Syllabus

Introduction to Geographic Information Systems (GIS)
GIS 201.001, 201.021, 201.022/GEO 220.001, 220.020, 220.021
(Fall 2018)

Instructor: Dr. Yanli Zhang
Office: Forestry 121
Email: zhangy2@sfasu.edu
Phone: (936) 468-2157

Lecture  Monday 4 pm - 5:40 pm at Forestry 205
Lab  Session I Monday 6:00 pm - 8:30 pm Forestry 234
     Session II Tuesday 6:00 pm - 8:30 pm Forestry 234
Office hours: Monday 1:00pm – 4:00pm, Tuesday 9am – 12pm, 1:00pm - 5:00pm

Class news/notices, lecture handouts and grades: All lecture handouts are available at D2L (https://d2l.sfasu.edu/). It is students’ responsibility to print handouts before coming to class. Grades for quizzes, labs, and exams are all available at D2L as well. Please check D2L for course related news and notices.

Course Description: 3 semester hours. Overview of Geographic Information System (GIS) concepts and components. Both theoretical and applied realms of GIS are emphasized in this course. Topics include ArcGIS software, spatial data and corresponding attribute information, and spatial data manipulation and analysis, and map design.

Program Learning Outcomes:
A. Demonstrate understanding and competency of GIS theory;
B. Demonstrate understanding and competency of spatial data collection, format, storage, and editing;
C. Demonstrate understanding and competency of spatial analysis;
D. Demonstrate understanding and competency of map design;
E. Demonstrate the ability to use GIS software.

Student learning outcomes
Upon successful completion of the course, the student will:
A. Understand basic GIS theory and principles (PLO A);
B. Be familiar with GIS components (data collection, data management, spatial analysis, and map design) (PLO B C D);
C. Be able to use ArcGIS software for basic GIS project (PLO E);
D. Have demonstrated competency in oral and written communication skills.

Textbook:
Lab book (REQUIRED)

**Tentative course calendar**

<table>
<thead>
<tr>
<th>week</th>
<th>Date</th>
<th>topic</th>
<th>Reading (textbook)</th>
<th>Lab (lab book)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.27.2018</td>
<td>Syllabus and course overview</td>
<td>GTK Ch. 1, 2 Getting to know GIS</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9.3.2018</td>
<td>Introduction to GIS and ArcGIS</td>
<td>Ch. 1</td>
<td>GTK Ch. 3, 4, ArcGIS</td>
</tr>
<tr>
<td>3</td>
<td>9.10.2018</td>
<td>Projection (GCS &amp; PCS)</td>
<td>Ch. 3</td>
<td>GTK Ch. 6, projection</td>
</tr>
<tr>
<td>4</td>
<td>9.17.2018</td>
<td>Data format (vector &amp; raster)</td>
<td>Ch. 2</td>
<td>GTK Ch. 11, 12, 13 Create and edit data</td>
</tr>
<tr>
<td>5</td>
<td>9.24.2018</td>
<td>GIS cartography</td>
<td>Ch. 4</td>
<td>GTK Ch. 7, 8, 9, 10, map making</td>
</tr>
<tr>
<td>6</td>
<td>10.1.2018</td>
<td>Relational database (attribute table)</td>
<td>Ch. 8</td>
<td>GTK Ch. 15, 16, 17 query</td>
</tr>
<tr>
<td>7</td>
<td>10.8.2018</td>
<td>Data, especially GNSS</td>
<td>Ch. 5</td>
<td>Prepare for exam</td>
</tr>
<tr>
<td>8</td>
<td>10.15.2018</td>
<td>Midterm exam</td>
<td>No lab (exam day)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10.22.2018</td>
<td>Vector analysis</td>
<td>Ch. 9</td>
<td>GTK Ch. 18, 19 vector analysis</td>
</tr>
<tr>
<td>10</td>
<td>10.29.2018</td>
<td>Raster analysis, term project requirements</td>
<td>Ch. 9, 10</td>
<td>GTK Ch. 20 Raster analysis</td>
</tr>
<tr>
<td>11</td>
<td>11.5.2018</td>
<td>Spatial interpolation, terrain analysis</td>
<td>Ch. 11, 12</td>
<td>Term project</td>
</tr>
<tr>
<td>12</td>
<td>11.12.2018</td>
<td>Error, uncertainty, project presentation</td>
<td>Ch. 14</td>
<td>Term project</td>
</tr>
<tr>
<td>13</td>
<td>11.19.2018</td>
<td>Thanksgiving holiday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>11.26.2018</td>
<td>Course review</td>
<td></td>
<td>Term project</td>
</tr>
<tr>
<td>15</td>
<td>12.3.2018</td>
<td>Project presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>final</td>
<td>12.10.2018</td>
<td>Monday, final exam 4:00pm-6:00pm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Course Requirements:**

GIS201/GEO220 utilizes a lot of hands-on learning in the GIS lab. At a minimum, students are expected to possess basic computer skills.

There will be two major exams, 5 quizzes, seven lab assignments, and a term project. Students are required to give one short (10 minutes maximum) oral presentation about the term project and a Microsoft Word file report is also required.

**Term Project:**

The project is intended to provide a deeper understanding of a GIS application through experience. Students will work in group 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 term project will be provided in class. Students are encouraged to freely discuss their
project ideas with the instructor. During the last week, students will present their project to the class. The presentation should be less than 10 minutes using MicroSoft PowerPoint and the outline could be:

1. **Title**: represents the 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 and how are they collected.
4. **Output map(s)**.

The presentation and report (5 pages minimum and 15 pages maximum, double spaced) are due right after the presentation. Also the ppt and doc file should be submitted to the instructor during the last class.

Grading policy

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMS</td>
<td>(200+250)</td>
<td>450</td>
</tr>
<tr>
<td>QUIZZES</td>
<td>(20 x 5)</td>
<td>100</td>
</tr>
<tr>
<td>TERM PROJECT</td>
<td></td>
<td>170</td>
</tr>
<tr>
<td>LAB ASSIGNMENTS</td>
<td>(40 x 7)</td>
<td>280</td>
</tr>
<tr>
<td><strong>TOTAL POINTS</strong></td>
<td></td>
<td>1000</td>
</tr>
</tbody>
</table>

Grading Scale:

- A  900 – 1000
- B  800 – 899
- C  700 – 799
- D  600 – 699
- F  599 or less

Questions regarding lab/homework/quiz/exam grading must be asked within one week after the lab/homework/quiz/exam is returned.

A class average will be computed 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. Complete all lab assignments on specified dates. Late assignment will lose 20% of the credit each day late.
3. All students submitting identical lab assignments (in whole or in part) will receive a grade of zero for that lab.
4. Complete term project report and give presentation on specified date. No credit for late work as it is the end of the semester.
5. Quizzes are to be taken during class. No make-up quizzes unless there is a valid university excuse (consult student handbook for guidelines).
6. 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).
7. There is no exception for the grading policy and the grading scale.
Course Grades Policy (5.5)
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. Please read the complete policy at http://www.sfasu.edu/policies/5.5_course-grades.pdf

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/.

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.

**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 10.4). 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. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at [http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf](http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf)

**D2L**

For D2L technical support, contact student support in the Office of Instructional Technology (OIT) at d2l@sfasu.edu or 936-468-1919. If you call after regular business hours or on a weekend, please leave a voicemail.

For general computer support (not related to D2L), contact the Technical Support Center (TSC) at 936-468-HELP (4357) or at helpdesk@sfasu.edu.

To learn more about using D2L, visit SFA ONLINE at [http://sfaonline.sfasu.edu](http://sfaonline.sfasu.edu), where you’ll find written instructions and video tutorials.

**Syllabus Changes:**

The instructor reserves the right to make changes as necessary to this syllabus.