JOU 3121 Dataviz & Mapping

Spring 2024 | Class 16798, section DVIZ | Periods 8-10 Thursdays | Weimer 2050 | 3 credits

Associate Professor Norman P. Lewis, Ph.D.

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Contact: Email nplewis@ufl.edu or message through Canvas
Office hours: Mondays 12:00p to 1:30p and Thursdays 1:00p to 2:30p (in person)

Office hours are in-person (in my office) and drop-in (no appointment).
If those hours conflict with your schedule, contact me and we will find a time that works.

PART 1: ABOUT THE COURSE

Course Description

This course equips you to (1) create mobile-first, visual data stories and (2) conduct geospatial analysis involving location data. Data newbies welcome.

Objectives

By the end of the course, you will be able to:
1. Create mobile-friendly visual data stories easily grasped by busy audiences.
    a. Find reliable numerical data sources and assess their provenance.
    b. Use spreadsheets to analyze and summarize data.
    c. Apply best practices for visual grammar in chart and map design.
2. Use Tableau to visually detect patterns and assess statistical significance.
3. Conduct geospatial analysis to find patterns and detect journalistic stories.
    a. Obtain reliable GIS data via shapefiles, GeoJSON, and geocoding.
    b. Apply core geospatial principles to proper analysis of geographic data.
    c. Analyze points in polygons, perimeter buffers, and isochrone layers.

Required Textbook

None required. Recommended: "How Charts Lie: Getting Smarter About Visual Information" by Alberto Cairo (2019). W.W. Norton & Co. $16 at Bookshop.

Computer Requirements

- Laptop, either Mac or Windows. Have enough free disk space to load 2 programs.
- Download Office 365 on your laptop free through UF Tech

IRE Membership

For $25 (student rate), join Investigative Reporters and Editors (IRE), which includes NICAR for data journalists. Get access to 30,000 ideas, stories, tip sheets, data – and job prospects. IRE/NICAR is a superb journalism organization.

Tentative Schedule (subject to change)

Wk	Date	Theme	Skills	Assignment
UNIT 1: Visual Data Storytelling				
1	Jan 16	**Visuals 1:** The Data Story	Create a mobile-first, visual data story using 3 charts and published on Medium	H1: College Due Mon Jan 20
2	Jan 23	**Visuals 2:** Chart Types	Identify the story in the data and matching primary chart types to the data	H2: Types Due Mon Jan 27
3	Jan 30	**Visuals 3:** Clarity	Add clarity to charts with visual embedding cues, annotating charts	H3: Clarity Due Mon Feb 3
4	Feb 6	**Visuals 4:** Mapping Data	Convey data through point and choropleth maps, as appropriate	H4: Mapping Due Mon Feb 10
5	Feb 13	**Visuals 5:** Census	Use current Census Bureau data to create a 3-visual story with charts and/or maps	H5: Census Due Mon Feb 17 *Story plan: Feb. 18*
6	Feb 20	**Visuals 6:** Tableau	Use Tableau to find patterns; quartiles, correlation, box-and-whisker plots	H6: Tableau Due Mon Feb 24 *Plan revise: Feb. 25*
7	Feb 27	**Visuals Exam**	Take visuals exam in classroom; from video lessons, readings, class work, and homework	Viz Exam In class Thu Feb 27
8	Mar 6		No class due to NICAR data journalism conference. Work on your project.	
9	Mar 13	**Project Demo**	Demonstrate your completed (not draft) project to get peer feedback	Viz Data Project Fri March 14
10	Mar 20		No class due to Spring Break	
UNIT 2: Geospatial Analysis				
11	Mar 27	**QGIS 1:** Cartography	Mapping mechanics; ethics of geospatial data; importing geodata; point analysis	H7: GIS 1 Due Mon Mar 31
12	Apr 3	**QGIS 2:** Joins	Joining numbers and geodata; choropleth and histogram analysis; geocoding; styling	H8: GIS 2 Due Mon April 7
13	Apr 10	**QGIS 3:** Point Analysis	Geospatial analysis sans maps; point analysis; analysis by locale and time	H9: GIS 3 Due Mon April 14
14	Apr 17	**QGIS 4:** Spatial Analysis	Isochrone analysis: Setting and measuring parameters using distance and traffic data	H10: GIS 4 Due Mon April 21

GIS Exam | Complete at home before 11:59 pm Monday, April 28

PART 2: ASSIGNMENTS AND GRADING

Attendance and Deadlines
Because this is a hands-on course, weekly attendance is expected. Deadlines are firm.

Grade Allocation
Weekly Homework 50%	Due 11:59 pm on Mondays. Best 9 (of 10) scores count.
Visual Data Project 20%	Due 11:59 pm Friday, March 14
Visuals Exam 15%	In class Thursday, Feb. 27
GIS Exam 15%	Take at home. Due 11:59 pm Monday, April 28

Grading Scale

	Percent		Percent		Percent		Percent
		B+	89-87%	C+	79-77%	D+	69-67%
A	100-93%	B	86-83%	C	76-73%	D	66-63%
A-	92-90%	B-	82-80%	C-	72-70%	D-	62-60%

Scores are rounded to the nearest whole point: 89.4 rounds down to 89 (B+) while 89.5 rounds up to 90 (A-). The UF grading policy details how GPA is computed.

Homework (50%)
Homework is assigned after each class and is due before 11:59 pm on Mondays. The low score drops. Because you have 4 days to complete each assignment, no extensions will be allowed unless you have an exemption covered by UF policy for the *entire* time period.

😄 *Bonus*: Each homework submitted before 6 pm Saturday earns 10 extra points. Why the bonus? Completing work within 2 days improves learning and retention.

Extra Credit: 2 Opportunities (and no others)
1. Submit each weekly assignments within 2 days (above) to get 10 bonus points.
2. Submit each Visual Data Story Project checkpoint (below) for a 1-point boost.

Visual Data Project (20%)
This is an original, timely, journalistic, data-driven visual story requiring a spreadsheet and optimized for a phone. Must be original to this class. Due by 11:59 pm Friday, March 14.

Exams: Visual (15%) and GIS (15%)
- Visual: In class Feb. 27. From videos, readings, class discussion, and homework.
- GIS: Take at home. Due Mon, April 28. From class discussion, readings, and QGIS.
- Exams are open book but only-you. No outside consultation allowed.

A makeup exam is possible only if all three conditions are met:
1. The absence is covered by UF policy.
2. You contact me at least 30 minutes before class begins.
3. You promptly provide written documentation if appropriate.

Visual Data Story Rubric (Homework and Project)

Assignment: Create an interesting and concise, data-driven visual story designed for mobile.
Work product: URL of your story on Medium.
Grading standard: An A project is publishable by a potential employer.

Category	Criteria	Points
Topic (6%)	**1.1. Question:** Is story (a) self-evidently driven by a specific, non-binary, timely question of civic import that is (b) written in a note with assignment?	6
Data (24%)	**2.1 Data:** Does story use data from the original source that is current, reliable, and substantial enough to require analysis?	6
	2.2. Analysis: Has data analysis been conducted that requires a spreadsheet to parse and summarize?	6
	2.3. Normalize: Have the data been normalized as necessary (such as population or inflation) to accurately report meaning?	6
	2.4. Calculations: Have calculations (percent, rate, ratio, mean, median, etc.) been made, and were they appropriate for the data?	6
Text (20%)	**3.1. Focused:** Do the headline and lead focus on single most important point derived from the analysis?	4
	3.2. Lede: Is the lede both complete and concise (25 words max)?	4
	3.3. Complementary: Are text in paragraphs and visuals complementary?	4
	3.4. Numbers: Are numbers used sparingly: max 1 per sentence, 3 per story?	4
	3.5. Sound: Is story mechanically sound: max 1 spelling or grammar error?	4
Visuals (50%)	**4.1. Coherent:** Do the 3 visuals together tell a coherent story and individually make a distinctive and essential contribution?	5
	4.2. Message: Does each visual convey a single data point and message that can be interpreted easily in 3 seconds on a phone?	6
	4.3. Picture: Is each visual picture sufficient to convey the data or message without requiring words, color keys, or tooltips?	9
	4.4. Scannable: Is each visual read quickly? (i.e., text horizontal, color keys if required have rounded categories, tooltips are clear but supplemental)	6
	4.5. Types: Does visual type match data? (i.e., line 30+ data points, pie 4-6 slices with 1 dominant, column or bar fit phone width, map fits data)	9
	4.6. Axes: Are axes correct? (i.e., zero start, categorical data complete with equal units, sort order reflects best, max/min reflect data, time on x-axis)	9
	4.7. Color: Does color augment data? (i.e., visual readable without color; colors, hue, and palette match data; motifs consistent)	6

Project Deadlines

The project requires your original idea. It is executed and graded like the weekly assignments.

Bonus percentage points are available per the details below. If you complete all 3, a project with a score of 85 would be raised to 88.

Assignment	Description	Bonus	Due Date
1. Project Plan Email	Email nplewis@ufl.edu these five elements. 1. **Question**: The specific, non-binary, timely question of civic import you will answer. 2. **Source**: The specific data you will use, with a hyperlink to the source or a copy of the data file. 3. **Method**: Detail specifically how you will analyze the data in Excel, step by step. 4. **Visuals**: Specify each of the 3 visuals, both (a) the likely title and (b) the chart or map type to be used. 5. **Lede**: The single, specific data point you have or expect to find, written as a lede sentence. 1% awarded <u>only</u> if all 5 completed *thoroughly*.	1 pct. point	Via Email Tue, Feb. 18
2. Plan Revision	Submit via email a revised plan in response to feedback. Follow the same five elements above. 1% awarded <u>only</u> if all 5 completed *thoroughly*.	1 pct point	Email Tue, Feb. 25
3. Demo Visual Data Project	Demo completed (not draft) data story in class. 1% awarded <u>only</u> if story is *completed* and shown to the class on Medium.	1 pct point	In class Thu, March 13

1. I invite you to discuss your **idea** with me informally before Feb. 18.
2. On Feb. 18, a well-defined and researched project **plan** is due.
3. For the record, an idea is not a plan. I need to see a specific, well-defined **plan**.

PART 3: OTHER IMPORTANT DETAILS

Academic Integrity
UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students 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." The Honor Code (https://sccr.dso.ufl.edu/process/student-conduct-code) specifies a number of behaviors that are in violation of this code and the possible sanctions. Also, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with me. Violations can result in a failing grade for the course and referral to the dean of students.

Any work you submit must be solely and entirely your own. Any work drawn from another unattributed source, whether by plagiarism, Chat GPT, Gemini, Copilot, or any other AI program, is an academic integrity violation and will result in a failing grade for the course.

In-Class Recording
The official UF policy regarding in-class recording, to comply with a 2021 Florida law can be found here.

Students with Disabilities
Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting the get-started page. It is important to share any accommodation letter with me and discuss access needs as early as possible in the semester.

Course Evaluations
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via Bluera. Summaries of course evaluation results are publicly available.

Health and Wellness
- **U Matter, We Care**: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

- **Counseling and Wellness Center**: Visit the Counseling and Wellness Center [website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- **Student Health Care Center**: Call 352-392-1161 for 24/7 information to help you find the care you need or visit the Student Health Care Center [website](#).
- **University Police Department**: Visit UF Police Department [website](#) or call 352-392-1111 (or 911 for emergencies).
- **UF Health Shands Emergency Room / Trauma Center**: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville. Visit the UF Health Emergency Room and Trauma Center [website](#).

Academic Resources

- **E-learning technical support**: Contact the UF Computing Help Desk [website](#), or phone 24/7 at 352-392-4357, or email helpdesk@ufl.edu.
- **Career Connections Center**: Career assistance and counseling services. Visit the [website](#). Reitz Union Suite 1300, 352-392-1601.
- **Library Support**: Various ways to receive assistance with respect to using the libraries or finding resources. Visit the [website](#).
- **Teaching Center**: General study skills and tutoring. Visit the [website](#). Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420.
- **On-Campus Student Complaints**: Details are available through the Student Honor Code and Student Conduct Code, also known as the [Orange Book](#).