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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home work and labs</td>
<td>100</td>
</tr>
<tr>
<td>Library Assignment</td>
<td>20</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>100</td>
</tr>
<tr>
<td>Final exam</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total points</strong></td>
<td>320</td>
</tr>
</tbody>
</table>

**Grading - Graduate Students**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home work and labs</td>
<td>100</td>
</tr>
<tr>
<td>Library Assignment</td>
<td>20</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>100</td>
</tr>
<tr>
<td>Final exam</td>
<td>100</td>
</tr>
<tr>
<td>Mapping project</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total points</strong></td>
<td>420</td>
</tr>
</tbody>
</table>

***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)

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Reading, Homework &amp; Labs</th>
</tr>
</thead>
</table>
| 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