

# Forest Resource Information Systems

Summer 2022

FOR3434C : Undergraduate Section 4102

FOR5435 : Graduate Section 4474

## Dr. David A Fox

Forest Stewardship Cabin, [Bldg 844](#)

dafoxfl1@ufl.edu : (352) 846-0856

Office Hours: Wednesday 10:00 - Noon or email for appointment.



SCHOOL OF FOREST,  
FISHERIES, AND  
GEOMATICS SCIENCES

## Mr. Joe Aufmuth

UF Marston Science Library, 301A

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

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<b>Lecture:</b>	Wednesday : Periods 5-6 (2:00p to 4:45p)	Zoom
<b>Field Lab Activities:</b>	Thursday : Periods 2-5 (9:30a to 3:15p)	<a href="#">LIT109</a> or TBA
<b>GIS Computer Lab:</b>	Friday : Periods 2-3 (9:30a to 12:15p)	Zoom

The times listed above provide a framework of the **minimum** amount of time you should set aside to be successful in this course.

All synchronous online meetings will be conducted using Zoom conferencing services:  
<https://ufl.zoom.us/> Log in using your GatorLink credentials to set up your profile.

## Important COVID-19 Information

The University of Florida released a Policy Update on 23 March 2022 stating in part, “... new signs on campus reflect an adjustment to our mask messaging. These will indicate masks are welcome and express support for those who wish to continue to wear them for their safety or the safety of others, in contrast to our previous approach of expecting and/or strongly encouraging masking.”

No matter your vaccination status, if you feel more comfortable continuing to wear a mask indoors during this course, please do so, but know that masks are optional.

Check here for the latest university COVID-19 guidance: <https://coronavirus.ufl.edu/>

Continue to practice good hygiene:

- Wash hands or apply disinfectant gel before class
- Cover your cough
- If you feel sick or have symptoms, stay home, get tested, and contact an instructor.

If you are experiencing [COVID-19 symptoms](#) please use the UF Health screening system and follow the [instructions on whether you are able to attend class](#). Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

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“GIS is the only technology that actually integrates many different subjects using geography as its common framework. Geo-enlightenment is understanding the interconnectedness of things.”

(Jack Dangermond – Founder of ESRI)

## 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 and field exercises. 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 (why) 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.

**Wednesday Lectures** are pre-recorded. There may be a short introductory live Zoom session for questions, review activities, and to maintain student contact.

**Thursday Field Lab** – Field activities will **usually** begin at Newins-Ziegler Hall. We may begin in a classroom but often will meet in the breezeway. Check Canvas for other meeting instructions. *You should have viewed any introductory videos prior to lab.*

**Friday GIS Lab** sessions will be broadcast live at the above times and recorded for later review in Canvas. You should plan to attend the live Zoom sessions whenever possible.

## 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.

- **Field Lab Activities:** Field lab activities will have graded assignments. Assessment will be based on a 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.
- **Assigned Readings:** Each week various book chapters, articles, and videos will be posted online 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.
- **Field Lab Activities:** Lab activities and assignments may happen in the virtual classroom or at various field sites. Labs are designed to provide students with hands-on experience with field methods or to collect data used in computer lab. Some sort of activity will be completed based on the subject matter and instructions given in an assignment.
- **GIS Activities:** Students will be supplied with step-by-step tutorials designed to demonstrate spatial information theory and familiarize them with ArcGIS software. 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.
- **Quizzes:** Weekly quizzes will be administered covering lecture material, assigned readings, videos, and lab subjects. Feedback will be provided explaining answer insufficiencies.
- **Group Study:** Students will work in assigned groups to complete certain tasks or assignments. Students are encouraged to form small *ad hoc* study groups outside of normal meeting times to reinforce concepts and to informally quiz each other on the course material presented.
- **Individual Study:** Each student will be expected to complete assigned readings, produce required lab reports, and spend individual time reviewing materials in advance of exams.

## Grading

	<i>Undergrad</i>	<i>Grad</i>
<b>Quizzes (6):</b>	30%	25%
<b>GIS Lab Reports:</b>	30%	25%
<b>Field Lab Activities:</b>	30%	25%
<b>Class Participation:</b>	10%	5%
<b>Grad Student Project</b>	--	20%

- **Quizzes:** Timed comprehensive quizzes will be given at the end of each week. Students will complete the quiz through the eLearning site Canvas. From the time you begin the quiz you will have a specified time frame to complete it. Quizzes are open book, notes, and lecture materials, however, you are under UF's Honor Code and must complete the exam on your own with no help from others.
- **Field Lab Activities:** Field labs will be conducted face-to-face on Thursdays and attendance is required for all students. Each lab module posted in Canvas will contain the lab meeting

location, topic, instructions, and deliverables specific to that lab session. Though data may be collected as a group, any required field lab reports shall be completed individually.

- **GIS Computer Labs:** GIS lab sessions will be conducted live via Zoom Conferences on Fridays from 9:30a to 12:15p and will be recorded for later viewing. These sessions will typically include a short lecture plus time to complete the exercise and receive in-class guidance. Students will be supplied with step-by-step tutorials 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 which will require a strong internet connection.

Students will individually complete and submit a summary lab report each week that includes a map, an activities summary, and answers to assigned questions. Prepared reports can serve as personal tutorial notes for future reference. Evening help sessions will be arranged by appointment through Canvas Conferences.

- **Participation:** Certain discussion topics and miscellaneous activities will appear in Canvas under different weekly modules and will count toward your participation grade. In addition, you are encouraged to introduce topics in a special discussion board 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.
- **Graduate GIS Project:** All graduate 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 early in the semester with your project ideas.

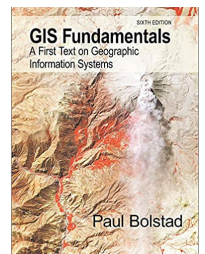
**Final grading** follows University standards based on the following scale (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>):

Letter Grade	A	B+	B	B-	C+	C	C-	D+	D	D-	E
<b>Course Score</b>	90.0 - 100	87.0 - <90.0	83.0 - <87.0	80.0 - <83.0	77.0 - <80.0	73.0 - <77.0	70.0 - <73.0	67.0 - <70.0	63.0 - <67.0	60.0 - <63.0	0- <60.0
<b>Grade Points</b>	4	3.33	3	2.67	2.33	2	1.67	1.33	1	0.67	0

## Resources

### Required Textbook:

**GIS Fundamentals (6th edition)**, Paul Bolstad (2019). XanEdu Publishing Inc. ISBN: 978-1593995522

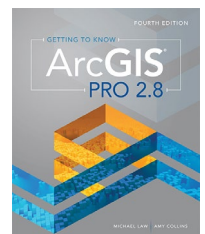


### Optional Workbook:

**Getting to Know ArcGIS Pro 2.8** (Fourth Edition), Michael Law and Amy Collins (2021). ESRI Press.

ISBN: 9781589487017 / E-book ISBN: 9781589487024

**Note:** *Getting to Know ArcGIS Pro* serves as a reference text for exercises conducted in class.



## Things you will need for this class:

- 1) A computer with sufficient resources capable of running office software for written reports.
- 2) **High-speed internet** to access the eLearning site in Canvas and UF Apps. Wi-Fi internet access is available in all campus libraries and the Reitz Union. Plan to work from campus if your home internet connectivity is poor.
- 3) Headset/microphone and webcam for discussion and conference sessions.
- 4) A way to take notes.

## Technology Information:

Use your GatorLink credentials to log into the following web sites **before our first meeting** to make sure you can access the resources. Some software download and installation may be necessary to access UF Apps.

**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://login.apps.ufl.edu>

**Canvas Conference Software:** <https://ufl.zoom.us/>

GIS labs will be conducted live using Canvas web conferencing software (Zoom). Sessions will be recorded for later student review. 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.

Contact the UF Help Desk (352) 392-4357 for assistance. <http://helpdesk.ufl.edu/>

## Late Assignments and Make-Up Work

The condensed nature of this course will require you to be focused, attentive, and taking notes during every class if you wish to be successful. Do not arrive late to live sessions.

**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 (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.

**Data storage/management and computer accessibility:** Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues **MUST** be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

**For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).**

The availability of inexpensive computer-connected storage devices (such as thumb drives) and pervasive online storage/backup options (UF Apps, OneDrive, Google Drive, Dropbox, etc.) has made the loss of computer data nearly impossible. Use them! No excuses because of data loss! **Start assignments early** and have a backup plan in mind so as to avert a missed assignment disaster.

**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 however, bonus points may be available on quizzes.**

## **Class and Discussion Decorum**

All course participants are expected to interact with dignity and professionalism in the classroom, in the field, or in an on-line discussion. Be professional. You are preparing for a career and should be learning to interact with your fellow classmates as you would in your future professional life. Written communication should follow standard rules for grammar and spelling and be clear, concise and intelligent.

Be respectful and open to opinions and ideas that differ from yours. The exchange of diverse thoughts, ideas and opinions are an important part of the scholarly environment. When responding to statements or posts made by others, address the ideas, not the person. Disagreement with the ideas of others is perfectly acceptable; how one disagrees should not be hurtful or offensive. Insulting remarks and name-calling are never appropriate.

## **Academic Honesty**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: **We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, 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 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>.

## **Academic Resources**

SFRC Academic Hub: <https://ufl.instructure.com/courses/303721>

UF Writing Studio: <https://writing.ufl.edu/writing-studio/>

Learning-support@ufl.edu | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>

Library Help Desk support <http://cms.uflib.ufl.edu/ask>

## 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, <https://counseling.ufl.edu/>

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

**U Matter, We Care** <http://www.umatter.ufl.edu/>

### Office of Victim Services

1515 Museum Road, (352) 392-5648, <https://police.ufl.edu/about/divisions/office-of-victim-services/>

### Career Resource Center

First Floor JWRU, (352) 392-1601, <https://career.ufl.edu/>

### Students with Disabilities

0001 Reid Hall, (352) 392-8565, <https://disability.ufl.edu/>

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.**

### UF attendance policy

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

**Please contact the instructor ahead of time or as soon after an absence to be considered excused.**

### The UF Religious Holidays Policy is available at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#religiousholidaystext>

At the University of Florida, students and faculty work together to allow students the opportunity to observe the holy days of their faith. A student should inform the faculty member of the religious observances of their faith that will conflict with class attendance, with tests or examinations, or with other class activities **prior to the class or occurrence of that test or activity.**

## FOR3434C / FOR5435 : FRIS : 2022 Summer B Class Schedule

Week / Date / Loc		Module Topics
1	June 29 Zoom/Canvas	Lecture: Class Introduction, Field Lab Procedures, Mapping history, Intro to GIS, Spatial Data Models
	June 30 LIT 109	Field Lab Activity: Public Land Survey, Intro to Map Reading and Compass Use
	July 1 Zoom	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 6 Zoom/Canvas	Lecture: Intro to Coordinate Systems, Map projections
	July 7 Reitz Lawn	Field Lab: Traverse a Course Using a Compass and Pacing on the Reitz Lawn
	July 8 Zoom	GIS Computer Lab: Creating Spatial Data – Points, Lines, and Polygons – from Georeferenced Scanned Paper Maps and Georeferenced Digital Aerial photographs, Managing Spatial Data – ArcGIS Geodatabases
3	July 13 Zoom/Canvas	Lecture: Global Navigation Satellite Systems, Spatial Data Sources, and Spatial Data Base Design
	July 14 ACF	Field Lab: Area measurement and Capturing Coordinates with GPS for Use in GIS, Creating a Polygon from GPS Data.
	July 15 Zoom	GIS Computer Lab: 2 Assignments. 1) Creating A Geodatabase, Creating Polygons from GPS Data, 2) GIS and Mission Planning for ACF Field Data Collection Using Aerial Photographs and Remotely Sensed Data
4	July 20 Zoom/Canvas	Lecture: Aerial Photographs, Remotely Sensed Data, and Air Photo Interpretation
	July 21 ACF	Field Lab: Field mapping gopher tortoise burrows with GPS
	July 22 Zoom	GIS Computer Lab: 2 parts, 1) GIS Data Creation from ACF Field Observations and 2) Georeferencing Scanned Paper Aerial Imagery
5	July 27 Zoom/Canvas	Lecture: Digital data, Basic spatial analysis
	July 28 NZ Breezeway	Field Lab Activity: GPS Navigation (GeoCaching in and around campus)
	July 29 Zoom	GIS Computer Lab: ACF Land Cover analysis
6	August 3 Zoom	Lecture: Raster Analysis
	August 4 NZ 222	Course wrap-up and Evaluation (9:30-10am) Graduate Project Presentation Brown Bag Lunch (10am to 1pm) Raster Analysis Demo (1pm-3:15pm)
	August 5 Canvas	Exam 6
<b>Subject to change – watch Canvas for updates and announcements</b>		

ACF: Austin Cary Forest    NZ: Newins-Ziegler Hall