SYLLABUS

GIS Application
(GIS 301.001, 301.020)
(Spring 2012)

Instructor:
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Phone: (936) 468-2157
Office: Forestry 122

Department: Arthur Temple College of Forestry and Agriculture

Lecture Tuesday 3:30pm - 5:10pm at Forestry 108
Lab Tuesday 5:20 pm -8:10pm at Forestry 108

Office hours: Tuesday 9:00am–11:00am
Wednesday 9:00am-12:00pm, 1:00pm–4:00pm
Thursday 9:00am-11:00am or by appointment

Course Description:

3 semester hours and the course will explore the use of GIS (Geographic Information System) as an enabling technology in a range of disciplinary and application areas. Both theoretical and applied realms of GIS are emphasized in this course. Topics include vector analysis, raster analysis, geostatistical analysis, geocoding, geodatabase, and civil application (urban, health, marketing, and homeland security). Course designed to further students’ GIS knowledge and techniques, also to help students to have a broad idea of GIS application.

The course is designed:
A. for Spatial Sciences and Geography majors or GIS minors as part of their required curriculum;
B. as an introduction to students of various disciplines to geographic information systems (GIS) as a tool and a methodological approach to spatially analyze natural resources and cultural activities; and
C. as a 3 hour credit lecture class with a 0 credit hour lab required.

Program learning outcomes
A. Demonstrate understanding and competency of GIS theory;
B. Demonstrate understanding and competency of spatial analysis (vector, raster, interpolation, geocoding, geodatabase);
C. Demonstrate understanding and competency of GIS application;
Student learning outcomes
Upon successful completion of the course, the student will:
A. Further understand GIS theory and principles (PLO A);
B. Be familiar with GIS components and analysis methods (PLO B C);
C. Be able to use ArcGIS software for GIS project (PLO C);
D. Have demonstrated competency in oral and written communication skills through term project and field trip reports.

Textbook (optional references)


Tentative course calendar

<table>
<thead>
<tr>
<th>week</th>
<th>date</th>
<th>topic</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.24.2012</td>
<td>Syllabus and ArcGIS software</td>
<td>Warm up lab</td>
</tr>
<tr>
<td>2</td>
<td>1.31.2012</td>
<td>GIS concepts review, cartography, terrain (B chapter 11)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2.7.2012</td>
<td>Vector analysis, model builder, LiDAR data</td>
<td>Vector lab</td>
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<tr>
<td>4</td>
<td>2.14.2012</td>
<td>Raster analysis (B chapter 10)</td>
<td>Raster lab</td>
</tr>
<tr>
<td>5</td>
<td>2.21.2012</td>
<td>GeoStatistical analysis (B chapter 12)</td>
<td>Geostatistical lab</td>
</tr>
<tr>
<td>6</td>
<td>2.28.2012</td>
<td>Metadata, Geocoding, term project requirement</td>
<td>Geocoding lab</td>
</tr>
<tr>
<td>7</td>
<td>3.6.2012</td>
<td><strong>Mid-term exam</strong></td>
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</tr>
<tr>
<td>8</td>
<td>3.13.2012</td>
<td><strong>Spring break</strong></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3.20.2012</td>
<td>Geodatabase</td>
<td>Geodatabase lab</td>
</tr>
<tr>
<td>10</td>
<td>3.27.2012</td>
<td>GIS application 1, urban planning Trip to Nacogdoches GIS Dept.</td>
<td>Urban planning lab</td>
</tr>
<tr>
<td>11</td>
<td>4.3.2012</td>
<td>GIS application 2, health Trip to Hydrex Environmental Inc.</td>
<td>Field trip reports</td>
</tr>
<tr>
<td>12</td>
<td>4.10.2012</td>
<td>GIS application 3, marketing</td>
<td></td>
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<tr>
<td>13</td>
<td>4.17.2012</td>
<td>GIS application 4, homeland security</td>
<td>Term project</td>
</tr>
<tr>
<td>14</td>
<td>4.24.2012</td>
<td>Ethical Issues in GIS and GIS future</td>
<td>Term project</td>
</tr>
<tr>
<td>15</td>
<td>5.1.2012</td>
<td><strong>Project presentation.</strong></td>
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<tr>
<td>15</td>
<td>5.8.2012</td>
<td><strong>Final EXAM due</strong></td>
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Course Requirements:

GIS301 utilizes a lot of hands-on learning in the GIS lab. At a minimum, you need to possess basic GIS skills (prerequisite GIS201).

There will be ONE closed book exam, ONE open book exam, seven labs, two field trip reports, and a term project. It will be required to give one short (15 minutes maximum) oral presentation about the term project and a report is also required.

Term Project:

The project is intended to provide a deeper understanding of a GIS application through experience. Students will work individually or in groups of 2 on projects. The project should investigate a particular research problem using ArcGIS. The project must be an original piece of work developed for this course. The project will be marked by a set of milestones from data collection, data management, data preprocessing, analysis and modeling, and result presentation. More detailed guidelines and requirements on class projects will be provided in class. Students are encouraged to freely discuss their project ideas with the instructor. During the last scheduled lab period, students will present their project to the class. The presentations can be no longer than fifteen (15) minutes and should use PowerPoint.

1. **Title**: i.e., main idea.
2. **Purpose**: a brief description of the purpose(s), why the project is needed, the major problem it resolves, and the expected users and benefits.
3. **Data**: what data have been used
4. **Methods**: what GIS techniques have been used
5. **Output map(s)**.

The presentation and report (5 pages minimum and 15 pages maximum, double spaced) are due right after the presentation. Also the PowerPoint file and the Word file should be emailed to the instructor.

Grading policy

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMS (150 x 2)</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>QUIZZES (20 x 5)</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>TERM PROJECT</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>FIELD TRIP REPORTS (50 x 2)</td>
<td></td>
<td>100</td>
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<tr>
<td>LAB ASSIGNMENTS (40 x 7)</td>
<td></td>
<td>280</td>
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<tr>
<td>TOTAL POINTS</td>
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<td>980</td>
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Grading Scale:

- A = 90 - 100
- B = 80 - 89
- C = 70 - 79
D = 60 - 69
F = 0 – 59

A class average will be calculated and if warranted, a curve will be applied if the curve will result in a higher grade.

Class policy

1. Attendance and class participation are expected throughout the semester.
2. **Turn in all required work on the day it is due.** Late assignment will lose 20% of the credit each day late.
3. Complete term project report and give presentation on specified date. No credit for late work as it is the end of the semester.
4. Quizzes are to be taken during class. No make-up quizzes unless there is a valid university excuse (health, family emergencies, or student participation in approved university-sponsored events) ([http://www.sfasu.edu/policies/class_attendance_excused_abs.asp](http://www.sfasu.edu/policies/class_attendance_excused_abs.asp)).
5. Exams are to be taken during scheduled times. Make-up exams will be given to students with a valid university excuse (consult student handbook for guidelines).
6. There is no exception for the grading policy and the grading scale.
7. Treat everyone in the class with respect and courtesy.
8. All students are expected demonstrate professional behavior and use language appropriate for the classroom learning experience.

COURSE COMPLAINTS: Any college course complaints or problems should first be discussed with the course instructor for the particular course. Difficulties can usually be resolved there. If the complaint cannot be resolved, the next person to see is the appropriate department chairperson.

Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise
obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

**Acceptable Student Behavior**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). *Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom.* Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program http://www.sfasu.edu/judicial/earlyalert.asp. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

**Responsible Use of Technology:** *It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course may be grounds for dismissal from class or other penalties.*
**Syllabus Changes:**

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes by email.