Advanced Data-Driven Storytelling (Data Communication)
DACSS 604
University of Massachusetts Amherst
FALL 2024

Course Time	**MW 13:00-14:15 EST** **Sep 4, 2024 - Dec 11, 2024**	**Multimodal Course Venue**	**In-person: Machmer W-13** **Synchronous Meetings: Zoom**
Instructor:	**Erico Yu(him/his)**	**Class Assistant:**	
Office	257 Bartlett Hall	**Office Hours:**	MW 14:30-16:00 EST and By appointment
Appointment Link:	Calendly	**Course Website**	https://classroom.google.com/c/NzEwNTcyNDk2MTE4?cjc=w3b55un
Campus Resources:	Graduate Student Services	DACSS	Disability & Accessibility

[1. Course Description]

How can data analysts and computational social scientists convey data through narrative and reports geared toward general audiences or specific stakeholders? How can they convey those data through visuals geared toward non-scientists? This hands-on course provides students with the knowledge and skills needed to generate strong, data-driven communication. We will emphasize clear interpretation of data patterns, quantitative analyses, and statistical inferences, using precise and accessible language appropriate for one's audience.

[2. Learning Objectives]

- Deepen understanding of core concepts, theoretical foundations, and principles on which data analysis and computational/statistical social science are built
- Sharpen appropriate usage of data analytic vocabulary and avoid common misinterpretation

- Communicate clearly with the aid of tables and charts, interpreting these visual aids in ways that advance the data-driven story and avoid misleading the audience
- Improve oral and written forms of communication for audiences with different levels of technical background and substantive knowledge
- Develop skills at fluid writing that incorporates meaningful information gleaned from data, using rigorous, scientifically defensible models and methods
- Avoid misleading claims based on data

[3. Textbook]

Used copies of the primary textbook (1st edition) can be purchased for just a few dollars. We will also read a few selected pages and sections of the latest version (2nd edition).

Miller, J. E. (2005). *The Chicago guide to writing about multivariate analysis*. University of Chicago Press.

We will be also reading selected chapters or pages of the following two books:

Healy, K. (2018). Data visualization: a practical introduction. Princeton University Press.

Bertin, Jacques (2011). *Semiology of Graphics: Diagrams, Networks, Maps*, translated by Berg, William J. ESRI Press (selected pages will be available on the course website)

There are other recommended texts you may find useful for this class:

Nolan, D., & Stoudt, S. (2021). *Communicating with data: The art of writing for data science*. Oxford University Press.

Other required and recommended materials, such as readings, videos, and tutorials will be posted on the course website as we proceed through the semester.

[4. Course Format, Website, and Technology]

Course Format:

This course will be taught in a combination of lecture and graduate seminar. For some of the weeks on substantial topics, I will assign pre-class readings with discussion questions.

Course Website/LMS:

All classroom material will be posted in Google Classroom. You will be submitting assignments here as well.

<u>Technology/Software (Updated)</u>

This class will be software-independent for the most part. The focus will be on effective communication using whatever tools you may wield, whether R, python, SPSS, Stata, or more widely employed platforms such as Excel. Since the course focus is on honing your communication skills, it is expected that you continue to acquire skills on your favored platforms or new ones.

In the later part of the semester, we will be introducing two platforms: GitHub (for creating and publishing websites) and Tableau (for generating visualizations).

DACSS emphasizes R, RStudio and Python. However, because of different skill sets and levels of expertise, our tutors and instructional team primarily focus on supporting installation or other general computing issues, and can provide only limited support for hands-on debugging (e.g., during class, during drop-in office hours, via slack.) We recommend that students work in small groups and support each other as much as possible during class. Some individual assistance is available through DACSS tutoring services.

[5. Course Assessment and Feedback]

Grades are calculated as follows:

- Exercises (40%) - Four assignments
    - The last assignment includes a website building exercise
- Final Project (40%)
    - Check-in#1: Due Oct 27, 2024
    - Final Product: Due Dec 18, 2024
- Presentation on the Final Project and Q&A (20%), Dec 9&11, 2024
    - For students who are graduating in this Fall: you are encouraged to give a 15-min presentation at the an End-of-the-Semester Event; more information will be provided
- (A)Synchronous Participation (10% - optional; can only help compensate for other grades)

Final Project Information regarding the final project will be made available on the course website, but in short, students may choose among a few options, including revisions of a previous project, a new project. Some other options include work done for a client, or a portfolio of others' work to be critiqued and edited by the student.

Further instructions for the final project and past student examples will be provided later in the semester.

Participation: This course is intended to be 70%-lecture-30%-seminar, and participation and discussion are highly encouraged. We have found that students who actively participate in class discussion - whether synchronously (when possible) or asynchronously - get a lot more out of the course and learn new skills at an accelerated rate. Students who participate regularly - synchronously or asynchronously - will receive a "boost" to their grade. Participation does not need to reflect expertise; rather, asking and answering questions are both equally valued forms of participation. Raising points for deeper discussion is particularly helpful.

In a few particular class meetings (such as the "Discussion", lab meeting, and the final presentation), I expect all students, especially those who are in the University section (35033), to attend and engage in the class. I will reemphasize this ahead of those meetings.

To facilitate in-class participation, we will also be using Piazza for discussion. The system is highly catered to getting you help fast and efficiently from classmates and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. I will also posting some questions for discussion irregularly. If you have any problems or feedback for the developers, email team@piazza.com.

Find our class page at: https://piazza.com/umass/fall2024/dacss604

Final letter grades are assigned using the University's Plus-Minus Grading Scale according to following rubric:

A (94-100%)
A- (90-93%)
B+ (86-89%)
B (81-85%)
B- (77-80%)
C+ (74-76%)
C (70-73%)
F (Below 70%)

[6. Course Policies]

Office Hours & Emails

My regular office hours are 14:30-16:00 EST every Monday and Wednesday. You can schedule a meeting with me through Calendly, and you can also email me with any questions related to the course and your projects. I try to respond to all email and phone messages within 24 hours during weekdays, but generally do not check and respond to email between 4pm on Friday and 10am on Monday. Also, please expect delay in responding to evening emails after 6pm.

Collaboration and Academic Integrity

I support collaboration and encourage you to work together with your peers in offering feedback on assignments. You are also encouraged to cite class discussions, conversations with peers, posted notes and any other material prepared by your classmates**. But all written work must be your own. Make sure to clarify and acknowledge collaboration with your peers, accurately represent your own contributions, and properly cite all sources.** Any suspected misrepresentation of your own original contributions—even if the result of carelessness—will be brought to the attention of me, DACSS, or the Academic Honesty Office and may result in a failing grade for the course.

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst.

Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. The procedures outlined below are intended to provide an efficient and orderly process by which action may be taken if it appears that academic dishonesty has occurred and by which students may appeal such actions.

Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent.

For more information about what constitutes academic dishonesty, please see the Dean of Students' website: http://umass.edu/dean_students/codeofconduct/acadhonesty/.

[7. Additional Resources and Accommodations]

Statement on Disabilities
The University of Massachusetts Amherst is committed to making reasonable, effective and appropriate accommodations to meet the needs of students with disabilities and help create a barrier free campus.

If you are in need of accommodation for a documented disability, register with Disability Services to have an accommodation letter sent to your faculty. It is your responsibility to initiate these services and to communicate with faculty ahead of time to manage accommodations in a timely manner. For more information, consult the Disability Services website.

Taking Care of Yourself
Grad school is difficult, pandemic or not, and I want you to pay attention to your physical and mental health. I encourage you to reach out to University Health Services at (413) 577-5000 if you would like help with anxiety, depression, or mental health issues. The emergency counseling line is (413)

545-2337. Reach out to the UMass Police Department if you are having problems with your basic security. Contact your department or program to assist with academic difficulties as a result of sexual assault or violence, as well as contacting faculty on behalf of the student.

Title IX Statement
In accordance with Title IX of the Education Amendments of 1972 that prohibits gender-based discrimination in educational settings that receive federal funds, the University of Massachusetts Amherst is committed to providing a safe learning environment for all students, free from all forms of discrimination, including sexual assault, sexual harassment, domestic violence, dating violence, stalking, and retaliation. This includes interactions in person or online through digital platforms and social media. Title IX also protects against discrimination on the basis of pregnancy, childbirth, false pregnancy, miscarriage, abortion, or related conditions, including recovery. There are resources here on campus to support you. A summary of the available Title IX resources (confidential and non-confidential) can be found at the following link: https://www.umass.edu/titleix/resources. You do not need to make a formal report to access them. If you need immediate support, you are not alone. Free and confidential support is available 24 hours a day / 7 days a week / 365 days a year at the SASA Hotline 413-545-0800.

[8. Course Schedule]
Recorded class sessions will be made available for asynchronous viewing within 24 hours—generally same day if possible. Links will appear in Google Classroom.

The following course schedule may change to reflect our dynamic learning process: for example, if there is a topic not able to finish in a given lecture, or if there is an additional topic that is important to the class. Additional lectures may be recorded and provided at instructor's discretion.

Week	Date & Time	Topics	Suggested Readings
Module#1: Essentials for Data-driven Storytelling			
Week 1	Sep 4, 2024	Syllabus and Class Introduction Twelve Principles (I)	Syllabus and Course Website
Week 2	Sep 9, 2024	Twelve Principles (II)	Miller, Chapters 2 & 4 Healy, Chapter 1.2
	Sep 11, 2024	Statistical & Substantive Significance (I)	Miller, Chapters 3

Week 3	Sep 16, 2024 **Last day to add or drop any class with no record**	Statistical & Substantive Significance (II) & Casuality	Miller, Chapters 3 Additional Reading on casual diagram (TBD)
	Sep 18, 2024	TBD: Audience & Format Or Discussion on data-driven stories	Student selected materials; You can also check out the materials on Week 11
Assignment#1 Due by Sep 22, 2024 (23:59 EST)			
Module#2: Graphic Theories and Application in Visualization			
Week 4	Sep 23, 2024	Graphic Theory: Introduction	Bertin, selected pages Healy, 1.3-1.4
	Sep 25, 2024	Review of Assignment#1	
Week 5	Sep 30, 2024	Graphic Theory and Applications	TBD
	Oct 2, 2024	Creating Effective Charts	Miller, Chapter 5&6
Assignment#2 Due by Oct 6, 2024 (23:59 EST)			
Module#3: Basic Interpretations and Comparing Models			
Week 6	Oct 7, 2024	Effective Analogies and Examples	Miller, Chapter 7 Additional Video Examples
	Oct 9, 2024	Review of Assignment#2	
Week 7	Oct 15, 2024 Tuesday, but Monday class schedule will be followed	Basic Quantitative Comparison	Miller, Chapter 8
	Oct 16, 2024	TBD: Class Activity Or Lecture Catchup	TBD
Week 8	Oct 21, 2024	Discussion on Final Project	
	Oct 23, 2024	Understanding "Risk" and Uncertainty	Selected Readings
Final Project Check-in#1 Due by Oct 27, 2024 (23:59 EST)			
Module#4: Comparing & "testing"			
Week 9	Oct 28, 2024	Quantitative Comparison for Multivariate Models (I): OLS & Logit	Miller, Chapter 9 Selected Readings

	Oct 30, 2024	Quantitative Comparison for Multivariate Models (II):	
Week 10	Nov 4, 2024	The Goldilocks Problem & Solutions (I)	Miller, 2ed Chapter 10
	Nov 6, 2024	The Goldilocks Problem & Solutions (II)	
Assignment#3 Due by Nov 10, 2024 (23:59 EST)			
Week 11	Nov 11, 2024	Review of Assignment #3	
	Nov 13, 2024	TBD: Interpreting Interaction Or Presenting Statistical Tested Results	
Module#5: Writing/Presenting to Different Audience			
Week 12	Nov 18, 2024	Creating an online presentation of data R Website & Github	
	Nov 20, 2024	Lab	
Week 13	Nov 25, 2024	No Course Meeting; Thanksgiving Retreat	See Miller, Chapter 11-12 for guidelines on intro, abstract, data, methods, and conclusion
Assignment#4 Due by Dec 1, 2024 (23:59 EST)			
Week 14	Dec 2, 2024	Effective Presentation Design	Miller, Chapter 13
	Dec 4, 2024	TBD: Multivariate Distribution and Analysis	
Week 15	Dec 9, 2024	In-class Presentation	
	Dec 11, 2024	In-class Presentation	
Final Project Product & Presentation Peer-review Form Due by Dec 18, 2024 (23:39 EST)			