Fall 2010
Advanced Geographical Information Science- Geography 406 (#12037): 2 Units
Advanced Geographical Information Science Lab – Geography 406L (#12038): 1 Unit
Total Units: 3
Mondays 4:00 PM – 7:40 PM
Sierra Hall Room 107

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Office Hours: Mondays 3-4 PM or by appointment
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Textbooks:
GIS Fundamentals: A First Text on Geographic Information Systems by Paul Bolstad, 2008, Eider press, 3rd Edition.

Moodle and Personal Web Pages:
Due to University budgetary issues and environmental concerns, most material for the course will only be available in digital format (with the exception of the course syllabus and exams). Lectures, class assignments/labs, readings, the syllabus, and the course schedule will be available via **Moodle**. You MUST check Moodle on a regular basis for updates, especially to the course schedule. When assignments are due, you will be instructed to upload these files to Moodle. The course syllabus (as well as various other GIS resources) will also be available on my website: http://www.csun.edu/~dlb10399/. Additionally, a few assignments will involve uploading files to your own personal web page which will be developed in Lab 1. Grades for labs, presentations, extra credit and exams will be posted on Moodle.

Course Description:
Prerequisite: GEOG 306 or permission of instructor. Corequisite: GEOG 406L. Course will cover advanced topics in geographical information science. Students will investigate geographic data structures, database design, algorithms for spatial data analysis, and implementation and management issues associated with geographic information systems. Lab will demonstrate these issues through the use of ArcInfo software.

Course Level:
This is an advanced GIS course which requires that students complete Geography 206 and 306 (or the equivalent) *before* the beginning of the semester.

Goals
Students will gain an advanced understanding of geospatial concepts as well as the various routines of ArcGIS and selected extensions, and how these routines can be utilized to perform a variety of geographical analyses. Students MUST work regularly with the computer even if this means repeating an exercise.

Basis of Grading
Since this is a three-credit course with a "2+1" split between lecture and lab, it is necessary to have some degree of flexibility in lecture/lab combinations. Lectures and labs will not be separated completely. Lab time is allocated to get students familiar with the techniques and to work on their exercises and projects. The instructor will be in the lab to answer your questions during lab time. If you cannot finish your work during the assigned time, you need to *find your own time to finish and understand the assignments.*

Your skills will be evaluated via exams (multiple choice and short answer), lab assignments, article presentations, and a final project and a presentation. Grades will be assigned using a plus/minus system. However, to pass the course, all students MUST complete the final project AND the exams. Grades for labs, presentations, extra credit and exams will be posted on Moodle.

The items for grading are as follows:

Exams	30%
Lab Assignments	30%
Final Project/Presentations	20%
Attendance and Participation	10%
Article Presentations	10%

The following scale will be used for the exams and your final grade in both lecture and lab:

A	90 - 100%	B	80 - 89%	C	68 - 79%
D	55 - 67%	F	54% and below		

Exams: (200 points)
The exams are not cumulative. You will only be tested on the material since the previous exam. The format for the exams will be short answer and multiple choice. No make-up exams will be given except in extremely unusual situations when the instructor gets **prior** notice and approves. If you will miss an exam due to illness/injury, you must let me know before the exam occurs (call or email) and must also provide a doctor's note in order to make up the exam.

Lab Assignments: (100 points)
Each week you will have a lab assignment to turn in/post on Moodle. You will have a total of 10 assignments worth 10 points each. The weeks you are completing your online courses, you will turn in your certificate that you receive once you have completed the module and passed the exam. Labs are due the Monday after they are assigned unless otherwise noted. It is **your** responsibility to make sure your labs are posted correctly to Moodle.

Project and Poster: (50 points)
Each student will be required to complete a project for this course. You will have the final weeks of the term to work on your project. You may work on any topic and you may wish to integrate the project with your work in another class. There are no restrictions on the topics for the project. However, the project should involve some major functions of spatial analyses and **simply creating a few maps does not qualify as a project.** Students are required to create a poster for the project, which should be well designed and organized. The project will be evaluated based on a few aspects: from the novelty of the idea, to the execution of GIS analyses, organization, artistic design, and clarity of the poster.
A handout about the final project will be given to you after the first exam. I will expect each of you to discuss your project ideas with me mid-term so that you know what you will be doing once we begin working on them.

Project Presentations: (20 points)
You will be required to present your project to the class at the end of the term in PowerPoint format. Each student will be given 10 minutes for his/her project, followed by questions and comments from other students.

Journal Article Readings and Presentations: (20 points)
Each week, 2 (or more) students will be asked to jointly present a summary of the week's assigned journal article to the class in PowerPoint format. Student groups will be responsible for coordinating with each other and presenting *one* presentation together. Each group will be given a maximum of 10 minutes for their presentation, followed by questions and comments from other students. Student involvement in the presentations and the brief discussions that follow will be factored into the attendance and participation grade in the class.

Attendance and Participation: (20 points)
Students are expected attend classes on a regular basis and be punctual. I will be taking attendance at the beginning of each class. If you are late to class, it is your responsibility to make sure you are marked present on my roll sheet. Each student is allowed two absences without approval, after which 10 points will be deducted from the final grade. The approved absences are only granted when the instructor is notified and agrees in advance. In order to get the full credit (the full 20 points) for the attendance and participation, the students are also expected to *actively* participate in class discussion. *You are expected to arrive in class with 2 questions/comments from the week's assigned journal article.* Announcements regarding the course schedule, lectures, exams, assignments, etc will be made in class. All organization/administrative announcements made during class are assumed to be known by all students. In other words, if you miss class, it is your responsibility to check with another student (or the instructor) for updates.

Policy on Late Assignments:
Late assignments will be reduced by one point for *each day* they are late up to a week. After one week I will no longer accept your assignment and you will get a zero for your grade on the assignment. The only exception to this is in cases of illness/injury (again, a doctor's note must be provided) or *extremely* unusual circumstances. Please note that you must contact me to discuss a late assignment *the week it is due*.

Academic Conduct:
Under no circumstances should you consider any form of cheating or plagiarizing in this course. IT WILL NOT BE TOLERATED! If you are caught you will be given a failing grade for the course and you will be reported to the Dean of Social and Behavioral Sciences and also to the Dean of Academic Affairs for disciplinary measures.

Course Rules:
Cell phones must be silenced or turned off during class (both lecture and lab). Talking on the phone and eating or drinking (except for bottled water) during lecture or lab is prohibited. Working on the computer *during lecture* is also prohibited. Disruptive behavior will not be tolerated and may result in temporary or permanent removal from class. Please be ON TIME to class. It is disruptive to the class when students show up late. Constant tardiness will be factored in to your attendance and participation grade!

Students with Disabilities:
Students with disabilities must register with the Center on Disabilities and complete a services agreement each semester. Staff within the Center will verify the existence of a disability based on the documentation provided and approve accommodations. Students who are approved for testing taking accommodations must provide a proctor form to their faculty member signed by a counselor in the Center on Disabilities prior to making testing arrangements. The Center on Disabilities is located in Bayramian Hall, room 110. Staff can be reached at (818) 677-2684.
If you have a disability, please make the instructor aware of it at the beginning of the semester. I am eager to help make arrangements to accommodate any student with differential learning needs. Other campus-wide disclosures are available at: http://www.csun.edu/a&r/disclosures/disclosures.html.

Tentative Lecture Schedule:
This schedule may change throughout the semester. It is your responsibility to stay on top of what is going on by coming to class, checking Moodle and asking questions if you are uncertain about the schedule. The most current version of the schedule will be available on Moodle.

Week	Date	Class Topic
1	8/23/2010	Course Introduction
2	8/30/2010	Web Design
3	9/6/2010	**Labor Day - NO CLASS**
4	9/13/2010	GIS Review
5	9/20/2010	Network Analysis
6	9/27/2010	Spatial Statistics/Working with Geostatistical Analysis
7	10/4/2010	Geostatistical Analysis (Cont.)
8	10/11/2010	Project Management
9	10/18/2010	**Midterm Exam**
10	10/25/2010	Image Analysis
11	11/1/2010	Advanced Database Management
12	11/8/2010	Customizing ArcGIS
13	11/15/2010	Online GIS Applications
14	11/22/2010	Work on Final Projects
15	11/29/2010	Work on Final Projects
16	12/6/2010	**Final Project Presentations**

It is the responsibility of each student to know and follow all the written guidance given by the instructor in this syllabus.

Intended Outcomes
In accordance with best teaching practices, intended outcomes for this course are made transparent to students at the beginning of the semester. Students should be able to demonstrate at least basic competency with knowledge and skill sets listed below in order to earn a passing grade in this course. The assessment and evaluation tools used during the semester, designed to measure your success in acquiring these knowledge and skill sets are listed below each learning outcome.

Goal A: Building a Base of GIS Knowledge

- Students in this course will identify, define and understand key terms and concepts central to an intermediate understanding of geographic information systems. Key terms and concepts include but are not limited to; vector analysis, terrain analysis, Global Navigation Satellite Systems, Map Algebra, Digital Elevation Model, and Networks.

- Students will be able to explain these elements of a geographic information system, and apply this knowledge to aid in the acquisition and understanding of skill sets.

Assessment/Evaluation tool: Class participation, lab assignments, projects, presentations and exams.

Goal B: Acquiring GIS Skills

- Students will employ their understanding of GIS concepts to help become proficient in the use of intermediate GIS tools and software, and gain applied GIS skills.

- Students will acquire and develop skills in manipulating GIS software packages such as ESRI's ArcGIS Desktop software and associated extensions that require and intermediate understanding of GIS.

- Students will develop skills for acquiring new knowledge related to the field of GIS by being exposed to available 'help' tools and additional online based knowledge. This will encourage and enable them to explore potential solutions to GIS questions on their own.

Assessment/Evaluation tool: Class participation, lab assignments, projects, presentations and exams.

Goal C: Communicating and Applying Knowledge and Skills

- Students in this course will be able to communicate ideas, concepts and skills by using words, numbers, maps and other graphic devices.

- Students will be able to apply this education to satisfy requirements for an entry level technician job in the GIS field. Applied skills in this scenario might include map creation and display, data creation and editing as well as spatial and tabular data queries.

- Coursework encourages students to develop an appreciation for the importance of the continued acquisition of new and diverse knowledge and skills, and offers opportunities to integrate personal, professional, and social aspects of life.

Assessment/Evaluation tool: Class participation, lab assignments, projects, presentations and exams.