

FOR 5435

Forest Resource Information Systems

Summer 2018

Distance Sections: 4A28, 4G27

Dr. David A Fox

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Office Hours: Tue & Wed 10:00 - Noon or email for appointment.

Joe Aufmuth

UF Map Library

mapper@uflib.ufl.edu : (352) 273-0371



Lecture: Wednesday : Periods 5-6 (2:00p to 4:45p) Canvas

GIS Computer Lab: Friday : Periods 2-3 (9:30p to 12:15p) Canvas

“To develop a complete mind: Study the science of art; Study the art of science. Learn how to see. Realize that everything connects to everything else.” (Leonardo da Vinci)

Course Description

Nearly every topic imaginable associated with natural resource management has some spatial or geographic context. This course aims to develop spatial thinking through the use of geographic information system (GIS) tools. Understanding how the elements of geography, mapping, and database management connect to the physical world is key to answering questions related to “where” and “what”. The relative location of features (where) and their properties or attributes (what) can be overlain, combined, and analyzed to tell a richer story beyond simple facts.

Topics Covered will include: Map and compass use, introductory aerial photograph interpretation, Public Land Survey System of the US, map projections and coordinate systems, geospatial data sources and data collection, use of Global Positioning System (GPS) for data collection and navigation, basic database design, spatial and tabular data analysis, basic cartographic techniques and map layout, and examples of GIS use in the natural and physical sciences.

Lectures are pre-recorded. GIS lab sessions will be broadcast live at the above times and recorded for later posting in Canvas.

Course Essential Questions

- What are the building blocks of a geographic information system?
- How can different types of data be collected and displayed in a GIS to represent natural or human-built systems?
- How can GIS be used in natural resource management to ask questions and solve problems?

Course Objectives

Upon completing the course, students will be able to:

- Read maps and use a compass for field navigation;
- Understand the Public Land Survey System and use it to describe land parcels;
- Recognize map projections and their geodetic implications;
- Discover and use aerial and satellite imagery and other digital data sources;
- Create spatial data sets and organize them in a geodatabase;
- Practice basic vector and raster geospatial analyses;
- Create maps using appropriate cartographic standards.

Cornerstone Tasks

- **GIS Map and Summary Reports:** Written lab reports containing a map of activity results, a summary of activities, and answers to questions will be required. Assessment will be based on a report grading rubric.
- **Graduate Student GIS Project:** A narrated slide show will be presented live or recorded via Canvas Conferences during the last week of class. More information is available in Canvas Assignments.

Teaching Methods

- **Lectures:** Narrated PowerPoint lectures or live demonstrations will focus on presenting new information as well as that summarized from the assigned readings. Lectures will be recorded and posted in Canvas.
- **Assigned Readings:** Each week various book chapters, articles, and videos will be posted on-line prior to lecture. It is to your advantage to read these articles and view the videos as they will often reinforce information given in lecture, aid in field study, or contain information appearing on exams.
- **GIS Computer Labs:** GIS tutorial sessions are designed to demonstrate spatial information theory and familiarize students with ArcGIS software. The labs will be conducted in Little Hall 0121 and available live or recorded through Canvas Conferences. Students will perform step-by-step activities and complete a written summarized report. A laptop will be required to do the exercises in class. Evening help sessions will be arranged by appointment through Canvas Conferences.
- **Exam:** Two exams will be given covering lecture material, assigned readings/videos, and lab subjects.
- **Group Study:** Students are encouraged to form small *ad hoc* study groups outside of class to reinforce concepts and to informally quiz each other on the course material presented.
- **Individual Study:** Each student will be expected to watch recorded lectures and labs; detailed note-taking is encouraged. In addition, students should complete assigned readings, produce required lab reports, and spend individual time reviewing materials in advance of exams.

Grading

<i>Exams (2):</i>	40%
<i>GIS Lab Reports:</i>	30%
<i>Final Project:</i>	25%
<i>Class Participation:</i>	5%

Exams: Timed comprehensive exams will be given at intervals during the semester. Students will complete the exam through the eLearning site Canvas. From the time you start the exam you will have 60 continuous minutes to complete the exam. The latest you can start the exam and have a full 60 minutes is 10:59pm. If you start after 10:59pm the exam will still end at 11:59pm. The exam is open book, notes, and lecture materials. You are under UF's Honor Code and must complete the exam on you own.

GIS Activities: GIS sessions will be conducted live on Fridays in Little Hall 0121. These sessions will be broadcast live via Canvas Conferences and recorded for later posting. Students will be supplied with step-by-step activities designed to acquaint them with the features and functions of ArcGIS desktop software. We will use UF Apps to access ArcGIS software and all tutorial data.

Students will individually complete a summary report each week that includes a map, an activities summary, and answers to assigned questions. Prepare the reports to serve as personal tutorial notes for future reference.

Graduate GIS Project: All graduate and on-line students must complete a final project. Use this as an opportunity to explore the potential that GIS tools could bring to your research or professional interests. The deliverable will be a power point presentation illustrating, at the least, project objectives, methodology, data used and data created, analysis, results, and discussion. You will be expected to present your project to the class during the final Thursday lab session via Canvas conferencing software. Contact Dr. Fox with your project ideas.

Participation: Specific discussion topics will appear in Canvas under different weekly modules. In addition, you are encouraged to introduce new discussion topics that address issues you encountered and solutions devised, any software shortcuts you discover, relevant online content you find that helps explain a concept, or other resources you think might be helpful to course participants.

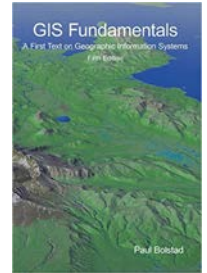
Final grading follows University standards based on the following scale
(<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>):

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Course Score	90 - 100	86.7 - 89.9	83.3 - 86.6	80 - 83.2	76.7 - 79.9	73.3 - 76.6	70 - 73.2	66.7 - 69.9	63.3 - 66.6	60 - 63.2	56.7 - 59.9	0- 56.6
Grade Points	4	3.67	3.33	3	2.67	2.33	2	1.67	1.33	1	0.67	0

Resources

Required Text:

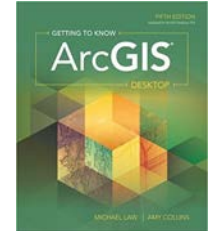
GIS Fundamentals (5th edition), Paul Bolstad (2016). Eider Press.
ISBN: 9781506695877



Highly Recommended Workbook:

Getting to Know ArcGIS Desktop (5th Edition), Michael Law and Amy Collins (2018). ESRI Press. ISBN-13: 978-1589485105, ISBN-10: 1589485106

Note: *Getting to Know ArcGIS Desktop* serves as a reference text for exercises conducted in class. 4th or 5th edition is acceptable. New versions of the book come with a FREE 180-day version of ArcGIS (Windows only). If you have a weak internet connection or no internet at home, you may wish to get the new version. Otherwise a used book version is acceptable.



Things you will need for this class:

- 1) A computer with office software for written reports.
- 2) High-speed internet access to the class eLearning site in Canvas and UF Apps.
- 3) Headset/microphone and webcam for discussion and conference sessions.
- 4) A way to take notes.

Additional Materials:

Course Delivery Software: Canvas <http://elearning.ufl.edu>

Additional readings, videos, and recorded lectures will be available through Canvas modules.

GIS Software and Data Access: UF Apps <https://apps.ufl.edu>

Canvas Conference Software:

GIS lab sessions will be recorded using Canvas web conferencing software (Big Blue Button). In addition, optional live evening software help sessions may be scheduled as needed or requested. Be sure to connect early and make sure your internet connection speed is sufficient. A headset or separate earphone and microphone are required for vocal participation. Otherwise, comments and questions can be entered into the included chat box if a headset is not available. Video camera is optional but highly recommended.

Late Assignments and Make-Up Work

The condensed nature of this course will require you to be focused, attentive, and taking notes during every lecture if you wish to be successful.

It is your responsibility to keep track of assignment due dates and times as listed in Canvas. This is not a work-at-your-own-pace course – assignments and exams have due dates and times. Most assignment due times will be 11:59pm or just before midnight. Assignments open and close based on the clock governing the Canvas server so submitting assignments at the last

minute may prove troublesome for you – don't wait! A grace period, usually one day, will be added to each assignment due date during which late work will be accepted. Any late assignment scores will be reduced by 50% of the original point value and then be graded according to the rubric. No assignments will be accepted after the assignment closes so do not email them to an instructor.

Generally, no make-up assignments or exams will be offered other than for exceptional situations such as University-sanctioned absence, death of an immediate family member (pets not included), serious illness or injury (reported to the instructor with a physician's note within five days of the first absence), or extreme weather resulting in the closure of campus. Extra credit assignments are rarely, if ever, provided.

Academic Honesty

In 1995 the UF student body enacted a new honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”**

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor. This policy will be vigorously upheld at all times in this course.

Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center
3190 Radio Road, (352) 392-1575,
www.counseling.ufl.edu/cwc/
Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library

Training Programs
Community Provider Database

Career Resource Center
First Floor JWRU, (352) 392-1601, www.crc.ufl.edu/

Students with Disabilities

(352) 392-8565 www.dso.ufl.edu/drc/

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. **If you have registered with the Disability Resource Center and require academic accommodations, it is your responsibility to privately inform the instructor of your needs as soon as possible before the first class session.**

FOR5435 – 4A28, 4G27 : FRIS : 2018 Summer B Class Schedule

Week / Date		Topics
1	July 4	Lecture: Class Introduction, Lab Procedures, Mapping history, Intro to GIS, Spatial Data Models
	July 5	Public Land Survey, Intro to map and compass use
	July 6	GIS Computer Lab: Setting Up and Using UF APPS, Creating a Personal Work Directory, Intro to GIS Theory, Downloading and uncompressing GIS Data, Getting Started with ArcGIS/ArcMap, Creating a Map
2	July 11	Lecture: Intro to Coordinate Systems, Map projections, and Spatial Database Design
	July 13	GIS Computer Lab: Creating Spatial Data – Points, Lines, and Polygons – from Georeferenced Aerial photographs, Managing Spatial Data – ArcGIS Geodatabases
3	July 18	Lecture: Aerial Photographs, Remotely Sensed Data, and Air Photo Interpretation
	July 20	GIS Computer Lab: Creating A Geodatabase, Creating Polygons from GPS Data, GIS and Mission Planning for Field Data Collection Using Aerial Photographs and Remotely Sensed Data
	July 20	Mid Term Exam – covering weeks 1, 2, 3, not GIS Lab 3
4	July 25	Lecture: Global Navigation Satellite Systems, Spatial Data Sources
	July 27	GIS Computer Lab: Change Detection Analysis. Working with Remotely Sensed Data and Digitizing Polygons
5	August 1	Lecture: Digital data, Basic spatial analysis
	August 3	GIS Computer Lab: Austin Cary Timber Sale and Harvest: Spatial Overlay and Analysis, Buffer, Clip, Dissolve, Union, Intersect, Identity
6	August 8	Lecture: Raster analysis
	August 9	Course wrap-up and Evaluation (9:30-10am), Raster Analysis Demo (10am-12pm), Graduate Project Presentation Brown Bag Lunch (12pm to 3:15pm)
	August 10	Final Exam – covering weeks 4, 5, 6, and GIS Lab 3
Subject to change – watch Canvas for updates and announcements		