

SIADS 522 Syllabus – Winter, 2024

Course Overview and Prerequisites

This course will introduce information visualization — visual representations of data through interactive systems. Specific focus will be on the role of visualization in understanding data and understanding how perception, cognition, and good design enhance visualization. The course will introduce APIs for visualization construction. Students will learn to construct and critique visualizations and visualization tools. Students should have an understanding of the pandas library, which is covered in Data Manipulation, prior to this course.

Instructor and Course Assistants

- Instructor: Ramiro Serrano Vergel (ramiros@umich.edu)
- Course Lecturers: Elham Amini (eamini@umich.edu), Morteza Taiebat (taiebat@umich.edu), Naga Sanka (nsanka@umich.edu), Bobby Madamanchi (amadaman@umich.edu)

Communication Expectations

Contacting instructor and course assistants:

The preferred method for getting help in this course is to make a public post in the course slack. Often times the questions that you have will be shared by your fellow classmates. Asking in a public channel allows you to share information with each other and is also the fastest route to get help from the instructional team. If you have a specific question that you feel can't be answered in the public slack, you are welcome to DM the instructional team. If you do so please address your DM to the entire instructional team.

Email response time: 24 - 48 hours

Slack response time: 24-48 hours

Office hours: see *Course Schedule* below

Special Note 1 - Autograder: All assignments in this course are manually graded. There are no auto graded assignments in this course and submitting to the autograder will give you an error (it will also not be considered a submission for grading purposes).

Special Note 2 - Assignment submission: You will be submitting your assignment in two ways: a link to your notebook (use the special "generate link" per the instructions) and a PDF. You will not be able to run the notebook submitted through this link (it is a read-only environment), but it will work for us. If it worked for you in your regular environment, it will work for us.

To print the visualizations in your Jupyter notebook to PDF, please highlight any word at the bottom of your notebook and then print to PDF in your browser. It's a bit of a hack, but an

unfortunate result of an IFRAME issue in Jupyter. You can see a [video walkthrough of this here](#) [Opens in a new tab](#). Please check your pdf and see if the visualizations have rendered before submitting, and please ask for help in Slack if you are having difficulty with this.

Required Textbook

Visual Display of Quantitative Information. Edward. R. Tufte. One source for this text is Amazon: <https://www.amazon.com/Visual-Display-Quantitative-Information/dp/1930824130> [Opens in a new tab](#))

Technology Requirements (unique to this course)

None

Accessibility

[Screen reader configuration for Jupyter Notebook Content](#) [Opens in a new tab](#)

Learning Outcomes

1. Enumerate the key reasons for creating and evaluating information visualizations
2. Be able to construct basic visualizations using Altair\
3. Be able to evaluate visualization designs on expressiveness/effectiveness by using cognitive/perceptual theories
4. Be able to critique and contrast different designs based on task frameworks (domain, abstract)
5. Be able to select appropriate encodings given data and task framework
6. Be able to define basic visualization types using Grammar of Graphics

Course Schedule

This course begins on **Tuesday, February 6, 2024** and **ends on Monday, March 4, 2024**.

Weekly assignments will be due on **Mondays at 11:59 pm** (time zone = Ann Arbor, Michigan - Eastern Standard Time).

Schedule of Weekly Office Hours via Zoom (time zone = Ann Arbor, Michigan - Eastern Standard Time):

- Ramiro Serrano Vergel, Thursdays 3pm
- Elham Amini, Fridays 5pm
- Bobby Madamanchi, Mondays 6pm
- Naga Sanka, Thursdays 9pm
- Morteza Taiebat, Fridays 6pm

Grading

Course Assignment Percentage of Final Grade

Week 1 Assignment 25%

Week 2 Assignment 25%

Week 3 Assignment 25%

Week 4 Assignment 25%

100%

Note: All assignments are required to earn credit for this course.

Letter Grades, Course Grades, and Late Submission Policy

Refer to the [MADS Assignment Submission and Grading Policies Opens in a new tab](#) section of the UMSI Student Handbook (access to Student Orientation course required)

For this course, assignments will be accepted 24 hours late with a 20% penalty. After 24 hours we will not accept your assignments unless you have prior approval for an extension (this is uncommon, but please ask if there's an important reason).

We apply the following for letter grade determination. Please note that we rarely give A+'s in this course.:

Letter Grade Score Range

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

Letter Grade Score Range

F <60

Academic Integrity / Code of Conduct

Refer to the [Academic and Professional Integrity Opens in a new tab](#) section of the UMSI Student Handbook (access to Student Orientation course required).

While we offer a number of discussion channels to support your work, if you are stuck **you may not share or receive complete solutions to the assignments**. We also encourage you to support your classmates, but again, without sharing completed code (pointing to resources, describing ideas in pseudo-code, etc. is fine).

Accommodations

Refer to the [Accommodations for Students with Disabilities Opens in a new tab](#) section of the UMSI Student Handbook.

Use the Student Application Form [in Accommodate Opens in a new tab](#) to begin the process of working with the University's Office of Services for Students with Disabilities.

Help Desk(s): How to get Help

- Degree program questions or general help - umsimadshelp@umich.edu
- Coursera's Technical Support (24/7) - [https://learner.coursera.help/ Opens in a new tab](https://learner.coursera.help/)

Library Access

Refer to the [U-M Library's information sheet Opens in a new tab](#) on accessing library resources from off-campus. For more information regarding library support services, please refer to the [U-M Library Resources Opens in a new tab](#) section of the UMSI Student Handbook (access to the Student Orientation course required).

Student Mental Health

Refer to the University's [Resources for Stress and Mental Health website Opens in a new tab](#) for a listing of resources for students.

Student Services

Refer to the [Introduction to UMSI Student Life Opens in a new tab](#) section of the UMSI Student Handbook (access to the Student Orientation course required).