

The Art and Design of Information in Society

Meeting Time: Monday 10AM-12PM/ Wednesday 10AM-12PM

Credit hours: 3

Instructor: Yara El Turk

Course Description

Complex data has brought into many visual forms in order to facilitate the content understanding. However, not every transformation turned out to be effective. To compose visual message and improve information communication, significant amount of design practice is needed. This information design course introduces the strategies of visual thinking as an efficient method to convey complex data. It covers the fundamentals of visual communication and apply design principles in the context of diverse media. It discusses social implications of the digital revolution, including ethical issues associated with algorithmic design and privacy to understand or influence people's behavior and tell a story using data about different societal issues such as gender stereotypes, climate justice, refugees crises etc. Students will use a sociological lens to explore how our increasingly digital lifestyle changes institutions and social relations.

Course Learning outcomes

- Effectively use design tools to create attractive visual compositions
- Create complex and modern infographics and data visualizations
- Learn and understand the principles of visual comprehension
- Improve creative thinking through design-based learning
- Reflect on the ethical and privacy considerations that arise with new, passively captured, data sources
- Advance **communication skills** in composing and representing ideas and information in using a variety of forms of expression for authentic audiences and purposes.

Teaching/Assessment Methods

- Lectures and readings
- Project based labs
- Research assignments
- Blackboard and/or Openlab

Course Materials and Technologies

This course includes three major aspects of information visualization: graphics design, interaction design, and visual storytelling. First part of the course introduces students to design techniques as well as to the principles of effective visual communication. Second part of the course focuses on technologies, necessary to transfer designs into data-driven solutions. Before stepping into final projects, third part merges two previously mentioned components into meaningful data visualization for further analysis and presentation. Moreover, this course:

- Introduces the key design and human perception principles
- Helps students understand the importance of cognition in visualization design
- Applies structured design process for data exploration, analysis, and storytelling
- Focuses on tools and available techniques for designing effective visuals
- Motivates critical evaluation, giving suggestions, and proposing improvements
- Applies methods for visualization of data from a variety of fields
- Introduces to a web-based frameworks and libraries for data visualization
- Emphasizes a constructive work on complex projects as part of the team
- Motivates creative thinking in challenging scenarios of high-dimensional data
- Explores different communication spaces (print, phone, desktop, VR, and AR)

Lectures / Labs / Studios

The course consists of 3 components: lectures, labs, and studios. Lectures are focusing on theoretical background, design guidelines, and principles. Unlike lectures, labs are practical tutorials that emphasize mastering the design tools and technologies. Studios serve as a bridge between lectures and labs, where students will express their creativity as well as to critically discuss other peer's work. Attending lecture is a crucial component of learning the material presented in this course. The class meets weekly for lectures and other lecture-related activities. There will be several mandatory class meetings such as the midterm, guest lectures, project discussions, project demos, etc.

For most of the semester, the practical labs will be on Tuesdays. Labs are interactive tutorials that will help getting into design and visualization tools faster. Completed labs should help you answering the "week's topic" - the design idea that should respond to a given weekly task. It will be discussed and evaluated every week during studios time.

Grading Details / Distribution

90% = Course projects/assignments

Project 1 25%

Project 2 25%

Project 3 25%

Quiz 15%

10% - Design assignment with in-class presentations

Grade will be based on appearance of work, clarity of speech, quality and organization of presentation materials, and ability to answer questions based on research.

Grading Standards

93–100: A
90–92.9: A-
87–89.9: B+
83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70–72.9: C-
67–69.9: D+
60–66.9: D
Below 60: E

Attendance (College) and Lateness (Department) Policies

Attendance is taken and is important to success in this class. Both absences and arrival more than 15 minutes after the start of class will be marked. If excessive, the instructor will alert the student that he or she may be in danger of not meeting the course objectives and participation expectations, which could lead to a lower grade.

Weekly Course Schedule

Meeting	Topic	Agenda
Week 1	Introduction to Course	Explain course content, assignments, and procedures. Concepts for information design: Communication, Discourse, Medium, Information Design, Mediation, Document, Genre, Negotiation of meaning, Canvas, Format, and Behaviors.
Week 2	Genres of Consumer-Information Graphics; Preview of Design Guidance	Discussion of course readings. Concepts for information design: Structure, Linearity/Non-Linearity, Modularity/Chunking. Discussion of the Radiation Label case study. Informal presentations: Each student discusses two of the Berkeley Competition labels. Group review of preliminary version of Radiation Labels.
Week 3	The Design Process	Discussion of course readings. Concepts for information design: Theme, Style, Mood, Stance, Color, Aesthetic appeal. Group discussions of students' design practices. Group review of second Preliminary versions of students'

		<p>Radiation Labels.</p> <p>Informal discussion of the usefulness and limitations of (1) design patterns generally and (2) Label Patterns.org.</p>
Week 4	The Design of Infographics & Data Visualizations	<p>Discussion of course readings.</p> <p>Informal student presentations on Beta versions of Radiation Labels. Students are encouraged to borrow ideas from other Beta versions for their own final designs.</p>
Week 5	Patterns & Pattern Libraries	<p>Discussion of course readings.</p> <p>Informal discussion of the use of design patterns and pattern libraries.</p> <p>Discussion of design patterns. Planning for writing your patterns.</p>
Week 6	Longer Documents	
Week 7	Hypertext & Multimedia	
Week 8	The Infinite Canvas	<p>Discussion of course readings</p> <p>Concepts for information design: Infinitive canvas, Immersive VR, and augmented VR</p>
Week 9	Adaptive Documents & Synthetic Interviews	<p>Discussion of course readings.</p> <p>Presentations on individual course projects.</p>
Week 10	Information Production: Crowdsourced vs. Curated Content, Text Mining	<p>Discussion of course readings. Presentations on design patterns.</p>
Week 11	Course Review; Final Project	

Themes / Modules

- Human-centered design, and the information design lifecycle
- Design Thinking and related perspectives in information analysis and design
- Identifying and assessing information needs and information tasks
- Theories of human visual perception and cognition
- User modeling including personas and scenarios
- Visual display of information
- Prototyping
- Usability evaluation and assessment

Required Readings and Content

Individual chapters from these texts are regularly included as required reading. Copies of the chapters are available through Library Online Course Reserves (LOCR), and through the Canvas course site.

- Arango, J. (2018). *Living in information: Responsible design for digital places*. Brooklyn, NY: Two Waves Books.
- Black, A., Luna, P., Lund, O., and Walker, S. (2017). *Information design: Research and practice*. New York: Routledge Publishing.
- Duarte, N. (2019). *Data story: Explain data and inspire action through story*. Ideapress Publishers.
- Hinton, A. (2015). *Understanding context: Environment, language, and information architecture*. Sebastopol, CA: O'Reilly Media.
- Matthew Salganik (2017). *Bit by Bit: Social Research in the Digital Age*. o Bit By Bit: Social Research in the Digital Age (**Free Digital Version**)
- Mathew Rafalow (2020). *Digital Divisions: How Schools Create Inequality in the Tech Era*.
- Michael Kearns and Aaron Roth (2020). *The Ethical Algorithm: The Science of Socially Aware Algorithm Design*.
- Jacobson, R., ed. (2000). *Information design*. Cambridge, MA: MIT Publishing.
- King, R., Churchill, E.F., and Tan, C. (2017). *Designing with data*. Sebastopol, CA: O'Reilly Media.
- Rosenfeld, L., Morville, P., and Arango, J. (2015). *Information Architecture: For the Web and Beyond*. Sebastopol, CA: O'Reilly Media.

Course Resources

Visual Display of Quantitative Information. Edward Tufte
Graphics Press
ISBN-10: 0961392142

ISBN-13: 978-0961392147

Envisioning Information Edward Tufte

Graphics Press

ISBN-10: 0961392118 ISBN-13: 978-0961392116

Wordless Diagrams

Nigel Holmes

Bloomsbury USA ISBN-10: 1582345228 ISBN-12: 978-1582345222

Information Graphics

Peter Wilbur

Thames & Hudson ISBN-10: 05002800770 ISBN-13: 978-0500280775

Publication Design Annual, Society of Publication Designers Communication Arts,
Palo Alto, CA (Bi-monthly)

Graphis

Zurich, Switzerland (Bi-monthly)

Print,

New York, NY (Bi-monthly)

Annual Reports (annually) Graphis.

Rockville, Md.: Print Books

Assignment

Part I

Your Data Plan should be submitted through Canvas as a Word document (.doc or .docx).

Find a dataset that will serve as the basis for the other assignments in this course (Narrated PowerPoint Slide Deck, Data Memo and Interactive Data Story). This dataset can be located on an open data portal or can be a dataset that you have access to through your work. The dataset can be on any topic you choose — ideally, pick one that's about something you're interested in and/or is about where you live. This will make it a lot more interesting to complete the assignments in this course.

Write a brief (500 word maximum) report that includes the following questions, and your answers to them:

1. Choose a societal issue (gender stereotype, gender inequality, water pollution etc.)
2. What data set will you use for your final report ? (describe your dataset, and either include a link to where I can find it online or submit it as a spreadsheet along with your report).
3. Describe the dataset. What kind of data does it contain?
4. Is there anything about your data that you don't understand? (i.e. what a column heading means). How will you find this out?
5. What are some questions you hope to answer with your data? List at least three (you don't need the answers to the questions at this point).

Rubric (Part I)

	90-100 Excellent	80-89 Good	Less than 80 Unsatisfactory
Dataset – 25%	The dataset selected meets or exceeds all of the requirements outlined in the assignment.	The dataset selected meets most of the requirements outlined in the assignment but has some flaws.	The dataset selected is not appropriate for the assignment.
Description – 25%	The description of the dataset clearly and fully explains what the dataset contains.	The description of the dataset does a good job of describing the dataset but	The description of the dataset does not do a good job of explaining what the dataset contains.

		leaves some important things out.	
Limitations – 10%	The limitations of the dataset are clearly and thoroughly explained.	The limitations of the dataset are partially explained, with some limitations not identified.	The limitations of the dataset are not well explained.
Questions – 30%	All the questions posed of the dataset are well thought out and answerable from the dataset.	At least two of the questions posed of the dataset are well thought out and answerable from the dataset.	One or fewer of the questions posed of the dataset are well thought out and answerable from the dataset.
Writing – 10%	The assignment is very well-written, with proper grammar, punctuation and spelling.	The assignment is relatively well-written, with a few grammar, punctuation and spelling errors that do not impede overall understanding.	The assignment is not well-written and there are several grammar, punctuation and spelling errors that may disrupt understanding.

Part II

Two charts, a “lead” and an “elevator pitch” (10% of final grade)

The charts for this assignment, along with the lead, should be submitted through Canvas as a Word document (**.doc** or **.docx**). The charts should be pasted into the Word document rather than submitted separately as image files. The elevator pitch should be submitted as a YouTube video. The URL for that video should then be pasted into the Word document. (If you’re using a proprietary dataset for your assignment, you can arrange with the instructor to instead upload your video file directly to Canvas.)

This assignment will show the results of your initial analysis of your dataset. It should include:

1. A single sentence identifying the most interesting thing you’ve discovered in your dataset, much like the “lead” of a news story. This “lead” should intrigue the reader and make them want to learn more.

2. Two static charts, created using Tableau, that illustrate key insights you've discovered in your data. At least one of your two charts should support the statement made in your lead sentence.
3. To accompany the charts and lead sentence, an "elevator pitch" of 30-45 seconds in which you are seen on camera explaining why the insights you've discovered are worth paying attention to. For your elevator pitch, there should be nothing on camera except yourself (i.e. no slides, no charts). You should wear business-appropriate clothing (i.e. no sweatpants, shorts or jeans) and be seated in an office-style setting or standing up (i.e. no lounging on the couch).

Rubric (Part II)

	90-100 Excellent	80-89 Good	Less than 80 Unsatisfactory
Two Charts – 35%	The two charts clearly illustrate key insights from the student's dataset and follow the Data Visualization Best Practices discussed in class.	The two charts illustrate some insights from the student's dataset and follow most of the Data Visualization Best Practices discussed in class.	The two charts do not illustrate key insights from the student's dataset and/or do not follow the Data Visualization Best Practices discussed in class.
Lead Sentence – 30%	The lead sentence clearly and concisely illustrates the most interesting thing in the student's dataset in a way that makes the reader want to learn more.	The lead sentence illustrates something interesting in the dataset but is not written as clearly and concisely as it could be.	The lead sentence does not do a good job of identifying something interesting in the dataset and/or does not make the reader want to know more.
Elevator Pitch – 35%	The elevator pitch demonstrates superior oral presentation skills, getting the viewer excited about the dataset and engaged in the topic.	The elevator pitch demonstrates solid oral presentation skills, though there is some room for improvement.	The elevator pitch does not demonstrate good oral presentation skills. The message is unclear and/or hard to follow.