

ACAD 217 Designing Immersive Media

Units: 4

Spring 2022

Tuesdays & Thursdays - 5 to 7.50pm Pacific Time

Location: IYH 111

Instructors: Carsten Becker

Office: After Class, or via Zoom

Office Hours: Per Individual Request

Contact Info: Preferred communication channel is Slack

DM me in the **iya-becker.slack.com** workspace

For grades-related questions: carstenb@usc.edu

Allow up to 24 hours for replies to emails and messages.

Grader and/or Classroom Assistant/s: TBD

Office Hours (if applicable):

Contact Info:

IT Help:

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

Hours of Service: 8:30am - 6:30pm

IYA Contact Info: iya.helpdesk@usc.edu

*Experience is not what happens to you.
It is what you do with what happens to you.*

- Aldous Huxley

Course Description

Designing compelling experiences that effectively inspire audiences and entice interaction.

Students will be given tools and inspiration to foray into Augmented and Mixed Reality platforms to create in multimedia landscapes without bounds.

Key Learning Objectives

1. Understand the potential of immersive installs for new ways to experience the world, raise awareness, create or launch a product or service.
2. Acquisition of hands-on skills that allow students to build prototypes / sample scenes of experience.
3. Ability to ideate and successfully communicate all aspects of an immersive experiences (goal, audience appeal, feasibility, mechanics, user experience and impact).

Specific Skills to be Covered:

- Creation of visual assets (Adobe Creative Cloud, photography, 3d software)
- Understanding technical pipelines in XR production
- Intermediate use of tools for Augmented Reality, 360 Video, VR, and the Unity game engine
- Practicing a productive creative process
- Fulfill various roles in a production team and together strive for success
- Regularly exercise group crit
- Documenting the process and outcome of your projects (in the form of video)

Expectations

To master this course, a student will...

1. develop a solid understanding of XR: Augmented Reality, Virtual Reality, the tech that make these possible and the current status and success of these media forms.
2. acquire and demonstrate the software skills for building XR experiences. Employ various forms of immersive media to create adequate applications.
3. define purpose and alignment for the XR applications you build in relation to a product, business, or research you are pursuing.
4. create immersive experiences that engage an audience in discovery and compels them to act.

Prerequisites:

Previous knowledge of game engines or completion of ACAD 187 will be helpful (but not required).

Recommended Preparation:

- 1) Inform yourself about the latest in augmented reality, projection mapping, 360 video, and virtual reality.
- 2) Get a feel for the basic concepts of the Unity software, through guided tutorials (see Welcome email you received from me).

Nature of this Course

This is a fast-paced course which will immerse students in a range of media tools. Through lecture and practice, they will become the authors, designers, deployers and documentarians of media forms that create meaningful communications and user interaction. Assignments are based on narrative and interactive concepts that deepen and expand existing skills in media creation.

Student responsibilities: Students need to develop their project goals and execution on a base of research, thematic merit and relevance to their career goals. Furthermore, instructors expect everyone to take an active role in the success of the full group through discussion in the classroom, sharing of ideas, actively providing constructive feedback for your peers, observing your own learning process, and taking initiative in everyone's growth as media-savvy makers.

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Required Hardware/Software

Students must bring the following:

- **Laptop Computer** (not older than four years) with plenty of hard disk space and the following software:

Reality Composer via installing XCode (free, needs Apple ID to download), or equivalent

Shapr3d (free with edu license)

Unity (free with edu license)

iTunes or Google Play account to download free mobile apps

- Cloud Storage account (Google Drive, Dropbox, Microsoft OneDrive et.) for safely storing your project files

- Instructor recommends keeping up-to-date backups in the cloud and on an external hard drive as well

- For in-class instruction, **Headphones** to use with your laptop. Over-ear / closed type only (no ear buds) so you can listen without disturbing others. Some recommended models: Audio Technica ATH-M50x, Sony MDR-7506 or equivalent

Academy Equipment

When permitted by USC health regulations, we will utilize the Academy's Mixed Reality Lab and sound, video and lighting equipment to create audio and video content. You'll receive proper training in the use of the equipment so you can use these tools confidently in your labs and projects. There is a limited list of items that be checked out with your student ID. Equipment that is returned broken may lead to delays or restrictions in your subsequent check-out.

Recommended Readings and Supplementary Materials

Books:

"The History of the Future" by Blake J. Harris

"The VR Book: Human-Centered Design for Virtual Reality" by Jason Jerald

Instructor may publish additional recommended reading throughout the term as it relates to the individual areas of study and topics we touch upon.

Assessments and Assignments

Async Prompts recall or complete material from class. They might be reading assignments, completing a class exercise, or a preparation necessary to move ahead. Prompts are always due at the next meeting.

Tests recall technical knowledge that will be critical for your next Project.

Projects are highly weighted assignments that require research, ideation, creative design, and execution.

In Project 1, you'll create the concept and prototype of an Augmented Reality experience that engages users with a topic or activity in a new way.

For Project 2, develop and execute a real space/virtual space hybrid experience! Students choose between choreographing a real scene for a 360-degree video, or stage themselves as an avatar via motion capture.

Your Final in this course is a partner project in which you will ideate and design a meaningful immersive experience together. Concepts should be aimed at an industry, cause, topic of current interest, or multi-user collaboration. You will pitch goals, user journey and technical execution.

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Grading Breakdown

	Points	% of Grade
Participation ¹	100	12.5
Async Prompts ² (10)	120	15
Tests	120	15
Projects (3)	360	45
Final & Presentation	100	12.5
TOTAL	800	100

¹ Participation grade is not just attendance. To receive an 'A' in participation, you will frequently contribute to the discussion across all channels of the course: Classroom/Zoom, Mural, and Slack

² Examples: Engage & Reflect, installing an app, product review, charting your process in Mural

Grading Scale (Example)

Course final grades will be determined using the following scale

A	94-100
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Assignment Submission Policy

All labs, projects and assignments are due at the date and time specified in the syllabus. Projects that are more than 24 hours late will receive a 50% deduction in points. Projects that are more than 7 days late will receive 0 points. Be sure to check Blackboard if you have to miss a class. You are responsible for any materials presented and assignments made even if you are not in class that day.

Extensions

Each student may ask for an extension on one of her/his assignments during the term. Above Assignment Submission Policy strictly applies to the extension date given.

Grading Timeline

You will receive your score in async prompts, tests, projects and graded exercises within two weeks of submission.

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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 $\frac{1}{2}$ 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 2022 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

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Additional Policies

Should the needs of the class dictate, I reserve the right to modify the class schedule and assignments. Any substantive changes will be announced in class and posted in Blackboard and/or Slack.

HOW TO PURCHASE OPTIONAL SOFTWARE AT THE DISCOUNTED ACADEMY:

The following first year software are now available for purchase **online** through the USC Bookstore at the Academy discounted rate:

<https://commerce.cashnet.com/IOVINE>

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

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Class Schedule

Note: To accommodate changing instruction modalities and access to equipment, I reserve the right to alter the weekly topics and assignments.

	Topics and Discussions	Lab	Assignments (excluding Async Prompts – announced in class)
Week 1	<p>Introductions</p> <p>What is <i>immersive</i>?</p> <p>What constitutes an <i>experience</i>?</p> <p>Async: History of immersive visual technologies. Install AR software.</p>	<p>Getting to know activity.</p> <p>Definitions brainstorm</p> <p>First play with Augmented Reality (AR)</p>	
Week 2	<p>Augmented Reality: Location-based installs, augmented artworks + Collaborative AR Creation</p> <p>Async: USC AR/VR Working Group’s LA Chinatown AR Project</p>	<p>In-Class AR exploration: 3d orientation, Behaviors, Physics</p>	<p>Thurs: Project 1 Assigned (concept due on Tuesday)</p>
Week 3	<p>Sourcing design elements for AR:</p> <ul style="list-style-type: none"> a) 3d objects: Model Libraries, kit bashing, modeling your own b) UI elements 	<p>Welcome to Iovine & Young Hall (fingers crossed)</p> <p>Shapr3d</p> <p>Project 1 Lab time</p>	<p>Present your Project 1 Concept</p>
Week 4	<p>A Glimpse at expanding AR capabilities via Xcode + Walkthrough of a use case</p> <p>Async: Brillhart Keynote</p>	<p>Project 1 Lab time</p> <p>Simple Xcode Programming Exercise</p> <p>Scanning with LiDAR and Object Capture API</p>	<p>Due Tuesday: Project 1 Prototype</p> <p>Thurs: Knowledge Test 1: AR</p>
Week 5	<p>360 Video: Storytelling, scene components. Cue’ing user attention.</p> <p>Async: Install Unity w/Student Account + IDE</p>	<p>Use of a 360-degree video camera</p> <p>Exercising Spatial Thinking</p>	<p>Due Tuesday: Project 1 Final</p>
Week 6	<p>What is Unity? The power of game engines for immersive media and virtual film production.</p> <p>Async: Unity tutorials</p>	<p>Unity lab time: Scene Basics</p> <p>Working with a Mixamo Character inside Unity</p>	<p>Project 2 gets Assigned</p>
Week 7	<p>Avatars and second identities: Code Miko. Lil Miquela; et. Al.</p> <p>Async: Finish Unity Character Integration</p>	<p>Motion Capture Workshop in our Mixed Reality Studio (IYH Room 108)</p> <p>Project 2 Lab Time</p>	<p>Due Tuesday: Project 2 Concept</p>

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Week 8	The Importance of Flow, and how can we measure success of immersion?	Unity lab: 360 Space Creating a Skybox	Due Thursday: Project 2 Prototype Knowledge Test 2: 360 & Unity
Week 9	AR made in Unity Update on USC AR/VR Working Group's LA Chinatown AR Project w/guest	Project 2 Lab time	Due Thursday: Project 2 Final
Week 10	Signs of the Metaverse: Dreamwalker and Decentraland Latest experiences from SXSW 2022	Students and instructor collaborate in a virtual meeting place	Project 3 (Partner Project) Assigned
Week 11	Convergent Spaces: Where physical and digital room meets. We'll look at examples of Media Architecture.	Project 3 Lab time	Due: Project 3 Concept with full Outline
Week 12	XR startups grown at Iovine & Young: Mira, Playbook	Project 3 Lab time	Develop Project 3 Knowledge Test 3: VR
Week 13	VR Tools for Creatives: Demo(s) The Metaverse – Really?	Project 3 Lab time Deploy a 360-degree video of your Unity scene on YouTube	Due: Project 3 Prototype 1
Week 14	New forms of interactive storytelling	Project 3 Lab time	Due: Project 3 Prototype 2 and rough of supporting media
Week 15	Opportunities for immersive media creators: Oculus Launchpad, Snap Research Fellowship, Spark AR Creators, Unreal Engine Fellowship etc. (Last regular class is Thursday, April 28)	Test Runs of Final Presentation	Due Thursday: Project 3 Final, with Supporting media
Finals Week	Thursday, May 5 – 4.30m: FINAL (Project Presentation may be scheduled for another time pending space availability)	Essay & Presentations	

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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. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
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

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).
(wording from the site)

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, 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

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

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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/ssu

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

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, 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

Non-emergency assistance or information.