Foundations of GIS

GIS3043

Office Hours: Find me on GroupMe and arrange a Zoom Meeting via Canvas Calendars.

Course Description

The purpose of this course is to introduce students to the practice and theory of utilizing Geographic Information Systems (GIS) as a method for analysis of the environment. Students will examine the fundamentals of GIS and their applications with an emphasis on the concepts needed to effectively manipulate, query, analyze, and visualize spatial-based data. At the end of the semester, students should feel comfortable applying GIS to a range of environmental issues and have a solid understanding of the procedures and data necessary to conduct a geographical analysis. Students on the Graduate level should be able to apply GIS into their own research endeavors.

COURSE OBJECTIVES

1. To understand the concepts and principles of Geographic Information Science (GISc), including Geographic Information Systems (GIS), Remote Sensing (RS), Cartography, Geography, and Global Positioning Systems (GPS)
2. To become competent in solving environmental problems with GISc Tools
3. To understand and communicate in the technical language associated with GISc

INSTRUCTOR EXPECTATIONS OF STUDENTS

You are expected to engage with materials on canvas, attend labs (on-campus sections), participate in discussions, and to read the assigned material. The instructor expects students to be curious and interested in the topic and want to engage with the materials. Students not interested in the subject should not take the course. Choose something that engages you. This is your education!

CREATIVITY

GIS is a versatile technique. Its applications are limitless. Students are expected to take this into account when doing coursework. Customizing coursework to fit your own academic goals is not only allowed but encouraged.

Prerequisites

There are no formal prerequisites for this course, however, a basic statistical methods course (e.g. GEO3162C/GEO6160). If there are concerns about readiness for the course please contact the instructor for guidance on which courses to take to prepare.

Course Resources

This course participates in the Affordable UF Initiative. The high cost of instructional materials can be a burden. This course is working to keep your material costs at less than $20 per-credit-hour. To accomplish this, there is no required text for this course. All course material will be provided on the eLearning Platform. The software will also be provided through the UF Apps framework as well as in TUR 3006 on campus. At the request of the student to the Instructor, license codes can be provided for the Esri GIS platforms for personal laptop use.

Class Meetings

The online and live sections of the class have the same materials, assignments, and lectures.

If you are registered for the Live Section

In general, concepts and theory will be presented in a 1-2 hour lectures. There are also two hours per week of lab time. Practical examples will be discussed and lab exercises will be conducted. Learning GIS is difficult and weekly labs are reserved for in-class work and one-on-one instruction. Please take advantage of this amazing resource.

If you are registered for the Online Section

In general, concepts and theory will be presented through videos online. You are expected to commit four to six hours per week in-lab time during the normal semester and ten-twenty hours a week during accelerated summer. Instructors and TAs will hold virtual office hours as requested to have one-on-one instruction. Please take advantage of the various digital interactions available in the course to get feedback and foster the sense of community with the class.

Peer Review

Many assignments will require peer-review. This is a time to give feedback to your fellow students as well as see what others are turning in. It is fine to be harsh and give feedback, but it is not appropriate to be disparaging, rude, or just plain mean. Give the peer review that you hope that you would get. Constructive feedback so you can make better GIS products.

Academic Honesty

You are all bound by the student academic 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 my honor, I have neither given nor received unauthorized

aid in doing this assignment."

Despite the course emphasis on code-reuse and collaboration, the final work you hand in for labs and for exams MUST be your own work or clearly cited as not your own. Do not plagiarize code or material. The first time a student is caught cheating they will get a zero in the lab/test. On the second offense, the student will be reported to the appropriate student body.

UF Counseling Services

Resources are available on campus for students having personal problems or lacking clear career and academic goals that interfere with their academic performance. These resources are available on campus for students having personal problems or lacking clear career and academic goals that interfere with their academic performance. These resources include   University Counseling Center, 301 Peabody Hall, 392-1575 (personal and career counseling); Student Mental Health, Student Health Care Center, 392-1171 (personal counseling); Center for Sexual Assault /Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161 ext. 4231 (counseling related to sexual assault and abuse); Career Resource Center, Reitz Union, 392-1601 (career development assistance and counseling).

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.

Americans With Disabilities Act

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Student Services before bringing your request to the instructor.

Grade Breakdowns

100	A
99	A
98	A
97	A
96	A
95	A
94	A
93	A
92	A
91	A

90	A
89	B+
88	B+
87	B+
86	B+
85	B+
84	B
83	B
82	B
81	B
80	B
79	C+
78	C+
77	C+
76	C+
75	C+
74	C
73	C
72	C
71	C
70	C
69	D+
68	D+
67	D+
66	D+
65	D+
64	D
63	D
62	D
61	D
60	D
59	E
58	E
57	E
56	E
55	E

54	E
53	E
52	E
51	E
50	E
49	E
48	E
47	E
46	E
45	E
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42	E
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
18	E
17	E
16	E
15	E
14	E
13	E
12	E
11	E
10	E
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7	E
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5	E
4	E
3	E
2	E
1	E
0	E

Course Summary:

Date	Details	
	📅 **First Day of Classes** (https://ufl.instructure.com/calendar?event_id=1310331&include_contexts=course_395185)	12am
Mon Jan 6, 2020	📅 **Anwar's Office Hour** (https://ufl.instructure.com/calendar?event_id=1310340&include_contexts=course_395185)	11am to 2pm
	📅 **End of Add/Drops** (https://ufl.instructure.com/calendar?event_id=1310332&include_contexts=course_395185)	12am
	📝 **Where is the Southwest?** (https://ufl.instructure.com/courses/395185/assignments/4081407)	due by 11:45pm
Fri Jan 10, 2020	📝 **Questionnaire** (https://ufl.instructure.com/courses/395185/assignments/4081360)	due by 11:59pm
	📄 **GroupMe!**	to do: 11:59pm
	📄 **Welcome to GIS!**	to do: 11:59pm

Date	Details	
	A Simple Map - ArcGIS [(https://ufl.instructure.com/courses/395185/assignments/4081380)](https://ufl.instructure.com/courses/395185/assignments/4081380)	due by 11:59pm
	ESRI: Getting Started with GIS [(https://ufl.instructure.com/courses/395185/assignments/4081385)](https://ufl.instructure.com/courses/395185/assignments/4081385)	due by 11:59pm
Sun Jan 12, 2020	**Lab Setup** [(https://ufl.instructure.com/courses/395185/assignments/4081398)](https://ufl.instructure.com/courses/395185/assignments/4081398)	due by 11:59pm
	What is GIS? The Quiz [(https://ufl.instructure.com/courses/395185/assignments/4081361)](https://ufl.instructure.com/courses/395185/assignments/4081361)	due by 11:59pm
	Spatial Data Quiz [(https://ufl.instructure.com/courses/395185/assignments/4081355)](https://ufl.instructure.com/courses/395185/assignments/4081355)	due by 11:55pm
	Data and File Structures in ArcGIS [(https://ufl.instructure.com/courses/395185/assignments/4081370)](https://ufl.instructure.com/courses/395185/assignments/4081370)	due by 11:59pm
Sun Jan 19, 2020	**ESRI: Map Design Fundamentals** [(https://ufl.instructure.com/courses/395185/assignments/4081387)](https://ufl.instructure.com/courses/395185/assignments/4081387)	due by 11:59pm
	Mapping Disaster Trends [(https://ufl.instructure.com/courses/395185/assignments/4081401)](https://ufl.instructure.com/courses/395185/assignments/4081401)	due by 11:59pm
	Top 10 List - Top Cities For….. (Geocoding) [(https://ufl.instructure.com/courses/395185/assignments/4081405)](https://ufl.instructure.com/courses/395185/assignments/4081405)	due by 11:59pm
Mon Jan 20, 2020	**Martin Luther King Jr. Day** [(https://ufl.instructure.com/calendar?event_id=1310333&include_contexts=course_395185)](https://ufl.instructure.com/calendar?event_id=1310333&include_contexts=course_395185)	12am
	Alaska vs Texas - Does Projection Matter when measure size of state? [(https://ufl.instructure.com/courses/395185/assignments/4081378)](https://ufl.instructure.com/courses/395185/assignments/4081378)	due by 11:59pm
	Blue Marble Quiz [(https://ufl.instructure.com/courses/395185/assignments/4081376)](https://ufl.instructure.com/courses/395185/assignments/4081376)	due by 11:59pm
Sun Jan 26, 2020	**Coordinate Systems and Map Projections** [(https://ufl.instructure.com/courses/395185/assignments/4081366)](https://ufl.instructure.com/courses/395185/assignments/4081366)	due by 11:59pm
	How big is the Earth? [(https://ufl.instructure.com/courses/395185/assignments/4081395)](https://ufl.instructure.com/courses/395185/assignments/4081395)	due by 11:59pm
	Projections Lecture Quiz [(https://ufl.instructure.com/courses/395185/assignments/4081375)](https://ufl.instructure.com/courses/395185/assignments/4081375)	due by 11:59pm

Date	Details	
Sun Feb 2, 2020	🖹 **ESRI: Basics of Map Projections** (https://ufl.instructure.com/courses/395185/assignments/4081383)	due by 11:59pm
	🖹 **ESRI: Referencing Data to Real-World Locations Using ArcGIS** (https://ufl.instructure.com/courses/395185/assignments/4081388)	due by 11:59pm
	🖹 **GPS Lecture Quiz** (https://ufl.instructure.com/courses/395185/assignments/4081373)	due by 11:59pm
	🖹 **GPS Long Lats of the SEC** (https://ufl.instructure.com/courses/395185/assignments/4081392)	due by 11:59pm
Sun Feb 9, 2020	🖹 **NDVI** (https://ufl.instructure.com/courses/395185/assignments/4081402)	due by 11:30pm
	🖹 **Remote Sensing Lecture Quiz** (https://ufl.instructure.com/courses/395185/assignments/4081364)	due by 11:59pm
Sun Feb 16, 2020	🖹 **ArcGIS Pro: Make a Map of Turlington Plaza** (https://ufl.instructure.com/courses/395185/assignments/4081379)	due by 11:59pm
	🖹 **Georeferencing** (https://ufl.instructure.com/courses/395185/assignments/4081391)	due by 11:59pm
	🖹 **Georeferencing and Digitizing UF campus image** (https://ufl.instructure.com/courses/395185/assignments/4081372)	due by 11:59pm
	🖹 **Georefrencing Lecture Quiz** (https://ufl.instructure.com/courses/395185/assignments/4081367)	due by 11:59pm
	🖹 **Making a Campus Map** (https://ufl.instructure.com/courses/395185/assignments/4081400)	due by 11:59pm
Sun Feb 23, 2020	🖹 **Image Classification** (https://ufl.instructure.com/courses/395185/assignments/4081396)	due by 11:59pm
	🖹 **LCS - Von Thünen model** (https://ufl.instructure.com/courses/395185/assignments/4081399)	due by 11:59pm
	🖹 **Viewing Land Use Change** (https://ufl.instructure.com/courses/395185/assignments/4081406)	due by 11:59pm
Mon Mar 2, 2020	📅 **SPRING BREAK!** (https://ufl.instructure.com/calendar?event_id=1310334&include_contexts=course_395185)	12am
Tue Mar 3, 2020	📅 **SPRING BREAK!** (https://ufl.instructure.com/calendar?event_id=1310339&include_contexts=course_395185)	12am
Wed Mar 4, 2020	📅 **SPRING BREAK!** (https://ufl.instructure.com/calendar?event_id=1310336&include_contexts=course_395185)	12am

Date	Details	
Thu Mar 5, 2020	🗓 **SPRING BREAK!** [(https://ufl.instructure.com/calendar? event_id=1310337&include_contexts=course_395185)](https://ufl.instructure.com/calendar?event_id=1310337&include_contexts=course_395185)	12am
Fri Mar 6, 2020	🗓 **SPRING BREAK!** [(https://ufl.instructure.com/calendar? event_id=1310338&include_contexts=course_395185)](https://ufl.instructure.com/calendar?event_id=1310338&include_contexts=course_395185)	12am
Sun Mar 8, 2020	📝 **ArcGIS File, Geodatabase, and Database Operations** [(https://ufl.instructure.com/courses/395185/assignments/4081362)](https://ufl.instructure.com/courses/395185/assignments/4081362)	due by 11:59pm
	📝 **Census Choropleth Map** [(https://ufl.instructure.com/courses/395185/assignments/4081381)](https://ufl.instructure.com/courses/395185/assignments/4081381)	due by 11:59pm
	📝 **Creating Maps Using Census Data** [(https://ufl.instructure.com/courses/395185/assignments/4081374)](https://ufl.instructure.com/courses/395185/assignments/4081374)	due by 11:59pm
	📝 **ESRI: Getting Started with the Geodatabase** [(https://ufl.instructure.com/courses/395185/assignments/4081386)](https://ufl.instructure.com/courses/395185/assignments/4081386)	due by 11:59pm
	📝 **Race Dot Map** [(https://ufl.instructure.com/courses/395185/assignments/4081404)](https://ufl.instructure.com/courses/395185/assignments/4081404)	due by 11:59pm
Sun Mar 15, 2020	📝 **Crime Scene Investigation** [(https://ufl.instructure.com/courses/395185/assignments/4081365)](https://ufl.instructure.com/courses/395185/assignments/4081365)	due by 11:59pm
	📝 **GWR** [(https://ufl.instructure.com/courses/395185/assignments/4081394)](https://ufl.instructure.com/courses/395185/assignments/4081394)	due by 11:59pm
Sun Mar 22, 2020	📝 **Ecological Niche Modeling** [(https://ufl.instructure.com/courses/395185/assignments/4081382)](https://ufl.instructure.com/courses/395185/assignments/4081382)	due by 11:59pm
	📝 **ESRI: Building Models for GIS Analysis Using ArcGIS** [(https://ufl.instructure.com/courses/395185/assignments/4081384)](https://ufl.instructure.com/courses/395185/assignments/4081384)	due by 11:59pm
	📝 **Map Algebra Quiz** [(https://ufl.instructure.com/courses/395185/assignments/4081368)](https://ufl.instructure.com/courses/395185/assignments/4081368)	due by 11:59pm
	📝 **Terrain Analysis Quiz** [(https://ufl.instructure.com/courses/395185/assignments/4081356)](https://ufl.instructure.com/courses/395185/assignments/4081356)	due by 11:59pm
Sun Mar 29, 2020	📝 **Campsite Selection** [(https://ufl.instructure.com/courses/395185/assignments/4081359)](https://ufl.instructure.com/courses/395185/assignments/4081359)	due by 11:59pm
	📝 **John Snow Map - Spatial Analysis** [(https://ufl.instructure.com/courses/395185/assignments/4081397)](https://ufl.instructure.com/courses/395185/assignments/4081397)	due by 11:59pm
	📝 **Spatial Analysis, Interpolation, Modeling Quiz** [(https://ufl.instructure.com/courses/395185/assignments/4081363)](https://ufl.instructure.com/courses/395185/assignments/4081363)	due by 11:59pm
	📝 **Vector Analysis** [(https://ufl.instructure.com/courses/395185/assignments/4081377)](https://ufl.instructure.com/courses/395185/assignments/4081377)	due by 11:59pm

Date	Details	
Sun Apr 5, 2020	📝 **Final Project Proposal** (https://ufl.instructure.com/courses/395185/assignments/4081390)	due by 11:59pm
Sun Apr 12, 2020	📝 **Acronyms Quiz** (https://ufl.instructure.com/courses/395185/assignments/4081369)	due by 11:59pm
	📝 **Exam 1** (https://ufl.instructure.com/courses/395185/assignments/4081354)	due by 11:59pm
	📝 **Extensions Quiz** (https://ufl.instructure.com/courses/395185/assignments/4081357)	due by 11:59pm
Sun Apr 19, 2020	📝 **Exam 2** (https://ufl.instructure.com/courses/395185/assignments/4081358)	due by 11:59pm
Wed Apr 22, 2020	📝 **Course Evaluation** (https://ufl.instructure.com/courses/395185/assignments/4081371)	due by 11:59pm
Fri May 1, 2020	📅 **All work DUE!!!!!** (https://ufl.instructure.com/calendar?event_id=1306231&include_contexts=course_395185)	12am
	📝 **Final Project Poster** (https://ufl.instructure.com/courses/395185/assignments/4081389)	due by 11:59pm
Mon May 4, 2020	📅 **Grades Submitted at noon** (https://ufl.instructure.com/calendar?event_id=1306230&include_contexts=course_395185)	12am
	📝 **GroupMe Activity** (https://ufl.instructure.com/courses/395185/assignments/4081393)	
	📝 **Peer Review** (https://ufl.instructure.com/courses/395185/assignments/4081403)	