

## **GEOG 2464: Intro to Geographic Information Systems**

Course Syllabus  
Spring 2018

**Lecture:** Tuesday and Thursday, 9:30 – 10:50. LDB 328

**Lab:** Tuesday, 11:00 – 12:20. LDB 328

Thursday, 11:00 – 12:20. LDB 328

**Office:** LDB 314.

**Email:** [fsm002@shsu.edu](mailto:fsm002@shsu.edu)

**Phone:** 936-294-1073

**Office hours:** Monday: 9:00 – 11:00 (TWC)

Tuesday and Thursday: 11:00 – 2:00. LDB 314

Maria Oleary, the graduate student assistant will be available during lab hours on Tuesdays and Thursdays 11:00 am – 12:20 pm to answer your questions and help you with your labs and assignments. Her office hours will be on Tuesday and Thursday 12:30 pm to 2:30 pm in LDB 328.

**Recommended Text:** Getting started with Geographic Information Systems. Keith C. Clarke, Fifth Edition, Prentice Hall.

### **Course Overview**

The purpose of this course is to provide you with an introduction to the concepts and techniques of Geographic Information Systems (GIS) or Geographic Information Science. Generically, a GIS can be defined as any computer-based, software-hardware platform capable of capturing, storing, displaying, manipulating, and analyzing any set of geo-referenced data. GIS represents the technological synthesis of traditional cartographic principle, advances in computer-assisted and analytical cartography, spatial statistics, relational database design, and digital image processing an analysis.

It is assumed that you have a familiarity with desktop computers (pc), the operating system of Windows NT/2000, web browsing, as well as software such as MS Excel and MS Word.

The course has **two components**: learning the theories of GIS and learning to apply these theories in GIS software (ArcGIS). I therefore teach GIS in two ways: through lectures and through assignments. While mastering GIS software is an important part of being a GIS user, it is impossible to correctly perform any GIS operation or analysis in software without the proper understanding of GIS theories. I will therefore strongly concentrate upon teaching GIS theories, including data structures, database systems, GIS operations, spatial analysis, mapping with GIS and other selected current issues. I expect you to become familiar with the GIS vocabulary. Such concepts are often abstract in nature, and perceived to be difficult. You are thus strongly encouraged to read (and re-read!!) assigned readings and my lecture notes. Exam questions will heavily test your knowledge and understanding of GIS theories and vocabulary, and lack of reading will adversely affect your performance.

You will also learn extensive operations and use of ArcGIS software through lab assignments. Students are expected to register for any one lab session scheduled on either Tuesday or Thursday, 12:30 – 1:50 PM. You will be assigned tutorial assignments that are designed to further explore GIS concepts and ArcGIS. These tutorials and assignments will be done during the scheduled lab time and other times at the lab on your own. While you will be given sufficient guidance, you are also expected to solve these project assignments on your own, since the best pedagogical approach for learning GIS software is through trial and error.

Overall, this course will provide you with a good introduction to GIS and will prepare you for further GIS courses and an exciting career in this field. However, you will not be able to learn everything on GIS (or all software operations) from this course alone. If you want to gain expertise in this field, be prepared to take several courses in GIS and other relevant courses.

### **Course Policies**

You are expected to preview the day's reading before coming to class. Keeping up with class readings is absolutely essential, and falling behind can be disastrous for your learning experience.

Late lab assignments will be accepted, but ten percent of the total points will be deducted for every late day in addition to any points due to errors. Assignments more than a week late will receive a 50 percent reduction, and I strongly discourage you to hand in late assignments.

Any form of **academic misconduct** will not be entertained. Please refer to <http://www.shsu.edu/syllabus/> for detailed guidelines regarding academic dishonesty, student absences on religious holidays, students with disabilities and visitors in the classroom.

I will not tolerate plagiarism, cheating in any form or any other form of academic misconduct. Please refer to university guidelines regarding academic misconduct. Students who engage in such behavior will receive no credit for the assignment in question, and based on the severity of the behavior I will report the incident to the proper University authorities. For any questions or concerns regarding course work and your performance, I encourage you strongly to talk to me. I am available for discussions during my office hours, or by appointment.

**Attendance:** Attendance is expected in every class. If an emergency or extra-ordinary situation arises that will affect your performance in class, notify me as soon as possible. Email or a phone message is good option if you cannot speak to me personally. Attendance will be taken regularly. ***Attendance and class participation is important, especially in the final tabulation of “borderline” grades. If a student misses more than 25% of the semester, the student will fail the course.***

**Use of electronic equipment in Lectures:** Use of all electronic equipment, including cell phones, audio recording devices, computers, etc. will not be allowed during lectures.

### **Evaluation**

Final grade will be determined based on each of the following:

Laboratory Exercises (100 points), assignments (100 points), mid-term exam (100 points), final exam (100 points), final project (50 points)

The two exams will consist of true/false and multiple choice questions. We will have detailed reviews before both the exams. Make-up exams are only given if there is a valid documented excuse. Please make sure to contact the instructor (by phone or email) if you will be missing class or need to make-up an exam.

Your final project is worth 50 points and I want to know ahead of time what you will be doing. Your project proposal is due by **March 8**. A guideline for your proposal will be posted on Blackboard. However, before you submit your final project proposal; all students are required to discuss their project ideas with me by **March 6**. I need to approve your project idea before you can submit your proposal. Students will present their final projects on **May 1 and May 3**. A final project report is also due by **Thursday, May 3**. I will upload detailed guidelines regarding your final project proposal and project report on Blackboard as we get closer to the dates.

Final grades will be determined as follows:

Final grade	Percentage
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	< 60%

### **List of lectures (subject to change)**

1. Introduction
2. Introduction to Geographic Information Science.
3. Map Projections, Coordinate Systems, and Spatial data.
4. GIS Data Models and Data types.
5. GIS Data Input.
6. Data Management Models, Database structures, DBMS.
7. GIS Spatial Analysis and Operations.
8. GIS operations

9. GIS output.
10. Picking the right GIS.
11. Present and Future Trends.

**Important dates:**

Tuesday, March 6– Discuss final project idea

**Thursday, March 8– Mid Term Exam**

Thursday, March 8– Final project proposal due

**Week of March 13 – No class, Spring Break.**

Tuesday May 1 and Thursday May 3 – Final Project presentations

Thursday, May 3 – Final project report due

**Thursday May 10, 9:30 to 11:30 – Final Exam**