Course Syllabus

GIS 3001c/5008c

Spatial Maps and Graphs

Office Hours are by-appointment via Canvas Calander and will be all done via Zoom Screenshare.

Course Description

This course is about data visualization, and your major objective is to create and style your maps and graphs. You will learn how to design beautiful maps and graphs! Design visually stunning thematic representations. Create interactive web maps. Learn how to design maps and graphs that spark an emotional response from a user.

Major Objective: Develop students' cartographic and graphic design skills for visualizing and presenting geospatial information.

Course Objectives:

- Design for Visual Communication
  - Visual perception
  - Visual cognition
  - Visual semiotics
  - Visual aesthetics
- Understand major principles of good cartographic design.
  - symbolization, map elements, generalization, map projection, color use, visualization, etc.
- Understand significant principles of the visual communication of data through both maps and graphs.
- Understand major techniques for data classification.
- Understand the characteristics of the major types of thematic maps
  - qualitative, choropleth, proportional symbol, dot, cartogram, etc.
- Be able to use GIS software to construct maps both professionally (for a publication, presentation, or research project, etc.) and in their daily lives (for a website, etc.)
- Have a better appreciation for the maps that students encounter in their everyday lives and appreciate how they can use the skills learned in this class for future endeavors.
- Understand ethical and social issues in the use and construction of maps and practice ethical cartographic design.
- Care more about maps and especially those of high-quality design and accuracy.
- Learn about sources of data for cartography (census, data depositories, collecting one's data, etc.) and become independent cartographers.

Course Topics

- **What is Data?**
  - Data classification
  - Symbolization
  - Generalization
- **What is a Map?**
  - Coordinate system and map projection
  - Map elements and cartographic design
- **Principles of Color**
- **Principles of Typography**
- **Basics of GIS**
  - Fundamentals of GIS and spatial analysis
  - Internet GIS and Online Mapping
  - Online Data Resources
- **Spatial Analysis and Mapping techniques**
  - Choropleth mapping, Dasymetric mapping, and Isarithmic mapping
  - Proportional symbol and dot mapping
  - Multivariate mapping, Cartograms and flow maps
- **Basics of Spreadsheets**
- **Introductory Statistics**
  - What graphs assist in mapping?
  - How to make graphs
  - Associated Introductory Statistics
- **Mental Mapping**
- **Ethics in Data Visualization**
  - Lying with Maps
  - Lying with Stats
  - Data Privacy
- **Other Topics**

Prerequisites

There are no formal prerequisites for this course. However, a basic statistical methods course (e.g. GEO3162C/GEO6160) and familiarity with ArcGIS (e.g. GEO3043/GEO5107C), either taken previously or concurrently will be beneficial.

Course Resources

There is no required text for this course. All course material will be provided on the eLearning Platform (Canvas).

Optional Reference Textbook:

Bertin, J. (1983). Semiology of graphics: Diagrams, networks, maps (WJ Berg, Trans.). *Madison, WI: The University of Wisconsin Press, Ltd*.

Monmonier, M. (1996). *How to Lie with Maps*. *Second Edition.* Chicago, IL: The University of Chicago Press.

Muehlenhaus, I. (2013). *Web cartography: map design for interactive and mobile devices*. CRC Press.

Slocum, T., McMaster, R., Kessler, F. and Howard, H. (2009). *Thematic Cartography and Geographic Visualization. Third Edition.* Upper Saddle River, NJ: Pearson Prentice Hall.

Class Structure

In general, programming concepts and theory will be presented in a one-hour lecture. During the remaining two hours per week in-lab time, practical examples will be discussed, and lab exercises will be conducted. Learning to program is often difficult, and weekly labs are reserved for in-class work and one-on-one instruction.

Grading

Grades are assigned with the standard University breakdown. All labs/projects will be graded on a scale of 10. Grades will be averaged based on their category this breakdown for the final grade:

- Labs: 60%
- Module Quizzes: 20%
- Portfolio Project: 10%
- Exam: 5%
- Participation (GroupMe, Canvas Activity, and Peer Review): 5%

This course uses moderated grading for some assignments. Any assignment that is moderated graded that you believe should be graded higher should be appealed directly to the instructor. Send an email to the instructor requesting a regrading, and the instructor will regrade the assignment.

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."

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

Software needed for this class will be available through UF Apps. It is suggested to work through UF Apps when possible. If you prefer working on other platforms, that's fine, but you will be expected to provide your own technical assistance for personal software issues.

You will be required to get the Adobe Suite. You can buy it here **http://helpdesk.ufl.edu/software-services/adobe/ (http://helpdesk.ufl.edu/software-services/adobe/)** If you buy it through the link, it will not only give you the Adobe Suite but will make it available to you on UF Apps. Another option is that you can sign up for the 30-day free trial. This will give you access to the software during the course for free! https://helpx.adobe.com/creative-cloud/help/download-install-trial.html

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 (ADA)

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 Cutoffs

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

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5	E
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2	E
1	E
0	E

Course Summary:

Date	Details	
Mon Aug 31, 2020	**First Day of Class** (https://ufl.instructure.com/calendar?event_id=1611855&include_contexts=course_407970)	12am
Tue Sep 1, 2020	**Anwar's Office Hours** (https://ufl.instructure.com/appointment_groups/7446)	6pm to Sep 8 at 7pm
Mon Sep 7, 2020	**Labor Day** (https://ufl.instructure.com/calendar?event_id=1612095&include_contexts=course_407970)	12am
Wed Sep 9, 2020	**Course Intro Quiz** (https://ufl.instructure.com/courses/407970/assignments/4411304)	due by 11:59pm

Date	Details	
	Lab Setup (https://ufl.instructure.com/courses/407970/assignments/4411300)	due by 11:59pm
	GroupMe	to do: 11:59pm
	Welcome to Spatial Maps and Graphs!	to do: 11:59pm
Wed Sep 16, 2020	Job Ads (https://ufl.instructure.com/courses/407970/assignments/4411323)	due by 11:59pm
	Tell Me about Yourself Quiz (https://ufl.instructure.com/courses/407970/assignments/4411302)	due by 11:59pm
	Your Resume (https://ufl.instructure.com/courses/407970/assignments/4411334)	due by 11:59pm
Wed Sep 23, 2020	Make Your Own Social Media Banner Graphic (https://ufl.instructure.com/courses/407970/assignments/4411328)	due by 11:59pm
Wed Sep 30, 2020	Spatial Thinking (https://ufl.instructure.com/courses/407970/assignments/4411332)	due by 11:59pm
Sat Oct 3, 2020	Homecoming (https://ufl.instructure.com/calendar?event_id=1611875&include_contexts=course_407970)	12am
Mon Oct 5, 2020	Memorial Day! (https://ufl.instructure.com/calendar?event_id=1612062&include_contexts=course_407970)	12am
Wed Oct 7, 2020	COVID County Impact Infographic (https://ufl.instructure.com/courses/407970/assignments/4411308)	due by 11:59pm
Wed Oct 14, 2020	Create a Story Map Cascade (https://ufl.instructure.com/courses/407970/assignments/4411309)	due by 11:59pm
	Create a Story Map Journal (https://ufl.instructure.com/courses/407970/assignments/4411310)	due by 11:59pm

Date	Details	
	Creating a Story Map Tour (https://ufl.instructure.com/courses/407970/assignments/4411312)	due by 11:59pm
Wed Oct 21, 2020	ESRI's Make a Map with ArcGIS Pro (https://ufl.instructure.com/courses/407970/assignments/4411318)	due by 11:59pm
	Make a simple map with ArcGIS Pro (https://ufl.instructure.com/courses/407970/assignments/4411326)	due by 11:59pm
	RGB UF (https://ufl.instructure.com/courses/407970/assignments/4411296)	due by 11:59pm
	What is a Map Quiz (https://ufl.instructure.com/courses/407970/assignments/4411299)	due by 11:59pm
	Colorize the Cover for your Portfolio (https://ufl.instructure.com/courses/407970/assignments/4411307)	due by 11:59pm
Wed Oct 28, 2020	ESRI: Labeling Features Using ArcGIS Pro (https://ufl.instructure.com/courses/407970/assignments/4411316)	due by 11:59pm
	Illustrator: Designing a Monogram (https://ufl.instructure.com/courses/407970/assignments/4411322)	due by 11:59pm
	Type Effect with Clipping Mask (https://ufl.instructure.com/courses/407970/assignments/4411333)	due by 11:59pm
	Typography Quiz (https://ufl.instructure.com/courses/407970/assignments/4411297)	due by 11:59pm
Wed Nov 4, 2020	ArcGIS Desktop - Mapping Disaster Trends (extra credit) (https://ufl.instructure.com/courses/407970/assignments/4411305)	due by 11:59pm
	Choropleth Mapping (https://ufl.instructure.com/courses/407970/assignments/4411306)	due by 11:59pm

Date	Details	
	ESRI: Basics of Geographic Coordinate Systems (https://ufl.instructure.com/courses/407970/assignments/4411314)	due by 11:59pm
Fri Nov 6, 2020	Course Evaluation (https://ufl.instructure.com/courses/407970/assignments/4411303)	due by 11:59pm
Tue Nov 10, 2020	Creating a Google Map (https://ufl.instructure.com/courses/407970/assignments/4411311)	due by 11:59pm
	Extracting data from a Graph (https://ufl.instructure.com/courses/407970/assignments/4411319)	due by 11:59pm
	Make a Population Pyramid (https://ufl.instructure.com/courses/407970/assignments/4411325)	due by 11:59pm
Wed Nov 11, 2020	Veterans Day (https://ufl.instructure.com/calendar?event_id=1611859&include_contexts=course_407970)	12am
Wed Nov 18, 2020	Happy GIS Day! (https://ufl.instructure.com/calendar?event_id=1611879&include_contexts=course_407970)	12am
	ESRI: 3D Visualization Using ArcGIS Pro (https://ufl.instructure.com/courses/407970/assignments/4411313)	due by 11:59pm
	ESRI: Creating and Sharing Animation in ArcGIS Pro (https://ufl.instructure.com/courses/407970/assignments/4411315)	due by 11:59pm
Thu Nov 26, 2020	Thanksgiving (https://ufl.instructure.com/calendar?event_id=1611863&include_contexts=course_407970)	12am
Wed Dec 2, 2020	ESRI: Map Design Fundamentals (https://ufl.instructure.com/courses/407970/assignments/4411317)	due by 11:59pm
	Florida Hand Drawn Map (https://ufl.instructure.com/courses/407970/assignments/4411298)	due by 11:59pm

Date	Details	
	Make a Water Color Map (https://ufl.instructure.com/courses/407970/assignments/4411327)	due by 11:59pm
	Mental Mapping Assignment (https://ufl.instructure.com/courses/407970/assignments/4411329)	due by 11:59pm
Wed Dec 9, 2020	Last Day of Class (https://ufl.instructure.com/calendar?event_id=1611883&include_contexts=course_407970)	12am
	Revisting my Resume (https://ufl.instructure.com/courses/407970/assignments/4411331)	due by 11:59pm
	What's wrong with these maps? (https://ufl.instructure.com/courses/407970/assignments/4411301)	due by 11:59pm
Fri Dec 18, 2020	All Work Due (https://ufl.instructure.com/calendar?event_id=1611867&include_contexts=course_407970)	12am
	All work DUE!!!! (https://ufl.instructure.com/calendar?event_id=1612059&include_contexts=course_407970)	12am
	Final Exam (https://ufl.instructure.com/courses/407970/assignments/4411295)	due by 11:59pm
	Final Portfolio (https://ufl.instructure.com/courses/407970/assignments/4411320)	due by 11:59pm
Mon Dec 21, 2020	Grades Due by Noon (https://ufl.instructure.com/calendar?event_id=1611871&include_contexts=course_407970)	12am
	GroupMe Activity (https://ufl.instructure.com/courses/407970/assignments/4411321)	
	Make a Contour Map (exempted) (https://ufl.instructure.com/courses/407970/assignments/4411324)	
	Peer Review (https://ufl.instructure.com/courses/407970/assignments/4411330)	