

# USC Iovine and Young Academy

*Arts, Technology and the Business of Innovation*

## ACAD 280 - Designing Digital Experiences

**Units:** 4

**Day-Time:** Spring 2023, TR 2:00pm - 4:50pm

**Location:** IYH 211

**Instructor:** Aaron Siegel

**Office:** IYH 210 or Zoom meeting room listed on Blackboard.

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

Zoom: Mondays, 6pm - 8pm.

**Contact Info:** [aaronsie@usc.edu](mailto:aaronsie@usc.edu)

### IT Help:

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

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

**Contact Info:** [iya.helpdesk@usc.edu](mailto:iya.helpdesk@usc.edu), 213-821-6917

## Course Description

Interaction Design is the study of how people interface with machines, objects, environments, and each other. 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, and human/machine interaction to develop their projects. The course is a mix of technical challenges 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 and Outcomes

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

- Understand concepts related to interaction design, interface design, and data visualization.
- Comprehend the dynamics of social interactions mediated by technology and how to change them.
- Gain fundamental design and development skills required to develop a web service platform.
- Prototype interface experiences using Figma and the Adobe Creative suite of tools.
- 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:** ACAD 275: Dev I.

**Co-Requisites:** None.

**Concurrent Enrollment:** None.

**Recommended Preparation:** Install the [Visual Studio Code](#) editor. Download the p5template.zip file from the class Blackboard Content section.

## Course Notes

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

## Technological Proficiency and Hardware/Software Required

- Laptop computer with authorized installations of the following software:
  - [Visual Studio Code](#) or code editor of your choice.
  - [P5.js](#).
  - [Adobe Creative Cloud](#) (Photoshop, Illustrator, InDesign) and [Figma](#).

## Required Readings and Supplementary Materials

- [AIGA Eye on Design: Processing: the Software that Shaped Creative Coding](#). Parts [1](#) & [2](#).
- [Ben Fry - Computational Information Design](#).
- [Lev Manovich - Introduction to Info-Aesthetics](#).
- [Lev Manovich - What is Visualization?](#)

## Assignments

1. Journal Project Pitch Presentation (5%)
  - Put together a 2 minute presentation in slide deck form (PDF file specifically) about 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 (5%)
  - 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. Database Progress (6%)
  - Use phpMyAdmin (or equivalent tool for your database system) to view the structure and content of your database tables. Include all different tables and views that tie your data recordings together.
4. API Progress (6%)
  - Document the application programming interface you have developed to serve up data for the front end of your application as well as potentially receive input of new data from you or visitors to your application.
5. Frontend Moodboard (6%)
  - Submit a moodboard of visual material to inspire the design of your frontend interface. Make sure you include consideration for colors, charts and graphs that have been used in other projects, as well as typographic design decisions.
6. Frontend Mockups (6%)
  - Submit some mockup illustrations of your frontend interface. Start with considerations about the most effective chart/graph model to implement for your data and the questions you are posing against it, then get into further detail regarding color, typography, iconography, and user interface elements.
7. Frontend Development (10%)
  - Submit code and screenshots of your frontend development progress.
8. 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.
9. Readings (8 assigned readings throughout the semester, 2% each) (16%)
  - Write 5 bullet point responses/reactions to the content of each assigned reading.

Grading Breakdown		Grading Scale		
Journal Project Pitch	5%		A = 100 - 95	A- = 94 - 90
Data Collection	5%	B+ = 89 - 87	B = 86 - 83	B- = 82 - 80
Database Progress	6%	C+ = 79 - 77	C = 76 - 73	C- = 72 - 70
API Progress	6%	D+ = 69 - 67	D = 66 - 63	D- = 62 - 60
Frontend Moodboard	6%	F = 59 and below		
Frontend Mockups	6%			
Frontend Development	10%			
Journal Project Final	30%			
Participation	10%			
Reading (8x 2%)	16%			

## **HOW TO PURCHASE SOFTWARE AT THE DISCOUNTED ACADEMY RATE THROUGH THE USC BOOKSTORE:**

The following first year software are now available for purchase online through the USC Iovine and Young software catalog at the Academy discounted rate:

<b><u>Software</u></b>	<b><u>IYA Short-Term License at USC Bookstore</u></b>
<b>Adobe Creative Cloud</b>	\$70 2021-2022 annual license

To purchase:

- Visit: <https://commerce.cashnet.com/IOVINE>
- Select the software license(s) you would like to purchase by clicking “View Details” or the software title, and make your purchase.
- You will receive an order confirmation receipt at the email address you provided.
- You will be notified by email when the software license has been activated.

If you have any questions about this process, please do not hesitate to contact Academy IT Support at [iya.helpdesk@usc.edu](mailto:iya.helpdesk@usc.edu).

## **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 Blackboard at least one hour prior to the start of the class session. Make sure you submit all related assignment assets and materials in a ZIP file.

## Grading Timeline

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

## Academy 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 excused 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. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.

### *Spring 2023 addendum:*

- Unless students provide an accommodation letter from USC's Office of Student Accessibility Services 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. Either classroom recordings or live remote access to the class via Zoom will be provided.
- 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.
- In the event that you find yourself experiencing COVID-19 related symptoms, in keeping with university recommendations, you should Stay home! This is the best way to prevent spreading COVID-19 as supported by scientific evidence; Please do not come to an in-person class if you are feeling ill, particularly if you are experiencing symptoms of COVID-19

## Weekly Course Schedule

Week	Tuesday	Thursday
1	<b>1/10:</b> Syllabus, Assignments, Introductions. What are Digital Experiences? Lab #1: Group Journal Brainstorming	<b>1/12:</b> Reading #1: <a href="#">AlGA Eye on Design: Processing: the Software that Shaped Creative Coding</a> . Parts <a href="#">1</a> & <a href="#">2</a> . Workshop: Development environment. P5.js drawing basics. Lab #2: Basic Drawing
2	<b>1/17:</b> Workshop: P5.js animation. Lab #3: Basic Animation	<b>1/19:</b> DUE: 1: Journal project pitch presentations.
3	<b>1/24:</b> Cursor/Touch Based Projects. Workshop: Cursor/Touch Interaction in P5.js. Lab #4: Cursor/Touch Reactive Animation	<b>1/26:</b> Keyboard Based Projects. Workshop: Keyboard Interaction in P5.js. Lab #5: Keyboard Reactive Animation
4	<b>1/31:</b> Camera Based Projects. Workshop: Camera Interaction in P5.js. Lab #6: Camera Reactive Animation	<b>2/2:</b> DUE: 2: Data collection. Responsive Interfaces. Workshop: Responsive Design in P5.js. Lab #7: Responsive Parametric Animation Interface
5	<b>2/7:</b> Reading #2: Fry ch. 1 (introduction). Information Design Fundamentals. Information Design History. Lab #8: Designing a Visual Language	<b>2/9:</b> Reading #3: Fry ch. 2 (basic example). Workshop: Loading data. Iterating over data. Data modeling. Custom classes. Sorting data. Basic chart drawing. Lab #9: Data Visualization with Example Data
6	<b>2/14:</b> Human/Machine Interface. User Interface / User Experience Design. Workshop: Figma Introduction Lab #10: Interface Moodboarding	<b>2/16:</b> Reading #4: Fry ch. 3 (background). Workshop: Introduction to PHP/SQL. SELECT. GET and POST. Lab #11: Reading from Database Table
7	<b>2/21:</b> Color in Information Design. Workshop: Color theory in visualization. Lab #12: Color Palette Moodboarding	<b>2/23:</b> DUE: 3: Database progress. Typography. Typesetting. Labels & Legends. Workshop: Figma Interface Mockup Planning Lab #13: Typography Moodboarding
8	<b>2/28:</b> Reading #5: Fry ch. 5 (process). Workshop: INSERT, UPDATE, and DELETE. Lab #14: Insert Custom Data into Database Table	<b>3/2:</b> Interface to Each Other. Telecommunication. Telepresence. Social Media. Mash-ups. Workshop: User Accounts and Security Lab #15: Group Communications Brainstorm
9	<b>3/7:</b> Reading #6: Fry ch. 6 & 8 (tool, closing). Workshop: Designing an API. Lab #16: Async Data Updates	<b>3/9:</b> DUE: 4: API progress. Web 2.0: Sharing. Ranking. Taxonomy vs. Folksonomy. Crowdsourcing. Lab #17: Group Social Media Brainstorm

10	<b>3/14:</b> <b>SPRING BREAK: No Class.</b>	<b>3/16:</b> <b>SPRING BREAK: No Class.</b>
11	<b>3/21:</b> Reading #7: Manovich (what is visualization). Workshop: Join Tables. Lab #18: Join Tables Demo	<b>3/23:</b> DUE: 5: Frontend moodboard. Sorting. Filtering. Alternative Graph Models. Workshop: Switching Application States. Lab #19: Alternative Visualization of Demo Data
12	<b>3/28:</b> Wireframing. Flowcharts. Interface Elements. Workshop: Figma Visualization Wireframes Lab #20: Interface Wireframes	<b>3/30:</b> Reading #8: Manovich (introduction to info-aesthetics) Workshop: Figma Visualization Mockups Lab #21: Interface Mockups
13	<b>4/4:</b> Locative media. GIS. Cartography projects. Wayfinding. Navigation. Workshop: Geolocation in JavaScript. Lab #22: Group Geolocation Brainstorm	<b>4/6:</b> DUE: 6: Frontend mockups. Lab #23: Group Movement App Brainstorm
14	<b>4/11:</b> Smart Products. Lab #24: Group Smart Product Brainstorm	<b>4/13:</b> Internet of Things. Lab #25: Group IoT Brainstorm.
15	<b>4/18:</b> Immersive Environments. Lab #26: Group Interactive Environment Brainstorm	<b>4/20:</b> DUE: 7: Frontend development. Installations in Public Space. Lab #27: Group Interactive Public Art Brainstorm
16	<b>4/25:</b> Final Project Development.	<b>4/27:</b> Final Project Development.
<b>FINAL</b>	<b>Thursday, May 4th, 2pm - 4pm.</b> DUE: 8: Presentation of journal projects.	

## Statement on Academic Conduct and Support Systems

### Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](https://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](https://policy.usc.edu/scientific-misconduct).

### Support Systems:

*Student Health Counseling Services - (213) 740-7711 – 24/7 on call*  
[engemannshc.usc.edu/counseling](https://engemannshc.usc.edu/counseling)

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

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*

[suicidepreventionlifeline.org](https://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - 213-740-9355 (WELL)*

<https://studenthealth.usc.edu/sexual-assault/>

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Relationship and Sexual Violence Prevention and Services provides immediate therapy services for situations related to gender- and power-based harm (e.g., sexual assault, domestic violence, stalking).

*Office of Equity and Diversity (OED) | Title IX - (213) 740-5086*

[equity.usc.edu](https://equity.usc.edu), [titleix.usc.edu](https://titleix.usc.edu)

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

*USC Policy Reporting to Title IX (213) 740-5086*

<https://policy.usc.edu/reporting-to-title-ix-student-misconduct/>

The university encourages individuals to report prohibited conduct to the *Title IX Office*. Individuals can report to the university *Title IX Coordinator* in the *Office of Equity and Diversity*.

*Bias Assessment Response and Support - (213) 740-2421*

[studentaffairs.usc.edu/bias-assessment-response-support](https://studentaffairs.usc.edu/bias-assessment-response-support)

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](https://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Support and Advocacy - (213) 821-4710*

[studentaffairs.usc.edu/ssa](https://studentaffairs.usc.edu/ssa)

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

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](https://diversity.usc.edu)

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*

[dps.usc.edu](https://dps.usc.edu), [emergency.usc.edu](https://emergency.usc.edu)

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) 442-120 – 24/7 on call*  
[dps.usc.edu](https://dps.usc.edu)

Non-emergency assistance or information.