Fall 2019
GIS Applications in Wildlife Management and Conservation
FOR 475

Instructor: Daniel G. Scognamillo
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Office: Forestry 203E

Office hours: Mon: 8:00-10:00, Tue: 11-12:30
Wes: 8:00-10:00, Thu: 8:00-11:00
Or by appointment. Please call or email me to schedule an appointment.

Classroom and class time

Lectures: Forestry 221
Monday and Wednesdays 10:00 - 10:50
Thursday 5:00 – 6:40

Labs: Forestry 102
Mondays 12:00 - 2:50
Forestry 108
Tuesdays 5:00 - 7:50 (6:30)

Credit hours: 3 semester hours

Course description
Geographic Information Systems (GIS) are applied to a wide variety of wildlife ecology, conservation, and management issues. The goal of this course is to give students a general and comprehensive introduction to the most common GIS tasks and analyses applied to wildlife conservation and management and to familiarize students with different software used to perform those tasks and analyses.

Program Learning Outcomes
The course is designed to address the following Program Learning Outcomes, as given in the BSF Program Matrix:

1. Demonstrate understanding and competency of forest ecology and biology;
2. Demonstrate understanding and competency in the measurement of forest resources;
3. Demonstrate understanding and competency in managing forest resources;
4. Demonstrate understanding and competency of forest resource policy, economics, and administration.
5. Demonstrate understanding and competency in oral and written communication skills.

Items #1 - #4 above are required by the Society of American Foresters, the program's accrediting agency.

B.S. Forestry Program Learning Outcomes
Proficiency Levels

<table>
<thead>
<tr>
<th>Forestry Common Core</th>
<th>PLO 1</th>
<th>PLO2</th>
<th>PLO3</th>
<th>PLO4</th>
<th>PLO5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>PLO 1</td>
<td>PLO2</td>
<td>PLO3</td>
<td>PLO4</td>
<td>PLO5</td>
</tr>
<tr>
<td>FOR 475</td>
<td>I</td>
<td>A</td>
<td>A</td>
<td>I</td>
<td>A</td>
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Student Learning Outcomes
Upon successful completion of this course, the student will:

- Understand basic tasks performed in a GIS and their associations with ecological concepts & principles (PLO #1 and 2);
- Be able to identify appropriate analyses to address specific forest wildlife research and management issues (PLO #1, 2 & 3);
- Be able to apply GIS tools and analyses in wildlife research conservation and management, and to generate comprehensive outputs (PLO #1,2,3, 4 and 5);
- Have demonstrated competency in oral and written communication skills (PLO #5).

Course requirements
Knowing and understanding the material presented and discussed in lectures/labs are the keystone for successfully completing this course. As the instructor of this course I commit myself to being knowledgeable on all the topics that we will cover in class and being well prepared to lecture about them. I expect all students to have perfect attendance and be well prepared for class as well (i.e. read all assignments and review notes from lectures).

Required textbook and readings

Other reading material will be provided for selected lectures as pdf files or hard copy.

Lab exercises
Instructor will provide directions for each lab at the beginning of each session; students will submit answers for exercises via D2L before the beginning of the following week in order to get full credit. No late assignments will be accepted.

Oral presentation (12 minutes/groups)
Each group will present the highlights of a scientific publication where GIS is applied to the conservation and/or management of wildlife. The instructor will provide specific guidelines on how to conduct this task during the first week of classes.

Term exam
One term exam is scheduled for the semester. This term exam will be a combination of topics covered in lectures and labs.

Final exam
Final exam will be cumulative, covering all topics presented in lectures and labs during the semester.

Grading Policy

<table>
<thead>
<tr>
<th>Labs</th>
<th>260</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral presentation</td>
<td>40</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</strong></td>
<td>500</td>
</tr>
</tbody>
</table>

Your final grade will be calculated as the percentage of the total points of the course that you obtained during lab reports, assignments, and exams. Grades will be assigned using the following scale:

A: ≥90%
B: 89.99% - 80%
C: 79.99% - 70%
D: 69.99% - 60%
F: <60%
**Attendance Policy**

Perfect attendance to lectures and labs is a requirement for this course. Justified absences will be accepted with the proper documentation. Student with two or more unjustified lecture or lab absences will have a reduction of 10% in the total number of points accumulated during the entire course.

**Student Academic Dishonesty Policy (4.1)**

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/4.1-student-academic-dishonesty.pdf](http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf)

**Penalties for Academic Dishonesty (Policy 4.1)**

Penalties may include, but are not limited to, reprimand, no credit for the assignment or exam, resubmission of the work, make-up exam, failure of the course, or expulsion from the university.

**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](http://www.sfasu.edu/policies/5.5_course-grades.pdf)

**Academic Accommodation for Students with Disabilities Policy (6.1)**

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/](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)
**Proposed Schedule of Lectures/labs** (the order of the topics could change as the semester progresses)

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Topic</th>
<th>Labs</th>
<th>Supplemental exercises from Getting to Know ArcGIS textbook</th>
</tr>
</thead>
</table>
| 1    | Lecture | Coordinate systems. Map projections. | Lab 1  
Lab 2 | Working with coordinate systems and projections (book chapter 6).  
Building geodatabases (book chapter 11). |
| 2    | Lecture | Vector data model. Raster data model. | Lab 3  
Lab 4 | Creating features (book ch: 12).  
Editing features (book ch: 13). |
|      |         |       |      | Symbolizing features (book chapter 7).  
Classifying features (book chapter 8).  
Labeling features (book chapter 9). |
| 3    | Lecture | Geodatabases: design steps. | Lab 5  
Lab 6  
Lab 7 | Querying data (book ch: 15).  
Selecting features by location (book ch: 16).  
Joining and relating data (book chapter 17). |
|      |         |       |      | Making maps for presentations (book chapter 10). |
|      |         |       |      | MID-TERM EXAM |
| 4    | Lecture | Vector and raster data analysis. | Lab 8  
Lab 9 | Preparing data for analysis (book chapter 18).  
Geoprocessing vector data (book chapter 19). |
| 5    | Lecture | Home range estimates | Lab 10 | Home range estimates. |
|      |         |       |      | |
| 6    | Lecture | Habitat use analysis | Lab 11  
Lab 12 | Habitat use.  
Binary models. |
|      |         |       |      | |
| 7    | Lecture | Binary models. Occupancy models. | Lab 13 | Occupancy models. |
|      |         |       |      | |
| 8    | Lecture | Wildlife management plans | | |
|      |         |       |      | FINAL EXAM |