Course Syllabus

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Syllabus subject to change.

Course No: 94-870
Course Name: Telling Stories with Data
Section: C2
Day: Tuesdays and Thursdays
Time: 10:10 - 11:25 AM
Location: HBH 1208 (Pittsburgh, PA)

Professor

Chris Goranson (**cgoranso@andrew.cmu.edu (mailto:cgoranso@andrew.cmu.edu)**), Hamburg Hall 2105B.

Office hours will be posted on Canvas; also available by appointment.

Teaching Assistant (TA)

Yu-Jan Chang (**yujanc@andrew.cmu.edu (mailto:yujanc@andrew.cmu.edu)**).
(mailto:yujanc@andrew.cmu.edu) Office hours will be posted on Canvas.

Course website

https://canvas.cmu.edu/courses/

Course description

Data are everywhere. For policy makers, the ability to tell the right story using data can make the difference between a successful initiative and one that fails. Part art, part science, visualizing data is a process that is both well established in existing disciplines and experimental and rapidly changing in others. In this course we'll explore both ends of the spectrum as we deconstruct and reconstruct data visualizations behind some of the world's most powerful brands, dig into our own data in compelling ways to help our readers understand complex issues, and finally experiment with new ways to represent data about our work, our community, and even ourselves. This course will provide hands-on training and experimentation with a number of tools, and students will have some flexibility to concentrate on mediums that best match their desired outcomes for a final project deliverable (print, digital, interactive or immersive). By the end of this course, students will have an introduction to a number of different tools

and techniques that will allow them to immediately start applying what they've learned to both other coursework as well as on-the-job needs.

Prerequisites

This course is designed for graduate-level experience that have at least basic computer proficiency skills. This means you should feel comfortable working with data in spreadsheets, an ability to write clearly and organize materials well, an interest in exploring new programs and present a willingness to learn something slightly outside of your comfort zone. You do not need in-depth statistics or mathematics skills, although if you have those abilities you may find additional areas of this course to explore on your own.

Learning objectives and goals

1. Create a publicly accessible portfolio of work.
2. Create data visualizations following good design practices (color, text, layout, choice of visualization, etc) in a digital format.
3. Critique data visualizations by applying various critique methodologies, and be able to justify your own design decisions and recommendations.
4. Develop and present a narrative suitable for a subject audience for a selected topic that is clear, compelling and persuasive.
5. Conduct user research to ensure data visualizations and the supporting narrative are being communicated effectively.
6. Apply methods for explaining and presenting data, constructing and telling a story using that data.

Course materials

There are two required texts for this course.

Berinato, S. (2016). Good charts : the HBR guide to making smarter, more persuasive data visualizations. Boston, Massachusetts: Harvard Business Review Press.

Berinato, S. (2019). Good Charts Workbook: Tips, Tools, and Exercises for Making Better Data Visualizations. Boston, Massachusetts: Harvard Business Review Press.

You can purchase a discounted (PDF) copy of each text for $17.50 each (half off the list price, $35 total) by visiting the following link and registering with a free account:

https://hbsp.harvard.edu/import/856441   **(https://hbsp.harvard.edu/import/856441)**

Hardcopy or a PDF version are options you can select on checkout, but a hardcopy of the text is $35. Sketching exercises in this course use the Good Charts Workbook - so you may prefer a hard copy version of that text.

You are of course welcome to check prices from other providers (e.g. B&N, Amazon, etc.) - you may find a better deal!

Sketching materials

Sketching exercises are designed for you to further develop your understanding of color theory, data visualization taxonomies, design and other key elements of data visualization best practices. **As such, you'll likely benefit from picking up a set of colored pens (or pencils) for this course.** A basic set will work just fine - I'd recommend finding one that includes a good range of colors (red, blue, yellow, green, purple, etc.) to allow you to draw crisp, clear lines and shade areas. The CMU Art Store has a good selection of higher-quality options that you can try out yourself if you're so inclined.

Other texts

Other texts sometimes referenced in the course materials are available electronically for free (some require your AndrewID to access, others are available online). We won't use these extensively but they're great references for you beyond the course:

Knaflic, C. (2015). Storytelling with data : a data visualization guide for business professionals . Hoboken, New Jersey: Wiley.

This text is available as a downloadable ebook once you're logged in using your Andrew ID through the following permalink:

https://onlinelibrary-wiley-com.proxy.library.cmu.edu/doi/book/10.1002/9781119055259 (https://onlinelibrary-wiley-com.proxy.library.cmu.edu/doi/book/10.1002/9781119055259)

The Data Journalism Handbook (http://datajournalismhandbook.org/1.0/en/index.html) . Accessible electronically at **http://datajournalismhandbook.org/1.0/en/index.html** (http://datajournalismhandbook.org/1.0/en/index.html)

Data + Design by Trina Chiasson and Dyanna Gregory. (Website appears to be unavailable - however you can find a **PDF version of the text here** (http://orm-atlas2-prod.s3.amazonaws.com/pdf/13a07b19e01a397d8855c0463d52f454.pdf)).

In addition,

- Readings and videos provided on Canvas
- Slides used in lectures for note-taking on Canvas
- Dataset provided on Canvas or through external links

And, if you want to explore information design and develop a more personal connection to your own data, check out:

Observe, Collect, Draw! by Giorgia Lupi and Stefanie Posavec (ISBN: 9781616897147). $13 - 19 on Amazon.

Calendar

Week zero

The week before the course is a good opportunity to review the Getting everything set up guide on Canvas, and purchasing the required texts and materials.

Week one

First class begins on Tuesday, October 19th.

Assignments:

- Data visualization critique #1 (due 11:59 p.m., Mon 10/25)
- Controlling Color - week one sketching exercise (due 11:59 p.m., Mon 10/25)
- Personal portfolio (due 11:59 p.m., Tue 10/26)

Week two

Assignments:

- Data visualization #1 (due 11:59 p.m., Mon 11/01)
- Crafting for Clarity- week two sketching exercise (due 11:59 p.m., Mon 11/01)

Week three

Assignments:

- Assignment 3&4: Critique by Design (due 11:59 p.m., Mon 11/08)
- No sketching exercise this week

Week four

Mid-course feedback and assessment (~10 min)

Assignments:

- Final Project, part one (due 11:59 p.m., Mon 11/15)
- Choosing Chart Types - week four sketching exercise (due 11:59 p.m., Mon 11/15)

Week five

No class on Thursday, 11/25 - Thanksgiving Break

Assignments:

- Final Project, part two (due 11:59 p.m., Mon 11/22)
- Practicing Persuasion - week five sketching exercise (due 11:59 p.m., Mon 11/22)

Week six

Assignments:

- Final Project, part three (due 11:59 p.m., Thu 12/02)
- Cleaning up your online portfolio (due 11:59 p.m., Fri 12/03)
- No sketching exercise this week

Week seven

Assignments:

** **Final presentations** will be held on **Tuesday, November 30th** and **Thursday, December 2nd** during class. **

At the end of the presentations, we'll recap a few things we learned from the final presentations and talk about where you can go from here (as time allows).

Assessments

The final course grade will be calculated using the following categories:

Assessment	Percentage of Final Grade
Online portfolio	10%
Data visualization critiques	20%
Data visualization workshops	20%
Final project	40%
Class participation and attendance 10%	

Setting up and maintaining your online portfolio - 10%

One of your first activities will involve setting up your online portfolio. You'll be responsible for staging the online portfolio on-line either through one of the suggested methods discussed in class or through an acceptable alternative method. The online portfolio will serve as your public-facing work folder, where you'll collect relevant data visualization critiques, workshop materials and information related to your final project. The online portfolio will also serve as a record of your accomplishments in the course so you can easily refer back to it later, and use it as a resource for future work and / or whatever career path you choose.

You'll be graded on developing your online portfolio on-time and with all the necessary components identified when this topic is covered during the course.   As the course progresses, it will be your responsibility to keep this content fresh, reflecting your progress in the course as your work materials evolve.

You will also be graded at the end of the course for how well you've maintained your portfolio.

Data Visualization Critiques - 20%

During this course you'll complete two activities related to critiquing existing data visualization materials. In many cases these will be government reports supported by data. It will be your job to critique these visualizations using a rubric and your own insights from what you learn during this course to develop informed opinions and recommendations. Some data visualization critiques may also involve recreating the original data visualization using one of the tools you've learned in the class.

You will be graded on how well you are able to disassemble the aspects of the data visualization, strategically identify both the positive and negative aspects of the visualization, and develop insights about the target audience among other things. Your findings must be based in well articulated insights developed from the heuristics you assemble more than subjective observations that have little to no context on the issue the data visualizations are addressing.

Data Visualization Workshops - 20%

The data visualization workshops will be another core component of your course, and will provide you with a hands-on opportunity to demonstrate your proficiency in a number of tools and techniques you learn during this course.

For each data visualization workshop, you will select a dataset and use it to tell a story. Using what you've learned in class and one of the identified technical tools, it will be your job to construct a compelling narrative and data visualization that can stand up to the critique methodologies you learned in previous coursework. You will be graded on how well you can both articulate your story through the data visualization as well as how you construct the elements found in the data visualization.

Final project - 40%

The final project will be your opportunity to put everything you've learned so far into action. A core goal of the final project will be understanding your audience and ensuring you are communicating at an appropriate level, and telling the story using data visualization methods that are meaningful.

1. **Part I: a project proposal**. An outline of your project, copies of data, and the identified method you'll use for presenting.
2. **Part II: Sketches, wireframes, storyboards.** User research and incorporating user feedback.
3. **Part III: Final deliverable and presentation.** The final deliverable can be a website, presentation, interactive work, etc., and should be publicly accessible.   You'll prepare and present a lightning talk

for your final presentation.

Additional information about the final project will be provided later in the course.

Class participation and attendance - 10%

Workbook sketches will constitute most, if not all of your participation grade. In the case a sketching exercise is waived, any remainder may be based on participation during in-class exercises, discussions, final project critiques and participation in discussions on Canvas and during class.

Grading Policies

Late-work policy: Late work for this course will not be accepted after the due date unless previously arranged with the professor to do extraordinary circumstances (for example, illness, family emergency, out of town). It is important to stay up-to-date on assignments since they will often build on the previous assignment's materials.

Re-grade policy: If you think there has been a technical error in the grading of your assignment, you should e-mail the grader within one week of receiving the grading assignment, otherwise the assignment will not be regraded. You must provide justification for the re-grade in writing along with your request.

Course Policies

Course Recordings for Synchronous Classes

Note: This section generally only applies if the course is being taught remotely. If the course is being taught in-person, lectures will not be recorded or posted to Canvas. For this reason it's important to attend all in-person lectures.

Unless otherwise stated, synchronous classes taught remotely will be recorded via Zoom so that students in this course (and only students in this course) can watch or re-watch past class sessions. Please note that breakout rooms will not be recorded. I will make the recordings available on Canvas as soon as possible after each class session (usually within 3 hours of the class meeting). Recordings will live in our Canvas website. Please note that you are not allowed to share or repost these recordings. This is to protect your FERPA rights and those of your fellow students.

Academic Integrity & Collaboration

This course will follow Heinz College policies on ethics and discipline as stated in student handbooks.

A specific policy of this course is as follows:

Homework assignments: Do not copy or modify homework solutions for your homework solutions. Homework must be individual work unless otherwise stated. You may consult each other on clarification, technical and conceptual issues, but you must do individual problem solving and derive your own solutions, including your own computer work.

Data visualization critiques and analysis should also be your own work - not the reposting of analysis done by someone else and / or found somewhere else on the internet. Content for your final project also needs to be your own work, and any images used should not infringe on someone else's copyright. It is your responsibility to ensure you adequately cite all materials used correctly in this course. Further guidance on acceptable use of imagery can be found on Canvas.

You are not permitted to be in possession of or reference any assignments from another student or other source either from the current semester or from past semesters, whether they are electronic or paper. Possession of or the sharing such files constitutes an infraction of the academic integrity policies of this course.

You are not permitted to edit assignments submitted electronically (e.g. on Github) after the due date. The only real exception to this is during the portfolio cleanup process the last week of class. More information is specified in that assignment's instructions.

Accommodations for students with disabilities: If you have a disability and have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate. If you suspect that you may have a disability and would benefit from accommodations but are not yet registered with the Office of Disability Resources, I encourage you to contact them at **access@andrew.cmu.edu (mailto:access@andrew.cmu.edu)** .

Statement on student wellness: As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. CMU services are available, and treatment does work. You can learn more about confidential mental health services available on campus at: **http://www.cmu.edu/counseling/** **(http://www.cmu.edu/counseling/)** . Support is always available (24/7) from Counseling and Psychological Services: 412-268-2922.

Laptops Mobile Devices: In general this is a course that uses a lot of technology, so it's expected that on most days you'll have your laptop and phone with you. With that said, it's your responsibility to be respectful when using these devices. Keep your phone on silent, don't talk on the phone while in class, don't distract others by viewing content on your laptop not relevant to the course, and no technical devices are allowed for any quizzes or tests administered through this course unless explicitly stated by the professor.

Diversity, Equity and Inclusion

We must treat every individual with respect. We are diverse in many ways, and this diversity is fundamental to building and maintaining an equitable and inclusive campus community. Diversity can refer to multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran

status, or genetic information. Each of these diverse identities, along with many others not mentioned here, shape the perspectives our students, faculty, and staff bring to our campus.

Each of us is responsible for creating a safer, more inclusive environment. Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. They contribute to creating an unwelcoming environment for individuals and groups at the university. If you experience or observe unfair or hostile treatment, you can take advantage of the following resources:

- **Center for Student Diversity and Inclusion: csdi@andrew.cmu.edu (mailto:csdi@andrew.cmu.edu)** , (412) 268-2150
- **Report-It (http://www.reportit.net/) online anonymous reporting platform: reportit.net (http://www.reportit.net/)** username**:** *tartans* password**:** *plaid*

All reports will be documented and deliberated to determine if there should be any following actions.

Course Summary:

Date	Details	Due
Tue Oct 19, 2021	📅 **Telling Stories with Data - Fall - Mini 2 (C2)** (https://canvas.cmu.edu/calendar?event_id=313658&include_contexts=course_26110)	10:10am to 11:40am
Thu Oct 21, 2021	📅 **Telling Stories with Data - Fall - Mini 2 (C2)** (https://canvas.cmu.edu/calendar?event_id=313659&include_contexts=course_26110)	10:10am to 11:40am
Mon Oct 25, 2021	📝 **Assignment: Data visualization critique #1** (https://canvas.cmu.edu/courses/26110/assignments/418946)	due by 11:59pm
	📝 **Controlling Color - Week One (Discussion/Workbook)** (https://canvas.cmu.edu/courses/26110/assignments/418942)	due by 11:59pm
Tue Oct 26, 2021	📅 **Telling Stories with Data - Fall - Mini 2 (C2)** (https://canvas.cmu.edu/calendar?event_id=313660&include_contexts=course_26110)	10:10am to 11:40am