DATA STORYTELLING

WHO NEEDS TO TELL STORIES WITH DATA?

Data storytelling is more than sharing data—at its most simple, it’s about designing charts and tables that make sense to the people who will be using them and help those people make better, faster decisions.

While making a chart is as easy as a few clicks, doing it well requires much more. There is a science to how our eyes and minds process information as well as an art to making good graphic design choices. This comes together in an effective data presentation when the work is readable, usable, and above all actionable—not just aesthetically pleasing (though we’ll certainly address that too).

As information professionals, we are well-positioned to understand and design for the needs of our users, to interrogate our data sources thoughtfully, and to ask future-thinking questions. This course will also draw on elements from data journalism, cognitive psychology, user experience, graphic design, business, and more. This multidisciplinary approach will take us on a grand tour that will touch on many aspects of data analysis and will serve as an excellent introduction to other data-oriented courses in the iSchool master’s program.

Why should you take this course? Whether you’re interested in a career in libraries, archives, UX, information architecture, information security, or another field, you will need to analyze data and tell stories with data. You might have ticketing data to share, usage logs to query, or collection management decisions to make. Throughout your career, you will make recommendations to your colleagues and management using data, and you will want to present a compelling case. Whether or not this is the only data-centric class you take in your time at the iSchool, I hope you will gain skills that will serve you well in the rest of your professional career.

There are no prerequisites for this course other than curiosity, the ability to work independently, and the desire to build your professional toolkit. No programming experience is required. If you are a complete novice with data analysis and visualization, that’s perfect! If you’re experienced with data viz best practices but eager to build your expertise in communicating better, that works too, but I encourage you to take on any optional challenges in assignments and also suggest further modifications so they can be appropriately stimulating for your skill level. Allons-y!
LEARNING OBJECTIVES

- Effectively do exploratory and explanatory data analysis
- Craft thoughtfully selected charts and charts that illuminate the data
- Design an enlightening, interactive dashboard for a targeted audience
- Implement core concepts of usability and accessibility
- Apply the basics of clean layout and graphic design
- Express creative thinking by producing an innovative data representation
- Learn the basics of working with clients in a professional setting
- Build foundational skills for presenting to an audience
- Work with various data analysis and visualization tools (specifically Excel and Tableau) and pick the best tool for the job
- Explore foundational and new theory behind data storytelling and visualization, and then implement these as best practices

COURSE MATERIALS

Hardware and software
Under normal circumstances, we would be meeting in the iSchool computer lab where you would have access to the desktop machines and the software required for the course even if you do not have a laptop.

However, the software packages we will use are freely available for students. Tableau Desktop and Tableau Prep activation keys will be provided to you. You can download and install Microsoft Office through the university’s Office 365 portal. Your device should meet the minimum requirements to run Tableau Desktop. If you are concerned about this at the beginning of the semester, you can download and install Tableau Public, the free version of Tableau Desktop, to see if it runs on your machine.

Other supplies
A normal semester involves a lot of small group activities and low-fidelity prototyping. Leaving all of it out would be a disservice to you all, so I want to transition as much of this to our online environment as is feasible. Please be prepared with the following:

- A functioning webcam and mic
- A Sharpie marker (or alternative that will clearly be visible if you draw with it and hold the drawing up to your webcam)
- Paper for drawing (a lined notebook is fine)
- A pack of markers (something like this is fine)

Book to purchase
This is a basic graphic design book that explains important design concepts really well. It will be a necessary resource when revising your work or when providing feedback to your peers. Used copies are fine.


Books provided for you
Our main textbook for the course is Storytelling with Data by Cole Nussbaumer Knaflic. We’ll also be reading works from other experts in the field of data visualization, from classics like Edward Tufte to contemporary experts in academia and industry. They were carefully selected to complement the other course content, and it is expected that you will complete all readings for this course. The following will
comprise most of our readings and are available through links on Canvas and through UT Libraries. See the course schedule for a full list of readings.


**COURSE ASSIGNMENTS**

Brief descriptions of course assignments appear below. More details will be provided in class and on Canvas.

**Discussion questions** (5% of final grade): Prior to each class, respond to at least two of the discussion questions based on the upcoming class’s readings. Your responses will give me a sense of what you are most interested in, and they will be used as the basis for group discussions the next day. Your responses are due at midnight the two days before class. You’ll be automatically assigned to a peer to give comments on one of their answers. A thread for each class’s questions is available on Canvas.

**Data diary** (10% of final grade): This assignment addresses two important elements: that data surrounds us, and that storytelling with data is as much of an art as it is a science. Before we dive into best practices, let’s address the fun, creativity, beauty, and silliness that’s instrumental to the field. Research and gather data about yourself on a topic of your choice and keep a data diary in Excel for a week. Examples include the music you listen to, your phone app use, how much time you spend on coursework, how much media you...
consume and what kinds, etc. Build a data presentation to showcase what you’ve collected. Do not use Excel or Tableau to produce your final deliverable.

**Excel and Tableau assignments (30% of final grade):** A series of short analytical assignments designed to complement and reinforce the tutorials and hands-on work done in class. Specifics will be available on Canvas for each assignment.

**Visualization blog posts (5% of final grade):** Examining the works of others is a great way to develop your eye and build your own skillset. Write a post on Canvas about a data presentation you have found (350ish words). Address what data are being shown (and if the source is cited), who you think the audience is, the goals of the data presentation, and why/why not the data presentation is effective.

**The Moth story exercise (5% of final grade):** Analyzing examples of storytelling can help us learn how to recognize narrative elements and opportunities to integrate narrative in our own work. In this short assignment, you’ll analyze several short recordings of live storytelling from The Moth, a podcast and series of live storytelling events hosted around the country.

**Short data viz project (15% of final grade):** Build a polished data visualization based on a topic of your choice using a dataset of your choice. You will present the dashboard to your classmates in a short presentation recorded in Panopto. Feedback on your classmates’ dashboards and presentations will be part of your grade. The point of this assignment is two-fold: to provide a low-stakes opportunity to build a data visualization about something you’re really excited about and to focus on good presentation skills.

**Makeover Monday dashboard (5% of final grade):** Makeover Monday is a weekly online event where a data presentation and the dataset behind it are released, and you’re challenged to make it better! During this timed in-class activity, you will create a Tableau dashboard based on a dataset you’ve never seen before and publish your dashboard to Tableau Public.

**Final project summary, deliverables and presentation (25% of final grade):** This culminating project is a hands-on experience to design, prototype, and develop a complex example of a data visualization dashboard with storytelling elements that will be an asset to your professional portfolio. Your project must have a clear and specific audience. The final project includes the data presentation, associated
documentation, and a presentation to the class. Your formal written feedback on a peer’s draft will also be included in your grade.

**GRADING**

Here’s how to do your best on course assignments:

- Well before the deadline, read the assignment instructions in detail. Make note of anything that sounds particularly challenging. Reach out to me if you need clarity about the assignment.
- If you have questions while you work, first start by consulting your study buddy. For software-related questions, Googling often yields helpful results. If you exhaust both of these options, reach out to me at least a day before the assignment is due.
- Before you hand in your work, read the instructions again to make sure you completed everything.

Here are the primary things I will look for when I grade:

- Did you make thoughtful design choices, putting the best practices from class and from our readings to use?
- Did you complete all components of the exercise per my instructions?

**ASSIGNMENT POLICIES**

- Unless otherwise specified, turn in assignments through Canvas.
- There will be no group projects. You’ll do plenty of these at the iSchool, and I want everyone to have a chance to develop all of the skills in the course.
- While these assignments will represent your individual effort, I encourage you to see the advice and feedback of your peers.
- Previously submitted assignments cannot be resubmitted with edits and corrections for a higher grade unless we discuss it in advance of your resubmission.
- Late assignments will be docked 10% for each day delayed.

**OTHER COURSE POLICIES**

**Be excellent to each other**: Treat others as you would like to be treated. Give presenters and your classmates your full attention. Be courteous and thoughtful with your feedback. Limit computer/phone use to course-related activities.

**Help one another**: You bring your unique experiences to this course, and I encourage you to share that perspective with the class. I also highly recommend you select a study buddy in the course. In addition to sharing notes if either of you miss a class, having a peer with whom you can discuss ideas and go to for help is invaluable.

**Steal like an artist but cite your sources**: To be clear, this is not an endorsement of plagiarism but instead acknowledgement that that it is a rare thing for a work to be truly original—we’re often inspired by the creations of others. If your work draws from someone else’s work in any way, cite it.

**Communicate with me**: Email is the most reliable way to reach me. Please include the course number (INF385T) in the subject line. Allow a 24-hour window for responses.

**I’m here to help you**: Take advantage of it by requesting office hours to talk through any aspect of the course you don’t understand. Tableau is deceptively complicated, and you shouldn’t feel embarrassed if you don’t understand something immediately.
Adopt an attitude that feedback is always welcome: Give thoughtful constructive criticism to your peers, and be prepared to receive it too. This goes for me as well. A short email to say, “I really liked that activity” or “I didn’t get that lecture at all—it needed more examples” is very helpful for me. I’ll request feedback from you on the course mid-way through the semester, but please don’t wait if something crosses your mind.

Attendance: While I will not take attendance, please be aware that a substantial portion of course content includes hands-on labs and activities. As a result, missing classes and not participating in activities can impact your performance and result in a lower grade. It’s your responsibility to look on Canvas and/or check in with your classmates for notes and assignments you missed.

Recordings: Class recordings are reserved only for the use of members of this class (students, TAs, and the instructor) and only for educational purposes. Recordings should not be shared outside the class in any form. Violation of this restriction could lead to Student Misconduct proceedings.

Preferred names and pronouns: I will gladly address you by your preferred name and pronouns. Please let me know early in the semester so I can make changes to my records, and please correct me gently if I make a mistake.

UNIVERSITY POLICIES

Religious holy days: A student who misses classes or other required activities, including examinations, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible, so that arrangements can be made to complete an assignment within a reasonable time after the absence.

Students with disabilities: Please notify your instructor of any modification/adaptation you may require to accommodate a disability-related need. You may find out more information on the Services for Students with Disabilities website: http://diversity.utexas.edu/disability/ and/or http://diversity.utexas.edu/disability/how-to-register-with-ssd/

Policy on scholastic dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. For further information, please visit the Office of Student Conduct and Academic Integrity website at http://deanofstudents.utexas.edu/conduct/.

Use of e-mail for official correspondence to students: All students should be familiar with the University’s official e-mail student notification policy. It is the student’s responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. The complete text of this policy and instructions for updating your e-mail address are available at http://www.utexas.edu/its/policies/emailnotify.html.

University of Texas honor code: “As A Student Of The University Of Texas At Austin, I Shall Abide By The Core Values Of The University And Uphold Academic Integrity.”
ACKNOWLEDGEMENTS

We acknowledge that the iSchool sits on indigenous land. The Tonkawa lived in central Texas and the Comanche and Apache moved through this area. Today, various indigenous peoples from all over the globe visit Austin and/or call it home. We are grateful to be able to study and learn on this piece of Turtle Island. Since some of our classes are online, you may be contributing from other tribal lands. Here is a map that may help you in identifying the indigenous peoples of the land on which you study: https://native-land.ca/

This course and all its trappings owe a substantial debt to Dr. Diane Bailey. Dr. Bailey formulated Presenting Information, this course’s predecessor.
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<tr>
<th>Week# Date</th>
<th>Topic</th>
<th>Guiding question</th>
<th>Readings to be done before class</th>
<th>In-class activity</th>
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<td>Start thinking about your data diary</td>
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| 4 9/17    | Audience and context         | Who are we designing for, and how can we use that information to make our work better? | *American Statistical Association*, 79(387), 531-554. doi:10.2307/2288400<br>
  Few, S. (2012). “Table design.” *Show me the numbers: designing tables and graphs to enlighten*. Burlingame, CA: Analytics Press.<br>
  Start thinking about topics and datasets for project #1 | Mix a viz<br>Tableau tutorial: calculated fields | Data diary<br>Tableau exercise #1 |
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<td>12</td>
<td>11/12</td>
<td>Working with clients</td>
<td>How can we establish ourselves as good collaborators and guide a project toward success?</td>
<td>Sarikaya, S. et al. (2018). What do we talk about when we talk about dashboards? <em>IEEE transactions on visualization and computer graphics</em> 25:1. doi: 10.1109/TVCG.2018.2864903</td>
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<td>13</td>
<td>11/19</td>
<td>Advanced Tableau</td>
<td>Can I do this in Tableau? (Maybe)</td>
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<td>Tableau tutorial: set actions, parameter actions, regular expressions</td>
<td>Final project prototype and draft documentation due</td>
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<td>14</td>
<td>11/26</td>
<td>No class—T-Day break</td>
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<td>16</td>
<td>Talks, course evals, and wrap up</td>
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<td>Final presentations, course evaluations, and wrap up</td>
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<td>Project &amp; documentation</td>
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RECOMMENDATIONS FOR ADDITIONAL READING

This class of course only scratches the surface of data and data storytelling. In addition to seeking out additional iSchool courses to build your data skills, consider the following resources. This list is not exhaustive.

TABLEAU BLOGS AND RESOURCES

makeovermonday.co.uk
workout-wednesday.com
ryansleeper.com
vizwiz.com
dataplusscience.com
datarevelations.com

BLOGS AND OTHER WEBSITES

storytellingwithdata.com
ecommunist.com/website-detail
junkcharts.typepad.com
pudding.cool
storytellingwithdata.com
visualizingdata.com
flowingdata.com
Informationisbeautiful.net
makeovermonday.co.uk
reddit.com/r/DataIsUgly
theatlas.com
viz.WTF

BOOKS

Practical

Beautiful

Ethics and numeric literacy

**PODCASTS**

datastori.es
storytellingwithdata.com/podcast
99% Invisible
PolicyViz

**ORGANIZATIONS**

Data Visualization Society
Institute of Electrical and Electronics Engineers (IEEE)
Association for Computing Machinery (ACM)

**CONFERENCES**

Tableau Conference
IEEE Vis
Malofiej
Tapestry Conference (currently on hiatus)

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