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/IYAShadowSitePages/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.
Grading Breakdown

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
<th>% of Grade</th>
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</thead>
<tbody>
<tr>
<td>Participation(^1)</td>
<td>100</td>
<td>12.5</td>
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<tr>
<td>Async Prompts(^2) (10)</td>
<td>120</td>
<td>15</td>
</tr>
<tr>
<td>Tests</td>
<td>120</td>
<td>15</td>
</tr>
<tr>
<td>Projects (3)</td>
<td>360</td>
<td>45</td>
</tr>
<tr>
<td>Final &amp; Presentation</td>
<td>100</td>
<td>12.5</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>800</td>
<td>100</td>
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</tbody>
</table>

\(^1\) 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.
**

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 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.
**

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](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](mailto:iya.helpdesk@usc.edu).
**Class Schedule**
Note: To accommodate changing instruction modalities and access to equipment, I reserve the right to alter the weekly topics and assignments.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics and Discussions</th>
<th>Lab</th>
<th>Assignments (excluding Async Prompts – announced in class)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Introductions</td>
<td>Getting to know activity.</td>
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<td></td>
<td>What is immersive?</td>
<td>Definitions brainstorm</td>
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<td>What constitutes an experience?</td>
<td>First play with Augmented Reality (AR)</td>
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<td></td>
<td>Async: History of immersive visual technologies. Install AR software. First AR scene (3)</td>
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<tr>
<td>Week 2</td>
<td>Augmented Reality: Location-based installs, augmented artworks + Collaborative AR Creation</td>
<td>In-Class AR exploration: 3d orientation, Behaviors, Physics</td>
<td>Thurs: Project 1 Assigned (concept due on Tuesday)</td>
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<td></td>
<td>Async: USC AR/VR Working Group’s LA Chinatown AR Project</td>
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<tr>
<td>Week 3</td>
<td>Sourcing design elements for AR:</td>
<td>Welcome to Iovine &amp; Young Hall (fingers crossed)</td>
<td>Present your Project 1 Concept</td>
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<td></td>
<td>a) 3d objects: Model Libraries, kit bashing, modeling your own b) UI elements</td>
<td>Shapr3d</td>
<td></td>
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<td>Project 1 Lab time</td>
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<td>Week 4</td>
<td>A Glimpse at expanding AR capabilities via Xcode + Walkthrough of a use case</td>
<td>Project 1 Lab time</td>
<td>Due Tuesday: Project 1 Prototype</td>
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<td>Async: Brillhart Keynote; 360 Playlist (2)</td>
<td>Simple Xcode Programming Exercise</td>
<td>Thurs: Knowledge Test 1: AR</td>
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<td>Scanning with LiDAR and Object Capture API</td>
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<td>Week 5</td>
<td>360 Video: Storytelling, scene components. Cue’ing user attention.</td>
<td>Use of a 360-degree video camera</td>
<td>Due Tuesday: Project 1 Final</td>
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<td></td>
<td>Async: Proof of Unity install w/Student Account + IDE; Carsten’s RLM watch &amp; reflect (2)</td>
<td>Exercising Spatial Thinking</td>
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<tr>
<td>Week 6</td>
<td>What is Unity? The power of game engines for immersive media and virtual film production.</td>
<td>Unity lab time: Scene Basics</td>
<td>Project 2 gets Assigned</td>
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<td></td>
<td>Async: Unity tutorials</td>
<td>Working with a Mixamo Character inside Unity</td>
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<tr>
<td>Week 7</td>
<td>Avatars and second identities: Code Miko. Lil Miquela; et. Al.</td>
<td>Motion Capture Workshop in our Mixed Reality Studio (IYH Room 108)</td>
<td>Due Tuesday: Project 2 Concept</td>
</tr>
<tr>
<td></td>
<td>Async: Unity tutorials</td>
<td>Project 2 Lab Time</td>
<td>Finish Unity Character Integration</td>
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<td><strong>Week 8</strong></td>
<td>The Importance of Flow, and how can we measure success of immersion?</td>
<td>Unity lab: Code Primer Creating a Skybox</td>
<td>Due Thursday: Project 2 Prototype Thurs: Knowledge Test 2: 360 &amp; Unity</td>
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<td><strong>Week 9</strong></td>
<td>AR tools in Unity Update on USC AR/VR Working Group’s LA Chinatown AR Project w/guest</td>
<td>Project 2 Lab time Unity lab: Choreographed movement</td>
<td>Due Thursday: Project 2 Final</td>
</tr>
<tr>
<td><strong>Week 10</strong></td>
<td>Virtual Reality. What entices. What annoys. Latest experiences from SXSW 2022</td>
<td>VR watching (in small batches), alternating with Project 3 Lab time (both days)</td>
<td>Project 3 (Partner Project) Assigned</td>
</tr>
<tr>
<td><strong>Week 11</strong></td>
<td>Convergent Spaces: Where physical and digital room meets. We’ll look at examples of Media Architecture.</td>
<td>Students and instructor collaborate in a virtual meeting place</td>
<td>Due: Project 3 Concept with full Outline</td>
</tr>
<tr>
<td><strong>Week 12</strong></td>
<td>XR startups grown at Iovine &amp; Young: Mira, Playbook</td>
<td>Project 3 Lab time</td>
<td>Develop Project 3 Knowledge Test 3: VR</td>
</tr>
<tr>
<td><strong>Week 13</strong></td>
<td>VR Tools for Creatives: Demo(s) Pointers to the Metaverse: Dreamwalker and Decentraland</td>
<td>Project 3 Lab time Deploy a 360-degree video of your Unity scene on YouTube</td>
<td>Due: Project 3 Prototype 1</td>
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<tr>
<td><strong>Week 14</strong></td>
<td>New forms of interactive storytelling</td>
<td>Project 3 Lab time</td>
<td>Due: Project 3 Prototype 2 and rough of supporting media</td>
</tr>
<tr>
<td><strong>Week 15</strong></td>
<td>Opportunities for immersive media creators: Oculus Launchpad, Snap Research Fellowship, Spark AR Creators, Unreal Engine Fellowship etc. (Last regular class is Thursday, April 28)</td>
<td>Test Runs of Final Presentation</td>
<td>Due Thursday: Project 3 Final, with Supporting media</td>
</tr>
<tr>
<td><strong>Finals Week</strong></td>
<td>Thursday, May 5 – 4.30m: FINAL (Project Presentation may be scheduled for another time pending space availability)</td>
<td>Essay &amp; Presentations</td>
<td></td>
</tr>
</tbody>
</table>

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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 engemannhc.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
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
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.