



Spring 2012

Introduction to Geographic Information Systems (GIS)

Room B11, Mondays 2:35-5:45pm (CRN 31069)

Instructor: Colleen Mesel

Office: Business 14 (B-14)

Phone: (661) 395-4668

E-Mail: cmesel@bakersfieldcollege.edu

WWW: www2.bc.cc.ca.us/cs/cmesel

Course Description:

An introduction to Geographic Information Systems (GIS). GIS technology is one of the fastest growing computer fields worldwide, finding its ways into nearly every walk of life and using geography as a basis to analyze and display information. The concepts upon which GIS technology is based, how it works, and what it does are presented.

This course gives students a hand-on experience and conceptual overview to take advantage of desktop GIS software, especially ArcGIS from Environmental Systems Research Institute, Inc. (ESRI). Bakersfield College is an ESRI Authorized Learning Center and part of the ESRI Authorized Training Program.

Students will learn the basic GIS tasks from mapmaking, to spatial analysis, to database creation and the geodatabase data format. Students will learn the basic functionality of ArcGIS Desktop software, become familiar with the graphical user interface (GUI), and learn how to create, edit, query, analyze and display geographic and tabular data.

Student Learning Outcomes: (Methods of Evaluation/Assessment for all include: Discussion, Lab, Assignment, Exam)

- Students will demonstrate the ability to understand the nature of geographic information and its applications; develop a working knowledge of Geographic Information Systems
- Students will identify, acquire, and employ a variety of types of geographic data
- Students will analyze the use of spatial analysis, including producing mapping products that display effectively geographic information
- Students will compare and contrast database design, creation and implementation concepts

Prerequisite:

Minimum one year of high school algebra or MATH A (may be taken concurrently) or evaluation by instructor.

Recommended: COMS B5, *Introduction to Microcomputer Applications*, or the equivalent.

Hours: 3 hours lecture

Required Materials:

ESRI Press; *Getting to Know ArcGIS Desktop, Second Edition, Updated for ArcGIS 10*; Environmental Systems Research Institute, Inc. (ESRI); 2010. ISBN: 9781589482609

Recommended: Clarke, Keith C.; *Getting Started with Geographic Information Systems*; Prentice Hall; 5th Edition; 2010. ISBN: 0131494988

4th Edition: ISBN: 0-13-046027-3...*Note: Editions 2-4 can also be used with discretion*

USB drive

Attendance:

The attendance policy as outlined in the catalog will be enforced. It is expected that students will notify me (in advance) of class absences. Any student that does not notify me in advance and accumulates two weeks of absences may be dropped from the course. Withdrawal from the course is the STUDENT'S responsibility.

Course Requirements and Grading:

Students will earn a grade for the course by completing lab assignments, exams, and GIS projects. Grades will be assigned by percentage of total semester points as follows:

90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, below 60% = F.

Lab Assignments (12 @ 20 pts. each) 240 points

Quizzes (6 @ 10 pts. each)..... 60 points

In-class Project/Exercise..... 20 points

Comprehensive Final..... 40 points

TOTAL: 360 points

- **Lab Assignments:**

Lab assignments will be worth 20 points each. They will be of varying degrees of difficulty and some may require several hours of time to complete. The due dates for the assignments are on the class schedule. All lab assignments turned in after the **BEGINNING** of the class period that they are due will be penalized.

All assignments must have the following information or points will be deducted from the assignment:

Student Name	Sam Spatial
Assignment Name	Lab #1
Date	January 1, 2012

Obtaining occasional help from fellow students, lab assistants and instructor is legitimate; however, handing in assignments that are substantially copies of another's work is totally unacceptable. Such cases will get grades of zero and may result in an F grade for the course. If there is any doubt about the author of your work, you may be asked to explain how you did the assignment.

- **Exams:**

There will be a comprehensive final (40 pts). The exam date is on the syllabus.

- **Make-up Exams and Late Work:**

Late homework will be penalized **5 points** if it is late. However, homework **older than one (1) week** late will **NOT** be graded. This will be explained in class.

The last day to turn in ANY approved homework or extra credit work is **Monday, April 30** at the beginning of class.

The Quizzes, In-class Project/Exercises, and the Final CANNOT be made up nor turned in late.

"Students with disabilities who believe they may need accommodations in this class are encouraged to contact Disabled Student Programs & Services located at Student Services Building, 1st Floor, Counseling Center (661-395-4334), as soon as possible to better ensure such accommodations are implemented in a timely fashion."

COMS B37 – Tentative Reading and Class Schedule

Date	Reading	Assignment(s)	Due Date
Week 1 – 1/16	<i>no class, Martin Luther King, Jr. Holiday</i>		
Week 2 – 1/23	Course Overview and GIS Introduction Clarke: Chap.1, What is a GIS? Getting to Know ArcGIS (GTKAG): Chap. 1 and Chap. 2		
Week 3 – 1/30	Clarke: Chap.1, cont. GTKAG: Chap. 3 and Chap. 4		
Week 4 – 2/6	Clarke: Chap. 2 (pgs. 54-56), GIS's Roots in Cartography GTKAG: Chap. 5 and Chap. 6A, 6B		Lab #1 due2/6
Week 5 – 2/13	Clarke: Chap. 2 (pgs. 34-53), GIS's Roots in Cartography, cont. GTKAG: Chap. 6C, 6D		Lab #2 due2/13
Week 6 – 2/20	<i>no class, Washington's Day Holiday</i>		
<i>Tuesday, 2/21 *** Last day to withdraw without receiving a "W"</i>			
Week 7 – 2/27	Clarke: Chap. 3, Maps as Numbers (structuring maps) GTKAG: Chap. 13		Lab #3 due2/27
Week 8 – 3/5	Clarke: Chap. 4, Getting the Map into the Computer (digitizing and scanning) GTKAG: Chap. 7 and Chap. 8		Lab #4 due3/5

COMS B37 – Tentative Reading and Class Schedule

Date	Reading	Assignment(s)	Due Date
Week 9 – 3/12	Specialized In-Class GIS Applications and Exercises	Lab #5 due	3/12
Week 10 – 3/19	Clarke: Chap. 5, What is Where? (basic database management) Clarke: Chap. 6, Why is it There? (spatial relationships) GTKAG: Chap. 9 and Chap. 10	Exercise deliverables due	3/19
Week 11 – 3/26	Clarke: Chap. 6, cont. GTKAG: Chap. 11 and Chap. 12		
<i>Friday, 3/30 *** Last day to withdraw from a semester length class</i>			
<i>*** No class, Spring Break – April 2 – April 6, 2012</i>			
Week 12 – 4/9	GTKAG: Chap. 17 and Chap. 14, Chap. 15	Lab #6 due	4/9
Week 13 – 4/16	GTKAG: Chap. 16 and Chap. 18B		
Week 14 – 4/23	Clarke: Chap. 7, Making Maps with GIS GTKAG: Chap. 18A, 18C and Chap. 19	Lab #7 due	4/23
Week 15 – 4/30	GPS In-Class Exercise	Lab #8 due Lab #9 (GPS Tutorial) due	4/30 4/30
4/30	*** Last Day to Turn In Late Work & Extra Credit ***		
Week 16 – 5/7	FINAL	2:00pm	Final EXAM due.....
NOTE: The <u>Final</u> CANNOT be made up nor turned in late			

NOTE: This syllabus is *TENTATIVE* and subject to change.