**JOU 3121 Dataviz & Mapping**

Spring 2022 | Class 20977, section DVIZ | Periods 8-10 Thursdays | Weimer 2050 | 3 credits

**Associate Professor Norman P. Lewis, Ph.D.**

Office: 3052 Weimer Hall

Contact: Email nplewis@ufl.edu or message through Canvas

Office hours: Online via Zoom (make appointment in Canvas): Mondays noon to 2pm

 In person (open; no appointment): Mondays 2 to 4 pm

In-person office hours are first-come, first-served. To make a Zoom appointment, click the Calendar icon, then Find Appointment. If none work, contact me and we will find a time.

**Teaching Assistant Angela Mu, third-year doctoral student**

Email her (ymu@ufl.edu) to set up a Zoom or in-person meeting. She is glad to help!

 **ABOUT THE COURSE**

**Course Description**

This course covers the foundational skills to (1) create a mobile-first, visual data story and (2) conduct geospatial analysis. The emphasis is on evaluation and presentation using free, open-source tools without customized coding.

**Objectives**

By the end of the course, you should be able to:

* Create visual data stories optimized for the phone.
* Conduct geospatial analysis to find a journalistic story in geographic data.
* Evaluate data to find insights of interest to the audience.
* Condense data to be read quickly and visually.
* Match visualization techniques to the data.
* Use color, type, shapes, and other tools to foster accuracy and clarity.

**Required Textbook**

“How Charts Lie: Getting Smarter About Visual Information” by Alberto Cairo (2019). W.W. Norton & Co. ISBN: 978-1-324-00156-0. Cost: $13 paperback, $10 e-book.

**Computer Requirements**

* Either Apple Mac or Windows laptop. Ensure the operating system has been updated and the hard drive has at least 20% space to load two programs.
* Have the *latest version* of Excel, free via Office 365 for UF [students](https://it.ufl.edu/services/gatorcloud-microsoft-office-online). Your version on your laptop may be outdated. Life will be better if you have the latest version, which you automatically get with Office 365, and which is *free* for you.
* Have a Google drive account, which you have if you have Gmail.

**IRE Membership**

For just $25, the student rate, [join](https://www.ire.org/join-ire/) Investigative Reporters and Editors (IRE), which includes NICAR, the premier association for data journalists. You get access to insider email lists (hint: job prospects), tip sheets, and inspiration for your stories, projects, and career. If money is tight, scholarships are available through IRE or me.

**Tentative Schedule (subject to change)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Theme** | **Key Topics**  | **Assignment** |
| 1 | Jan. 6 | Visuals 1:The Data Story | Create a mobile-first, visual data story using 3 charts and published on Medium | H1: UFDue Mon Jan. 10 |
| 2 | Jan. 13 | Visuals 2: Chart Types | Identifying the story in the data and matching primary chart types to the data | H2: WagesDue Mon Jan. 17 |
| 3 | Jan. 20 | Visuals 3: Refining Charts | Refining charts with visual embedding cues, annotating charts | H3: BusDue Mon Jan. 24 |
| 4 | Jan. 27 | Visuals 4: Mapping Data | Conveying data through point and choropleth maps | H4: MapsDue Mon Jan. 31 |
| 5 | Feb. 3 | Visuals 5:Locator Maps | Creating locator maps that reveal location-specific data or time-sequence data | H5: LocationDue Mon Feb. 7 |
| 6 | Feb. 10 | Visuals 6:Pattern Detection  | Using Tableau to find patterns; quartiles, correlations, box-and-whisker plots  | H6: TableauDue Mon Feb. 14 |
| 7 | Feb. 17 | Demo Visual Data Story | Demo your completed (not draft) data story in class and use feedback to refine | Data storyDue Mon Feb. 21 |
| 8 | Feb. 24 |  | No class so you can take midterm at home  | Midterm Due Mon Feb. 28 |
| 9 | March 3 |  | No class due to NICAR data journalism conference scheduled for March 3-6  |  |
|  | March 10 |  | No class due to spring break |  |
| 10 | March 17 | QGIS 1:Cartography | Mapping mechanics; ethics of geospatial data; importing geodata; point analysis  | H7: GIS 1Due Mon Mar. 21 |
| 11 | March 24 | QGIS 2: Joining | Joining numbers and geodata; choropleth and histogram analysis; geocoding; styling  | H8: GIS 2Due Mon Mar. 28 |
| 12 | March 31 | QGIS 3:Point Analysis | Geospatial analysis sans maps; point analysis; analysis by locale and time | H9: GIS 3Due Mon Apr. 4 |
| 13 | April 7 | QGIS 4:Spatial Analysis | Isochrone analysis: Setting and measuring parameters using distance and traffic data | H10: GIS 4Due Mon Apr. 11 |
| 14 | April 14 | Demo QGIS Project | Demo completed (not draft) QGIS project to class and use feedback to refine | QGIS projectDue Mon Apr. 18 |
|  |  | FinalExam | Take at home  | Final examDue Mon Apr. 25 |

 **ASSIGNMENTS AND GRADING**

**Grade Allocation**

Weekly Homework 40% Due 11:59 pm on Mondays; 1 low score drops

Visual Data Story 20% Due 11:59 pm Monday, Feb. 21

QGIS Project 20% Due 11:59 pm Monday, April 18

Midterm 10% Take at home; due 11:59 pm Monday, Feb. 28

Final 10% Take at home; due 11:59 pm Monday, April 25

**Grading Scale**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Percent |  | Percent |  | Percent |  | Percent |
|  |  | B+ | 89.4-86.5% | C+ | 79.4-76.5% | D+ | 69.4-66.5% |
| A | 100-92.5% | B | 86.4-82.5% | C | 76.4-72.5% | D | 66.4-62.5% |
| A- | 92.4-89.5% | B- | 82.4-79.5% | C- | 72.4-69.5% | D- | 62.4-59.5% |

**Attendance and Deadlines**

Because this is a hands-on, learn-by-doing course, weekly attendance is expected. Unless an absence covered by UF [policy](https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) extends more than 5 days, deadlines are firm.

**Homework (40%)**

Homework assignments reinforce classroom learning and apply readings. One low homework score drops.

**Visual Data Story (20%)**

This is an original, journalistic, data-driven visual story optimized for a phone. It is like the homework, with more visuals and details. It must be your own work and be original to this course. Disclose any data sources and inspiration. Present your completed (not a draft) data story in class on Feb. 17 so you can get peer feedback and refine. Due: 11:59 p.m. Monday, Feb. 21. More details in rubric below.

**Exams: Midterm (10%) and Final (10%)**

These are open-book, take-at-home (but take-by-yourself) exams drawn from the assigned readings and textbook. The midterm, on visuals, will be available before Monday, Feb. 21, and is due 11:59 p.m. Monday, Feb. 28 (1 week later). The final, on GIS, will be available before Monday, April 18, and is due 11:59 p.m. Monday, April 25 (1 week later). More details in rubric below.

**QGIS Project (20%)**

This is an original, timely and journalistic geospatial analysis that requires use of QGIS. It forms the basis for a story, but is only the analysis, not a completed story. It identifies the next steps required to complete the project. It must be your own work and be original to this course. Disclose any data sources and inspiration. Present your completed (not a draft) GIS project (and show how you did the analysis) in class on April 14 so you can get peer feedback and refine. Due: 11:59 p.m. Monday, April 18. More details in rubric below.

**Visual Data Story Rubric**

*Create a compelling and concise data-driven visual story suitable for mobile*

|  |  |  |
| --- | --- | --- |
| **Category** | **Excellent** | **Result** |
| 1. Journalistic Question (10%) | Story fueled by a data-driven journalistic question of public interest.  |  |
| 2. Data Sets (10%) | Authoritative data used and attributed [*project: at least 3 numerical or human sources*].  |  |
| 3. Analysis (10%) | Analysis required spreadsheet to detect meaningful patterns such as by calculating average or percent.  |  |
| 4. Focused (10%) | Text and visuals are focused on one, consistent point from headline and first sentence onward.  |  |
| 5. Compelling (10%) | Text and visuals are sufficiently interesting, from the headline onward, to grab and retain reader attention; visuals “read” quickly on a phone.  |  |
| 6. Concisely Detailed (10%) | Text and visuals offer sufficient details to convey meaning yet are concise; 2 to 3 sentences max between visuals; text does not duplicate visuals; visuals minimize or avoid labels.  |  |
| 7. Writing Mechanics (10%) | Text and visuals are clear, with readable syntax, without glaring errors in spelling, punctuation, or grammar.  |  |
| 8. Data-Driven (10%) | (a) Data determine visuals and how numbers displayed and emphasized, not the other way around. (b) Visuals convey the story so that story would make sense without any text.  |  |
| 9. Visual Variety (10%) | Unless specified in homework, at least 3 visuals [*project: 5*] and no more than 2 visuals of the same type.  |  |
| 10. Visual Grammar (10%) | Visual grammar rules followed, such as: (a) **axes**: y-axis begins at zero; neither axes nor visuals misrepresent data; (b) **order**: data sorted by most important outcome unless time or alphabet hierarchy dominate; (c) **color**: visuals convey meaning in gray, without color; color used to focus attention; color accommodates color blindness; do not reinforce pink/blue gender stereotypes.  |  |

**Data Visualization Storytelling Principles**

1. The 3 key criteria are: Clarity, clarity, clarity. Not pretty or flashy. Clarity.
2. The first task is to simplify and focus the data, usually with a spreadsheet.
3. A good story needs only a headline and visuals. Text is supplemental.
4. You cannot overuse bar, column, and line charts.
5. The data dictate. Choose the data, then pick a chart type that reflects the data.
6. Interactivity is rarely useful. Static visuals are easier to comprehend.
7. Plan the visuals in gray. Color should augment.
8. If the story does not work in mobile, it does not work.

**QGIS Project Rubric**

*Geospatial analysis to answer a compelling journalistic question of public interest and plan story*

|  |  |  |
| --- | --- | --- |
| **Category** | **Excellent** | **Result** |
| 1. Journalistic Question (20%) | Project fueled by a current, interesting, geographic-based, journalistic question of public interest  |  |
| 2. Geographic Data Sets (20%) | Two or more geographically based data sets (variables) were used, such as household income and education attainment by census block |  |
| 3. QGIS Analysis (20%) | Analysis required QGIS, and the process is sufficiently documented that it can be replicated  |  |
| 4. Meaningful Findings (20%) | QGIS analysis enabled testing for meaningful patterns even if the answer is negative (i.e., no food deserts)  |  |
| 5. Data Next Steps (10%) | If applicable, identify (and if possible, resolve) questions about data definitions or origins |  |
| 6. Story Next Steps (10%) | Specify next steps you would need to take to get your project ready for publication  |  |

**QGIS Rubric Details**

1. Journalistic Question
	1. Geographic: involving location
	2. Journalistic: a question the public would want answered (i.e., does my city have coverage gaps in fire-rescue stations or food deserts?)
	3. Not obvious (i.e., are accidents more likely in areas with greater traffic?).
2. Geographic Data Sets
	1. Such as used in class, often shapefiles or .csv files from Census Bureau, city data portals, or federal agencies with geographic data
	2. A variable is a unit of measure, such as race/ethnicity, population, median household income, education completion rates, etc.
3. GIS Analysis
	1. Could not have been done without QGIS or similar tool. In other words, not a story that could be done with just a spreadsheet, or which someone else did.
	2. QGIS can be supplemented with a spreadsheet, especially if QGIS was used to locate lat/long points within geographic polygons such as counties, and then exported from QGIS to a .csv file.
4. Meaningful Findings
	1. Use QGIS to test for meaningful patterns (i.e., food deserts, distance covered by emergency vehicles, drug crimes in school zones).
	2. Produces a meaning “so what” or insight that otherwise wasn’t known or may be counter-intuitive, and thus is likely be shared on social media
5. Data Next Steps
	1. If applicable, identify (resolve if possible) questions about data definitions or origins (i.e., is sea turtle mortality measured systematically and consistently, or are numbers dependent on someone noticing and reporting it?)
	2. If applicable, identify additional data you would want to acquire (i.e., after detecting a pattern in sea turtle mortality, find data about survivorship.)
6. Story Next Steps
	1. Specify the next steps to get the project ready for publication
	2. In some cases, this may identify steps for further analysis (i.e., identify the ID numbers of police records you need to look up to determine if bias occurs when deciding which drug crimes to “upcharge” in school zones).
	3. In all cases, this will require the specific identity (name and position) of people to be interviewed, such as expert(s) or people affected.

**QGIS Project Completion**

To complete the assignment, upload these 2 documents:

1. A PDF of the map you created in QGIS to analyze the data
2. A Word or text document completing these statements as subheads:
	1. My journalistic question was:
	2. The geographic data sets I used were:
	3. The steps I took in QGIS to analyze the data were: (Note: This need not be exhaustive, but it must be sufficiently detailed that I can replicate.)
	4. The key meaningful findings from my analysis were:
	5. If applicable, the next steps I need to take (or already took) to resolve questions about data definitions or origins are (were):
	6. The next steps I need to take to get the project ready for publication are:

 **OTHER VERY 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.

**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](https://disability.ufl.edu/students/get-started/). It is important to share any accommodation letter with me and discuss access needs as early as possible in the semester.

**Diversity**

The College of Journalism and Communications embraces an intellectual community enriched and enhanced by diversity along several dimensions, including race, ethnicity and national origins, gender and gender identity, sexuality, class, and religion. Each course is expected to help foster an understanding of the diversity of peoples and cultures and of the significance and impact of mass communication in a global society. To that end:

1. Please let me know if you find any material in the course violates that expectation.
2. Please alert me if you have a name or preferred pronouns that differ from the class roll information, which is my only source of information about you.
3. If you have any concerns involving diversity in this course that you feel uncomfortable discussing with me, I encourage you to contact Professor Joanna Hernandez, CJC director of inclusion and diversity, at jhernandez@jou.ufl.edu.

**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 at <https://gatorevals.aa.ufl.edu/students/>. 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 <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

**In-Class Recording**

The official UF policy regarding in-class recording, to comply with a 2021 Florida law:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

My policy:

You can record anything the professor does in class for your personal academic use.

**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](https://umatter.ufl.edu/) 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](https://counseling.ufl.edu/) 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](https://shcc.ufl.edu/).
* **University Police Department**: Visit UF Police Department [website](https://police.ufl.edu/) 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](https://ufhealth.org/emergency-room-trauma-center).

**Academic Resources**

* **E-learning technical support**: Contact the UF Computing Help Desk [website](https://helpdesk.ufl.edu/), or phone 24/7 at 352-392-4357, or email helpdesk@ufl.edu.
* **Career Connections Center**: Career assistance and counseling services. Visit the [website](https://career.ufl.edu/). 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](https://cms.uflib.ufl.edu/ask).
* **Teaching Center**: General study skills and tutoring. Visit the [website](https://teachingcenter.ufl.edu/https%3A/teachingcenter.ufl.edu/). 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](https://sccr.dso.ufl.edu/policies/student-honor-%20code-student-conduct-code/).