

BSC 417 – Geospatial Mapping

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This course is intended as an introductory course in Geographic Information Systems (GIS). The course will provide basic knowledge of the fundamentals of GIS, including GIS theory and applications. The course will take a hands-on and problem solving approach to learning GIS and will cover basic GIS including map characteristics and projections, spatial data models, relational databases, and spatial analysis with a focus on natural resource research and management and environmental science.

COURSE OBJECTIVES

Upon completion of this course the student will

- Gain a basic, practical understanding of GIS concepts, techniques and real world applications.
- Understand the basic concepts of geography necessary to efficiently and accurately use GIS technology.
- Understand basic GIS data and analysis concepts.
- Understand the practical applications of GI and gain experience using GIS tools to solve problems.
- Demonstrate the ability to successfully use ESRI's ArcGIS 9.x GIS Software,
- Analyze GIS data and solve problems using GIS
- Apply GIS techniques to a variety of areas in Natural Resources and Environmental Science

Grading – Undergraduate Students

Grades will be based on the following:

Home work and labs	100 Points
Library Assignment	20 Points
Mid-term Exam	100 Points
Final exam	<u>100 Points</u>
Total points	320

Grading - Graduate Students

Home work and labs	100 Points
Library Assignment	20 Points
Mid-term Exam	100 Points
Final exam	100 Points
Mapping project	<u>100 Points</u>
Total points	420

Textbook: Getting to Know ArcGIS Desktop, 2004. 2nd edition. ESRI Press, Redlands, California.

*****This book comes with single-user trial software that you may find useful for completing some assignments on your home computer. If you would like to make sure that you can use this software I would not recommend buying a used book as someone may have previously used the software. This software is also available in the computer lab (Science #210).**

Expectations and responsibilities of students:

1. Regular attendance and participation in lecture and labs are expected. The final exam will cover material from the entire course.
2. Students are expected to read the text chapters and review lecture notes prior to the lecture in which the topics are discussed.

Obligatory Statements:

All student enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (see Student's Guide Handbook, Policies and Procedures, Conduct).

Plagiarism is a criminal activity. You must cite all sources of information. Copying of material, whether parts of sentences, whole sentences, paragraphs or entire articles, will result in a score of zero for your essay and can result in further disciplinary action." Note that this is true throughout the University and we do have plagiarism-detecting software in place. Further information for avoiding this activity will be provided with your written assignments

Students with Disabilities: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact: **Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148, StudentDisabilityServices@tamu-commerce.edu**

Course schedule (Tentative)

Week	Topics	Reading, Homework & Labs
8/31	T: Introduction to GIS, Datums TR: Projections, Coordinate Systems	Reading: Ch 1&2
9/7	T: Spatial Data Models and Topology TR: Spatial Data Models and Topology	Reading: Ch 3&4 Homework: Exercises Ch 3& 4
9/14	T: Attribute Data Thematic mapping and Cartography TR: MEET IN COMPUTER LAB (Science 210)	Reading: Ch 5 – 7 Lab: Exercises CH 5 – 7
9/21	T: Open Lab – work on Arc GIS assignments TR: Open Lab – work on Arc GIS assignments	Reading: Ch 8, 9 &10 Lab: Finish Exercises CH 5 – 7, 8, 9, 10
9/28	T: Creating & Maintaining GIS Databases TR: GIS Data Sources – GPS, Scanning, & Digitizing	Reading: Ch 14 Homework: Exercises Ch 14 Reading: Ch 15 Homework: Exercises Ch 15
10/5	T: MEET IN COMPUTER LAB TR: MEET IN COMPUTER LAB	Lab: GPS Lab Lab: Digitizing Lab
10/12	T: GIS Data Sources - Remote Sensing TR: GIS Data Sources – Error, Accuracy & Precision	Reading: Ch 11 &12 Homework: Exercises Ch 11 &12
10/19	T: Exam Review TR: Mid-term Exam	
10/26	T: Spatial Data Analyses – Vector Data TR: MEET IN COMPUTER LAB	Lab: Handout
11/2	T: Spatial Data Analyses – Raster Data TR: MEET IN COMPUTER LAB	Lab: Handout
11/9	T: Practical Applications of GIS TR: Work on Mapping Project	Lab: Handout
11/16	T: Practical Applications of GIS TR: Work on Mapping Project	Lab: Handout
11/23*	T: Library Assignment	
11/30	T: Practical Applications of GIS TR: Work on Mapping Project	Lab: Handout
12/7	T: TBD TR: TBD	
12/14	FINALS WEEK	

*Short week due to university holiday