned due date in order to receive credit. Labs which are turned late one day 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. Any missed exam or quiz will only be allowed to be taken if there is an extreme emergency and a written excuse is given by the doctor or professional.

Class room/Lab Etiquette
Students are expected to refrain from eating, making or receiving phone calls, and reading materials that are unrelated to the course while the class and the lab are in session. Eating and drinking in the lab are strictly prohibited.
Cell Phones and all electronics must be turned **off** during class time. You should be on **TIME** in the class. Consecutive late class arrival is not allowed, as it disturbs the rest of the class.
You are expected to do only LAB ASSIGNMENTS on the computer in the lab class time. No Internet surfing, except required in the class.

Student Disabilities Policy: If you are in need of an accommodation for a disability in order to participate in this class, please let me know ASAP and also contact services to students with Disabilities at UH-183, (909-537-5238).

Academic Dishonesty: **Academic Dishonesty**: Cheating and Plagiarism will not be tolerated. Please refer to the “Academic Regulations and Procedures" in the 2008-09 CSUSB Bulletin of Courses (page 53) for the university’s policies on cheating, and plagiarism.

Note: In the lab you will do the assigned chapters from Getting to know Arc GIS and complete the six lab challenges given throughout the quarter.

Tentative Course Schedule (Subject to Change)
(Changes will be announced in the class/blackboard webpage)
Class Lectures

Weeks	Topics	Readings/handouts(All Chapters are from Hey et al).	Assignments/Quiz/Exams/due dates
Week 1: 25th Sept	Introduction, Syllabus, What is GIS? A gallery of applications	Chapter -1	Have fun this Week!
Week 2	Basic Geographic Concepts, Spatial thinking, and Spatial Data	Ch-2 and handout	
30th Sept	What is Spatial Data, representing geography,		
2nd Oct	The nature of geographic data		
Week 3	Digital Geographic Data		
7th Oct	Spatial Data Modeling and GIS data Models	Ch-3	**Quiz-1**
9th Oct	Raster and Vector data models		
Week 4	Data Storage and Editing		
14th Oct	Attribute data base management	Ch-4	**Lab Challenge-1**
16th Oct	Data Storage, management and Editing	Ch-5	**Quiz-2**
Week 5	Analysing Data	Ch-6 and handouts	
21st Oct	Data Analysis_ Part A		
23rd Oct	Data Analysis_ Part B		**Lab Challenge-2**
Week 6	Acquiring and Integrating of Census data	Handouts	
28th Oct	GIS data Sources		
30th Oct	Web Mapping		**Lab Challenge-3**
Week 7	GIS Output and Design	Ch-8 and Handouts	
4th Nov	Cartography and Visualization		
6th Nov			**Quiz-3**
Week 8 (11th Nov)	**VETERANS DAY (No Class)**	**VETERANS DAY (No Class)**	
13th Nov	Uncertainty, MAUP and Ecological fallacy, Intro to Spatial Statistics for GIS	Handouts	**Lab Challenge-4**
18th Nov	An Introduction to Point Pattern analysis: Quadrat and Nearest Neighbor analysis	Handouts	
Week 9 (20th Nov)		***TBA***	
Week 10 25th Nov	Managing GIS and future of GIS	Ch- 9 and Ch-11	**Quiz-4 and Lab Challenge-5**
Week 10 (27th Nov)	**THANKSGIVING BREAK (No Class)**	**THANKSGIVING BREAK (No Class)**	
Week 11			
2nd Dec	GIS Applications	Ch-13 and hand outs	
4th Dec	Class Presentations		**Lab Challenge 6**
Week 12(Last Class) 8th Dec	Class Presentations		
11th December 2008(6.00-7.50 PM)	**FINAL EXAM**	**FINAL EXAM**	**Good Luck!**

Lab Schedule (Tentative, Subject to Change)
(Changes will be announced in the class/blackboard webpage)

Date/Week	Topic	Chapter(Chs are from Getting to Know Arc GIS)	Assignments and Due Dates
Week 1	Getting to know GIS	Ch-1,2, and 3	Have fun! Introduction to GIS software
Week 2	Getting Started with maps and data		
30th Sept	Exploring Arc map and Arc Catalog	Ch-4 and Ch-5	
2nd Oct	Displaying Data	Ch-6 and Ch-7	
Week 3	Displaying Data		Lab Challenge-1(Due:14th Oct)
7th Oct	Labeling features	Lab Challenge-1	
9th Oct	Getting information about features	Ch-8 and Ch-9	
Week 4	Analyzing feature relationships		Lab Challenge- 2(Due: 23rd Oct)
14th Oct	Analyzing feature relationships	Ch-10 and Ch-11	
16th Oct	Analyzing feature relationships	Ch-12 and Ch-13	
Week 5	Creating and Editing Data		
21st Oct		Ch-14 and Ch-15	
23rdOct		Ch-16 and Ch-17	
Week 6			Lab Challenge-3 (Due: 30th Oct)
28th Oct	Downloading data from census	Tutorial on Census data and other sources.	
30th Oct	Web mapping		
Week 7	Map Layout and design		Lab Challenge -4: (Due:13th Nov)
4th Nov	Presentation of data	Ch-18 and Ch-19	
6th Nov			
Week 8			
11th Nov	**VETERANS DAY**	**NO CLASS**	**NO CLASS**
13th Nov	Introduction to Spatial Statistics Exploratory Spatial Statistics	TBA	
Week 9			Lab Challenge-5: (Due on 25th Nov)
18th Nov	Introduction to GEODA, Spatial Autocorrelation: Global Moran's I and LISA	Lab Challenge-5	
20th Nov	Introduction to Point Pattern Analysis		
Week 10			Lab Challenge 6:(Due on 4th Dec)
25th Nov	Quadrat Analysis	Lab Challenge-6	
27th Nov	**Thanksgiving Break(No Class)**	**Thanksgiving Break(No Class)**	**Thanksgiving Break(No Class)**
Week 11	Wrap up Challenge-6	Class Presentations /TBA	
2nd Dec			
4th Dec			
8th Dec	**Final Project Due**	**Final Project Due**	**Final Project Due**