

USC Iovine and Young Academy

Arts, Technology and the Business of Innovation

IDSN 599: Information Design

Units: 4

Day-Time: Spring 2024, Wednesday 7:30pm - 9:20pm (pst)

Location: Zoom.

Instructor: Aaron Siegel

Office: IYH 211 or Zoom meeting room listed on Blackboard.

Office Hours: In person: IYH 211, Tuesdays, 12:00pm - 1:45pm.

Zoom: Tuesdays, 6pm - 8pm at [this link](#).

Contact Info: aaronsie@usc.edu

IT Help:

<https://uscedu.sharepoint.com/sites/IYASStudent/SitePages/IT-Resources.aspx>

Hours of Service: M-F, 8:30am - 6:30pm

Contact Info: iyahelp@usc.edu

Course Description

Information design is the practice of transposing large sets of numeric information into visual representations for more immediate understanding, increased legibility from a holistic perspective of the subject matter, and the ability to analyze a subject beyond looking at individual data recordings. The class focuses on how to construct effective and elegant software interfaces, design analytical displays of data, as well as explore unconventional and innovative methods of interaction and user interface design. Students must combine their knowledge and skills from the disciplines of graphic design, computer programming, data analysis, and human-computer interaction to develop their projects. The course is a mix of technical challenges, visual design, as well as conceptual obstacles that students must critically examine in order to effectively overcome and execute their assignments to their fullest potential.

Learning Objectives

By the end of the semester, students will be able to:

- Understand concepts related to information design, interface design, and data visualization.
- Gain fundamental design and development skills required to develop a web service platform.
- Prototype interface experiences using Figma.
- Understand object-oriented programming and data management in JavaScript.
- Understand creation and maintenance of relational databases for web applications.
- Create live-rendered interactive graphic animations for the web using P5.js and WebGL.

Prerequisites: TBD.

Co-Requisites: None.

Concurrent Enrollment: None.

Recommended Preparation: IDSN 520: Design Essentials, IDSN 530 Technology Essentials, or previous experience coding in JavaScript.

Course Notes

The class will be a mix of technical demonstrations, software workshop exercises, lectures on the history and contemporary applications of information design, as well as collective critique sessions. Technical demonstrations will be recorded via Zoom and shared with the students afterward for further review. Lecture materials will be made available via the class learning management system.

Technological Proficiency and Hardware/Software Required

- Laptop computer with authorized installations (or access) of the following software:
 - [Visual Studio Code](#) or code editor of your choice.
 - [P5.js](#).
 - [Figma](#).

Required Readings and Supplementary Materials

- [AIGA Eye on Design: Processing: the Software that Shaped Creative Coding](#). Parts [1](#) & [2](#).
- [Michael Friendly & Howard Wainer - A History of Data Visualization & Graphic Communication](#).
- [Ben Fry - Computational Information Design](#).
- [Lev Manovich - Introduction to Info-Aesthetics](#).
- [Lev Manovich - What is Visualization?](#)

Assignments

1. *Journal Project Pitch Presentation (10%)*:
 - Put together a 2 minute presentation in slide deck form (PDF file specifically) with three different ideas about data sources for your journal project concept. Cover your data type, mechanisms for recording data, and initial ideas for representation and user interface functionality. Your records should be happening at least once a day, but the more frequent they are, the more interesting your results will be. Your journal should not be a blog, instagram account, or series of tweets... think outside the box!
2. *Data Collection Progress (10%)*:
 - Begin recording regular activities about your life. Showcase what you have collected so far, the different properties you are collecting, the potential values for various properties and the range they fall within, as well as the granularity of the recordings.
3. *Midterm (10%)*:
 - The midterm will test your critical thinking skills around how to transpose numeric information into visuals that will effectively communicate values to the audience.
4. *Readings (4 assigned readings throughout the semester, 5% each) (20%)*:
 - Write a one page paper in response to each assigned reading. You should submit your paper as a link to a Google Doc file so that I can add comments and review the revision history to evaluate how you have edited and iterated on your ideas. Make sure there are proper sharing permissions across USC accounts. Review the policy for use of generative AI tools.
5. *Labs (13 labs, roughly 1.5% each) (20%)*:
 - Lab exercises are regular technical competency checks to ensure that you are keeping up with the course material and that you will be able to apply the skills covered towards your final journal project.
6. *Journal Project Final (30%)*:
 - Your journal must provide an interactive visual interface to your content that allows users to navigate it in an interesting way. Consider the potential for users to sort and filter your data, view it in the macro and micro perspective, and what story you might tell about the dataset through your interface design.

Grading Breakdown		Grading Scale		
Journal Project Pitch Presentation	10%		A = 100 - 95	A- = 94 - 90
Data Collection Progress	10%	B+ = 89 - 87	B = 86 - 83	B- = 82 - 80
Midterm	10%	C+ = 79 - 77	C = 76 - 73	C- = 72 - 70
Readings (4x @ 5%)	20%	D+ = 69 - 67	D = 66 - 63	D- = 62 - 60
Labs (13 labs, roughly 1.5% each)	20%	F = 59 and below		
Journal Project Final	30%			

Assignment Rubrics

Student work will be assessed based on:

- Level of understanding and execution of software skills on assignments.
- Degree of complexity of the assignment goal both creatively and technically.
- Innovative application of tools and concepts covered in class.

Assignment Submission Policy

Submit all of your digital assets via the shared class Google Drive folder at least one hour prior to the start of the class session. Make sure you submit all related assignment assets and materials (without zipping them).

Grading Timeline

Labs, checkpoints, and assignments will be reviewed, graded, and provided with feedback within a week of submission.

Course Attendance Policy

The Academy maintains rigorous academic standards for its students and on-time attendance at all class meetings is expected. Each student will be allowed two absences over the course of the semester for which no explanation is required. Students are admonished to not waste excused absences on non-critical issues, and to use them carefully for illness or other issues that may arise unexpectedly. Except in the case of prolonged illness or other serious issue (see below), no additional absences will be excused. Each unexcused absence will result in the lowering of the final grade by $\frac{1}{3}$ of a grade (e.g., an A will be lowered to A-, and A- will be lowered to a B+, etc.). In addition, being tardy to class will count as one-third of an absence. Three tardies will equal a full course absence.

Students remain responsible for any missed work from excused or unexcused absences. Immediately following an absence, students should contact the instructor to obtain missed assignments or lecture notes and to confirm new deadlines or due dates. Extensions or other accommodations are at the discretion of the instructor.

Automatically excused absences normally may not be used for quiz, exam or presentation days. Using an excused absence for a quiz, exam or presentation, such as in the case of sudden illness or other emergency, is at the discretion of the instructor.

In the case of prolonged illness, family emergencies, or other unforeseen serious issues, the student should contact the instructor to arrange for accommodation. Accommodation may also be made for essential professional or career-related events or opportunities. Additionally, students who need accommodations for religious observations should provide advanced notice to instructors and student athletes should provide Travel Request Letters. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.

[Unless students provide an accommodation letter from USC's Office of Student Accessibility Services \(OSAS\)](#) or a letter from IYA Student Services detailing visa or travel restrictions, attendance and active participation is expected in the classroom. Any student with such accommodations should submit their accommodation document to the instructor as soon as possible to discuss appropriate accommodations.

Students who are experiencing illness should not attend class in person. Please inform the instructor in advance of any class sessions that you can't attend for medical reasons, and accommodations will be arranged to view recorded lectures and submit alternatives to any missed class participation. Students will not be penalized for not attending class in person under these circumstances.

Iovine and Young Hall Cleanout

The Academy is unable to store student projects and materials beyond the end of the semester. Students must remove all projects and personal materials from the Creators Studio, lockers/locker room, and other classrooms by the end of each semester. **All projects and materials left in Iovine and Young Hall will be discarded the day after final exams end. No exceptions.**

Classroom Norms

Students are requested to stay off of their phones during the class session. All discussion in class should be focused on the course material currently being covered. Students should be considerate and respectful of their classmates and ensure that any criticism of work is constructive and delivered in a positive manner.

Zoom Etiquette

Students should only attend class via Zoom if they are sick, and only after sending the instructor an email notifying them of the student's condition. It is expected that cameras will be turned on and that participation may be requested when the student is called on.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

USC Learning Experience Evaluations

USC Learning Experience Evaluations otherwise known as course evaluations occurs at the end of the semester university-wide. It is an important review of students' experience in the class. Students will have 15-20 minutes of in-class time to complete the course evaluation form during the last week of class. Mid-semester evaluations will also be provided to Iovine and Young Academy majors and minors, and if found at-risk due to poor class performance, will be required to meet with their Academy advisor.

Course Schedule

Week	Session Topics	Readings, Labs, and Assignments
1	Syllabus, Assignments, Introductions. Information Design Fundamentals. Retinal Variables.	Lab #1: Journal Subject Brainstorming (group).
2	Journal Project Pitch Presentations.	Reading: Manovich - What is Visualization? Reading: Manovich - Introduction to info-aesthetics. DUE: Journal Project Pitch Presentation. DUE: Manovich Reflection Paper.
3	Color theory. Scale. Position. Opacity. Workshop: Development environment. JavaScript basics. P5.js basics.	Reading: AIGA Eye on Design: Processing: the Software that Shaped Creative Coding. Parts 1 & 2. Reading: Friendly - Introduction + Ch. 1: In The Beginning. DUE: AIGA Eye on Design Reflection Paper. Lab #2: Basic Drawing.
4	Typography. Movement. Procedural vs. Timed Animation. Workshop: Loops, conditional statements, vectors. Classes and object properties.	Reading: Friendly - Ch. 2: The First Graph Got it Right. DUE: Data Collection Progress. Lab #3: Basic Animation.
5	Interaction Design. User Experience. Workshop: Keyboard, cursor, and touch screen interaction. Functions.	Reading: Friendly - Ch. 3: The Birth of Data. Lab #4: Basic Interaction.
6	Proportional quantitative comparisons. Time series. Combined dimensions of data. Workshop: Bar graph, line plot, scatter plot.	Reading: Friendly - Ch. 4: Vital Statistics. Reading: Fry - Ch. 1: Introduction. Lab #5: Basic Graphing.
7	Multidimensional visualization. Workshop: Arrays. Data loading, parsing, and visualizing.	Reading: Friendly - Ch. 5: The Big Bang. Reading: Fry - Ch. 2: Basic Example. Lab #6: Visualizing Data from File.
8	Midterm. Relational data. Workshop: Introduction to PHP/SQL. Data modeling. Reading data.	Reading: Friendly - Ch. 6: The Origin and Development of the Scatterplot. Reading: Fry - Ch. 3: Background. Lab #7: Reading from Database Table.
9	Asynchronous data loading. Workshop: Inserting, updating, and deleting data.	Reading: Friendly - Ch. 7: The Golden Age of Statistical Graphics. Reading: Fry - Ch. 4: Advanced Example. Lab #8: Insert Custom Data into Database Table.
SPRING BREAK: No Class.		SPRING BREAK: No Class.
10	User Interface Design. Wireframing. Workshop: Introduction to Figma. Wireframes.	Reading: Friendly - Ch. 8: Escaping Flatland. Reading: Fry - Ch. 5: Process. Lab #9: Visualization Moodboard in Figma.
11	Interface Elements. Workshop: Figma components. UI elements. Style guide development.	Reading: Friendly - Ch. 9: Visualizing Time and Space. Reading: Fry - Ch. 6: Tool. Lab #10: Visualization Mockups in Figma.

12	Incorporating your data. Workshop: Sorting and filtering data by properties.	Reading: Friendly - Ch. 10: Graphs as Poetry. Reading: Fry - Ch. 7 & 8: Additional Examples, Closing. Lab #11: Initial Visualization MVP.
13	Visual identity refinement. Workshop:	DUE: Friendly Reflection Paper. Lab #12: Applied Style Guide.
14	User experience refinement. Documenting your work. Workshop:	DUE: Fry Reflection Paper. Lab #13: Interaction with Visualization.
15	Final Presentation of Journal Projects.	DUE: Final Presentations

Statement on Academic Conduct and Support Systems

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Policy for the use of AI Generators

Generative AI for the use of creating snippets of code is allowed as long as you credit the source and include the prompt you used in the comments within your code. Generative AI to create images for inspiration on directions to take your visualization is allowed for moodboarding and brainstorming purposes, but not as submissions for your lab exercises or assignments. Generative AI is not allowed for the rendering of charts, graphs, plots, or any other data representation as they are not reliable and can not be vetted for accuracy. Generative AI text generation is not permitted on reading reflection submissions.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services \(OSAS\)](#) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.