



THE OHIO STATE UNIVERSITY

Translational Data Analytics Institute
Master in Translational Data Analytics

GRADTDA 5150 (SP2024) • SYLLABUS

EMERGING TRENDS IN DATA VISUALIZATION

INSTRUCTOR: JOSHUA McCLURG-GENEVESE

COURSE OVERVIEW

This course enables students to explore existing, new, and emerging approaches to data visualization as well as trends in visualization research and their applications. Visualization techniques are key to telling the underlying story of data, and this class will provide you with the practical knowledge as well the tools and techniques necessary to support the creation of data visualizations. As part of this class the following topics will be covered:

- Recognizing and understanding the fundamental concepts of data visualization
- Exploring the sub-disciplines of the field, and the different types of data visualizations that are used as part of the discipline
- Understanding how to use data visualization to tell a story
- The role of perception in data visualization, and how it influences interpretation
- Utilizing tools and techniques to craft your own data visualizations using a variety of different prototypes and models
- Basic design principles that can impact how data is understood
- Data visualization, context, and decision-making
- Examining and evaluating emerging trends in data visualization
- Facilitating and participating in discussions on visualization research topics

COURSE DETAILS

Course Name: Emerging Trends in Data Visualization GRADTDA 5150 (SP2024)

Time: Wednesday - 6:00PM - 8:00PM

Location: Online

- Instructor: Joshua McClurg-Genevese
- Email: mcclurg-genevese.2@osu.edu
- Office Hours: Schedule as needed
- Course Website: <https://osu.instructure.com/courses/159578>

REQUIRED MATERIALS & BOOKS

We will be using a variety of online and digital resources for this course, and will utilize at least the following tools/materials:

- Google Chrome Web browser
- Tableau: Data visualization software (instructions will be provided)
- Miro: Digital white boarding tool (<https://miro.com/>)
- Microsoft Office 365, Zoom or MS Teams

As needed, alternative software can be used if access to the tools above are not available or if students have tools that they are already using as part of their research.

We will also be using the following books as reference for the class:

- **STORYTELLING WITH DATA:** A Data Visualization Guide for Business Professionals (Cole Nussbaumer Knaflic) (ISBN: 978-1119002253)
- **ENVISIONING INFORMATION** (Edward Tufte) (ISBN: 978-0961392116)

The books are available from the campus bookstore (Barnes & Noble), and are also available as reserves in the Fine Arts Library, which can be found here: <https://library.osu.edu/course-reserves/for-students>

COURSE PROJECTS

	% GRADE	TOTAL POINTS
Introduction & Inspiration Exercise	10%	50 points
Assignment #1: Basic Data Visualization	15%	75 points
Assignment #2: Advanced Data Visualization	20%	100 points
Discussion & Critique (5 topics, 20 points each)	20%	100 points
Assignment #3: Data Visualization for Capstone	30%	150 points
Class Attendance and Participation	5%	25 points

WEEKLY OUTLINE

Students can expect discussions, lectures, and project work each week tied to the following topics (subject to change based on class needs):

- JANUARY 10: Class introduction, Introduction to Data Visualization
- JANUARY 17: Elements of Graphic Representation

January 17: Assignment #1: Part 1 Data Collection

- JANUARY 24: Principles & Elements of Design

January 24: Assignment #1: Part 2 Visualization Concepts

- JANUARY 31: Models of Data Visualization
- FEBRUARY 7: Review, Q&A: Assignment #1

February 7: Assignment #1 Due: Basic Data Visualization

- FEBRUARY 14: Sub-disciplines of Data Visualization

February 14: Assignment #2: Part 1 Data Collection

- FEBRUARY 21: Data Visualization & Storytelling

February 14: Assignment #2: Part 2 Visualization Concepts

- FEBRUARY 28: The Role of Perception in Data Interpretation
- MARCH 6: Review, Q&A: Assignment #2

March 6: Assignment #2 Due: Advanced Data Visualization

- MARCH: 13: SPRING BREAK: NO CLASS
- MARCH 20: Emerging Technologies in Data Visualization

March 20: Assignment #3: Part 1 Data Collection

- MARCH 27: Advanced Visualization Techniques

March 20: Assignment #3: Part 2 Visualization Concepts

- APRIL 3: Ethical Considerations & Data Visualization
- APRIL 10: Semester Review and Future Trends
- APRIL 17: Review, Q&A: Assignment #3

April 17: Assignment #3 Due: Data Visualization for Capstone

FORMAT, ATTENDANCE & EXPECTATIONS

This is 3-credit, asynchronous online course divided into weekly modules that you can consult at any time. Each week there is also one 60-90 minute synchronous class comprised of lecture and discussion of topics for the week. Students are expected to keep pace with weekly deadlines but may also schedule their efforts freely within that time frame.

All course information will be published on the Course Website (link in Course Details) in Carmen. Weekly announcements, discussions, and the course calendar will inform when activities will take place as needed.

Attendance and participation in the weekly synchronous class is required. Additionally, there is an expectation of at least six additional hours of your time dedicated to completing work associated with the assignments for the class. Three absences will lower a final grade by 1 letter (which I will contact you about), and four absences will result in failure of the course.

GRADING POLICY

Students will be graded on their class attendance and participation, as well as the completion of assigned projects. Projects are comprised of base -level criteria, which students can meet for an average level grade. Students are expected to produce professional-level content that demonstrates a mastery of raw technique as well as an attention to aesthetic quality. In the case of interactive media, a professional-level result is aesthetically pleasing while functionally sound. 'A' level work is a well-designed piece that meets and exceeds all base requirements. 'C' level work simply meets the base requirements set forth for each project. Work that is 'D' level and below fails to meet any or all of the project's base requirements.

GRADING SCALE

A 100%-94%	C 77%-73%
A- 93%-91%	C- 72%-71%
B+ 90%-89%	D+ 70%-69%
B 88%-83%	D 68%-64%
B- 82%-80%	E 63%-0%
C+ 79%-78%	

Projects must be completed on time and submitted on the day they are due. Projects that are submitted late will receive a lower score.

Students are graded on the quality of the project as well as the mastery of technique. In order to assess technique, the source material will be evaluated to ensure that methodologies taught in class are utilized for the final result for each assignment. A rubric will be used for this class and will be provide to students ahead of time.

Attendance and participation are mandatory parts of the course. Students are expected to participate in class critiques of projects, as well as a discussion pertaining to example work.

ACADEMIC MISCONDUCT

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

DISABILITY SERVICES

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

PERSONAL SAFETY

The University Escort Service operates until 3AM when classes are in session (i.e. not during quarter breaks and University holidays), and will assist OSU students who live off-campus as well as on campus. The University Escort Service can be contacted at 614-292-3322, and scheduled pick-ups are taken in advance.

MENTAL HEALTH

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.

DIVERSITY

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

RELIGIOUS ACCOMMODATIONS

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief.

Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing no later than 14 days after the course begins. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed.