Course Objective:

Geographic information systems (GIS) are computerized systems designed for storage, retrieval, and analysis of geographically referenced data. GIS is used to map all sorts of physical, biological, cultural, demographic, and economic data. The roots of GIS are in cartography and go back hundreds of years. GIS, as we know it today, began in the 1950s and 1960s and for many years was used primarily by government agencies and engineers.

Why are so many health-care executives and public-health professionals now seeing the benefits of managing their organizations through the use of GIS? The answer is quite simple: Managing health-care costs by efficiently meeting patients’ needs with available resources is an activity that is central to every health-care organization. GIS provides an effective way to visualize, organize, and manage a wide variety of information, including administrative and medical data, social services, and patient data. Public-health and medical-research agencies are also using GIS to map health-related events, identify disease clusters, investigate environmental health problems, and understand the spread of communicable and infectious diseases.

This course uses a unique approach to teach the use of GIS in health care. It imbeds learning how to use GIS software in the context of carrying out projects for visualizing and analyzing health-related data. Each week incorporates a lecture and a computer lab that focuses on a health-care issue and uses ArcGIS software to analyze data or to solve a problem. Through weekly labs and project case studies, students will learn not only about the software and how to use it, but also about the many distinct advantages of using GIS for health-care policy making and planning.

By the end of the course, students will have sufficient background to become expert users of GIS in building, managing, and using GIS maps and health-related data for health-care organizations. Specifically, students will be able to

1. Collect, create, and manage geographic data for health applications
2. Display and visualize health information effectively
3. Analyze health phenomena using GIS methodologies
4. Develop technical GIS and geographic skills to facilitate health studies
5. Formulate health-related questions in GIS and answer them using GIS software

Prerequisites:
GEOG 200 or SOC 250 or equivalent or consent of instructor. Interested students are encouraged to talk with the instructor.

Class Meetings:
Concepts and principles will be covered in lectures. Lectures are linked to lab assignments (see below). You are fully responsible for getting the information covered in lectures. The last two weeks are used for student presentations. The schedule given below is subject to change depending on the interest of students and needs for the class. Do not be late for class. Cell phones should be off.

Labs:
Students must register for the lab session.

Text:
Optional:

Software:
Esri's ArcGIS for Desktop 10.3.1. All software required to complete course assignments is provided in the Geography Computer Labs located at PH1-201 and PH1-208, the Horn Center, and the Library. Additional access to ArcGIS software can be provided but technical assistance is not supported. Thumb drive or other backup device is needed to copy GIS data to and from computer labs.

Geography Department:
Open lab hours are available at PH1-208.

Assignment Policy
All course work is expected by the due date. A late penalty of 10% will be taken off each day after the due date.

If you have a genuine reason (a known medical condition, a job interview etc.) for being unable to complete an assignment on time, please ask for permission from the instructor.

Labs
Classes have time allotted for discussions and labs. Your contribution and participation in class will be noted and used to determine part of your final grade, while just showing up won't count a whole lot toward this component!
During the semester, there are several labs. The main purpose of the labs is to provide an opportunity to learn how to apply the principles we cover during the lectures. If you are having difficulty with assignments you should get help, either from fellow students or from me. Instructions for the assignments will be provided during the semester.

**Final project**
By the end of the semester you will have the basic knowledge and skills required to use GIS in a health application. Guidance on the content and expectation for your final class project will be provided during the semester.

**Grading Policy**
Your performance of the course will be based on the following activities:

- **Class Participation (10%, 100 points):** lecture participation (5%) and project session participation (5%)
- **Labs (54%, 540 points)**
- **Final Project (36%, 360 points)**

All labs are due at the beginning of the next lab. Each lab has 60 points. Late penalty is 6 points per day, unless acceptable evidence (medical or family emergency) is presented.

Each student will work on a final project related to health GIS. The final project will be graded based on a proposal (60 points), a written report (150 points), an oral presentation (100 points), and a peer review report (50 points). You should demonstrate your understanding of GIS concepts and methodologies in a health application.

Final letter grades will be assigned based on the total points you have earned as follows:

- 90% <= A
- 80% <= B < 90%
- 70% <= C < 80%
- 60% <= D < 70%
- F < 60%

**The Use of BeachBoard and Email Account**
Class materials such as lecture notes and labs will be available under the heading Course Documents on BeachBoard. All class materials will be distributed on BeachBoard in a digital form only. If you prefer a hardcopy, please make one by yourself and bring it to the class.

You need to have a CSULB e-mail account to use BeachBoard. Announcements and messages from me to the class may come by email. If you do not check your CSULB e-mail account regularly, but use another account instead, please set your CSULB account so that it will forward messages to your other account.

**Withdrawal Policy**
According to the “Academic Credit and Regulations” of the University, students are held responsible for completion of every course in which they register OR FOR WITHDRAWING DURING THE FIRST TWO WEEKS OF CLASSES FROM COURSES WHICH THEY DO NOT INTEND TO COMPLETE. Application for withdrawal from the University or from a class must be officially filed by the student at the Office of Enrollment Services whether the student has ever attended the class or not; otherwise, the student will receive a grade of "UW" (unauthorized withdrawal) in the course.

Application for withdrawal is made at the Office of Enrollment Services. See http://daf.csulb.edu/offices/enrollment/ for more detailed information.

**Attendance Policy**

Students are expected to attend all sessions. Assignments will be announced and peer-reviewed during the class. However, if there are unavoidable circumstances, an absence may be excused with necessary documentation. It then becomes the responsibility of the student to follow up to date in the class material.

**Cheating and Plagiarism**

The following from the Academic Information and Regulations web pages describes regulations and concerns about cheating and plagiarism report to the Vice President for Student Services (PS 08-02):

It is the policy of the faculty and administration to deal effectively with the student who practices cheating or plagiarism. These acts are fundamentally destructive of the process of education and the confident evaluation of a student's mastery over a subject. A University maintains respect and functions successfully within the larger community when its reputation is built on honesty. By the same token, each student benefits in helping to maintain the integrity of the University. This policy, therefore, provides for a variety of faculty actions including those which may lead to the assignment of a failing grade for a course and for administrative actions which may lead to dismissal from the University. This document is written with the intent to support the traditional values that students are on their honor to perform their academic duties in an ethical manner.

**General**

The following definitions of cheating and plagiarism shall apply to all work submitted by a student. Any change or refinement in the following definitions or applications of the definitions, necessitated by the nature of the work involved, shall be made by the faculty member or departments desiring the change. Any change shall be announced, in writing, in the relevant classes before the work is assigned and a copy of the changes will be filed in the department office and in the Office of Judicial Affairs.

**Definition of Plagiarism**

Plagiarism is defined as the act of using the ideas or work of another person or persons as if they were one's own, without giving credit to the source. Such an act is not plagiarism if it is
ascertained that the ideas were arrived at through independent reasoning or logic or where the thought or idea is common knowledge. Acknowledge of an original author or source must be made through appropriate references, i.e., quotation marks, footnotes, or commentary. Examples of plagiarism include, but are not limited to, the following: the submission of a work, either in part or in whole, completed by another; failure to give credit for ideas, statements, facts or conclusions with rightfully belong to another; in written work, failure to use quotation marks when quoting directly from another, whether it be a paragraph, a sentence, or even a part thereof; or close and lengthy paraphrasing of another's writing or programming. A student who is in doubt about the extent of acceptable paraphrasing should consult the instructor. Students are cautioned that, in conducting their research, they should prepare their notes by (a) either quoting material exactly (using quotation marks) at the time they take notes from a source; or (b) departing completely from the language used in the source, putting the material into their own words. In this way, when the material is used in the paper or project, the student can avoid plagiarism resulting from verbatim use of notes. Both quoted and paraphrased materials must be given proper citations.

**Definition of Cheating**
Cheating is defined as the act of obtaining or attempting to obtain or aiding another to obtain academic credit for work by the use of any dishonest, deceptive or fraudulent means. Examples of cheating during an examination would include, but not be limited to the following: copying, either in part or in wholes, from another test or examination; discussion of answers or ideas relating to the answers on an examination or test unless such discussion is specifically authorized by the instructor; giving or receiving copies of an exam without the permission of the instructor; using or displaying notes; “cheat sheets,” or other information or devices inappropriate to the prescribed test conditions, as when the test of competence includes a test of unassisted recall of information, skill, or procedure; allowing someone other than the officially enrolled student to represent the same. Also included are plagiarism as defined and altering or interfering with the grading procedures. It is often appropriate for students to study together or to work in teams on projects. However, such students should be careful to avoid use of unauthorized assistance, and to avoid any implication of cheating, by such means as sitting apart from one another in examinations, presenting the work in a manner which clearly indicates the effort of each individual, or such other method as is appropriate to the particular course.

Other sources of information on academic misconduct can be found on the Academic Information and Regulations web pages (http://www.csulb.edu/divisions/aa/catalog/2010-2011/academic_information/cheating_plagiarism.html)

**Accommodations for Students with Disabilities**
Students who qualify for services will receive academic modifications for which they are legally entitled. It is the responsibility of the student to contact Disabled Student Services Office and
follow their procedures for obtaining assistance. The Disabled Student Services Office is located in Brotman Hall Room 270, telephone: (562) 985-5401, Email: dss@csulb.edu, http://www.csulb.edu/divisions/students/dss/about/.

**General Regulations and Procedures**
The “General Regulations and Procedures” of the University can be found in the University Catalog webpage: http://www.csulb.edu/divisions/students/studentdean/campus_regulations/index.htm.

**Computer Help**
The CSULB Technology Help Desk is available for students. The URL for the Help Desk is: http://www.csulb.edu/divisions/aa/academic_technology/thd/; tel: (562) 985-4959.
## Tentative Course Schedule (subject to change)

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<th>Readings</th>
<th>Lab</th>
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<td>Ch1</td>
<td>Course survey</td>
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