IML 454: Advanced Techniques of 3D Representation
Spring 2021 - 4.0 Units
Wednesday - 6pm-8:50pm
Working Syllabus - Subject to change

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Office Hours: TBA

COURSE DESCRIPTION
Advances in computer graphics and digital techniques have allowed incredible new possibilities for visualization and imagery, while making such potential more accessible to a wider population. This course looks further into the uses and foundations of 3-D digital imagery, combining project-based learning with historical and cultural context. The class will introduce students to a variety of subjects including interactive 3D environments, stereoscopy, hardware shaders, and Augmented Reality.

LEARNING OBJECTIVES
In addition to project-based assignments and technical instruction, students will be looking at prior art, experimental installations, critical texts, and the history of how the current idea of digital "3-Dimensional" imagery has evolved. Many of the assignments are to introduce alternative or less well-known methods of representing space and volume in a digital context.

COURSE STRUCTURE
The first part of the semester will cover an eclectic set of techniques involving 3D modeling and imagery, with several smaller assignments. The second part of the semester will have the students focus on a larger project, using what they have learned while encouraging them to expand their learning and focus.

TECHNOLOGICAL PROFICIENCY AND HARDWARE/SOFTWARE REQUIRED
IML354 is the official prerequisite for this course. Students with adequate experience in 3D modeling and animation can apply for D-Clearance. A variety of different software packages will be used, particularly Unity3D. Some assignments can be aided by programming in C# and Java, so experience in coding can be helpful.

SCHEDULE
Week 1 (1/20): Introductions, Overview
Assignment: Having looked through the syllabus and schedule, please email me with any notes, ideas, or particular interests you have for the class and the subjects covered.
Lab: Processing.org

Week 2 (1/27): Stereography/Stereoscopy, the Original "3D"
Assignment: Present 6 Stereographic images, or 1 short (less than 1 minute) animation. You can try a variety of techniques from those discussed in class.
Lab: Unity3D, basics

Week 3-4 (2/3 and 2/10): Data-driven 3D, Terrains
Assignment: Grab a section of real-world terrain from the US Geological Survey and do something with it!

Week 5-6 (2/17 and 2/24): Shaders and Materials
Assignment: Use or create a 3D space that takes advantage of real-time shaders and materials. Outline how a given shader changes the 3D scene

Week 7-8 (3/3 and 3/10): Scanning, Photogrammetry
Assignment: Scan 3 different objects in your immediate surroundings. Compare the scan to a photograph of the same object. We might be using these assets for a future assignment...

Week 9-10 (3/17 and 3/24): Projection mapping and "Prototyping" an installation space
Assignment: Present a project mapped installation using Unity3D [+other software] that we can look around in remotely. You can try, for instance, to project onto an object you scanned in the last assignment.

Week 11-12 (3/31 and 4/14): Augmented Reality, Part 1, Vuforia, ARKit/ARCore, etc.
Assignment: Decorate your room with some virtual objects
Assignment: Final Project. This has a lot of leeway, but combining topics you've learned from the class, put together an experience or installation, keeping in mind we'll be viewing it remotely.

NOTE: 4/7 is a wellness day with no classes

Week 13-14 (4/21-4/28): Augmented Reality, Part 2, Final Projects
Progress checks for final project, discussions.

PARTICIPATION POLICY
MA+P classes often depend on group work and in-class critique, which makes participation crucial. You are expected to participate in every scheduled class session. This might be through in-person attendance, virtual attendance, or asynchronous viewing of class recordings and subsequent feedback/discussion. If you must miss a class, please be sure to get any notes and assignments from a classmate so you do not fall behind.

For students attending class virtually in Zoom, please log in using your USC-enabled Zoom account for security purposes. It is also recommended that you keep your camera turned on so you can better interact with the class and participate in class activities.

If you feel that you are unable to participate in the ways listed above, please speak to your professor. Accommodations may be made for certain situations.

GRADING SCALE

Course final grades will be determined using the following scale:

A   95-100
A-   90-94
B+   87-89
B   83-86
B-   80-82
C+   77-79
C   73-76   MINIMUM PASSING GRADE FOR MEDIA ARTS + PRACTICE MAJORS
C-   70-72
D+   67-69
D   63-66
D-   60-62   MINIMUM PASSING GRADE FOR USC
F   59 and below

ACADEMIC POLICIES

SCA Diversity and Inclusion Statement:
Diversity and Inclusion are foundational to the SCA community. We are committed to fostering a welcoming and supportive environment where students of all identities and backgrounds can flourish. The classroom should be a space for open discussion of ideas and self- expression; however, SCA will not tolerate verbal or written abuse, threats, harassment, intimidation or violence against person or property. If students are concerned about these matters in the classroom setting they are encouraged to contact their SCA Diversity and Inclusion Liaison, http://cinema.usc.edu/about/diversity.cfm; e-mail diversity@cinema.usc.edu. You can also report discrimination based on a protected class here https://equity.usc.edu/harassment-or-discrimination/

Course Content:
The required materials (readings, screenings, etc.) that are used in this course may, at times, depict or address potentially sensitive subject matter. Our discussions in class may also include these topics. The selection and presentation of these materials do not amount to an endorsement of the ideas expressed in them. If you have personal concerns about any of these materials, please discuss them with your professor so they may arrange appropriate alternatives if needed.

Disruptive Student Behavior:
Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

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" 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, http://policy.usc.edu/scientific-misconduct.

Statement on Fair Use:
Fair use is a legal principle that defines certain limitations on the exclusive rights of copyright holders. MA+P projects are produced with fair use doctrines in mind using its four pillars: (1) the purpose and character of use, (2) the nature of the copyrighted work, (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole, and (4) the effect of the use upon the potential market for or value of the copyrighted work. Generally speaking, this means you must only use as much of a copyrighted work as is necessary to make your point, and you must cite your sources accordingly.

Citation Guidelines:
We assert that work produced in our classes is covered under the Doctrine of Fair Use. In order to make this claim, however, all projects must include academically appropriate citations in the form of a References section, which covers all sources, in order to receive a passing grade. The References section is either included in the project itself or as a separate document, as appropriate. For citation

purposes, we follow *Kairos Journal of Rhetoric,Technology and Pedagogy* style guide; Kairos uses APA format, which is slightly modified and whose general guidelines and specific examples may be found here: http://kairos.technorhetoric.net/styleguide.html#apa

Computer Code:
Computer code is often shared and reused. This is appropriate in a MA+P course unless otherwise directed by the assignment. If you do use code, you should attribute it. Please follow these protocols from MIT which call for placing a comment in one's code with a URL to the original source, a note if it was adapted, and the date of retrieval: https://integrity.mit.edu/handbook/writing-code

Research:
Need to do research but don't know where to start? Searching for a book, article, or data to support your argument? Not sure how to cite a source in your bibliography? Ask a librarian!
Research help is available:
- In person and by phone, chat and email at Ask a Librarian
- Through research guides and FAQs
- By contacting your subject librarian
USC Libraries: https://libraries.usc.edu/

Zoom Safety and Etiquette
"Netiquette" or "internet etiquette," describes the recommended communication and behavior of online communication. Having a Zoom netiquette policy for your course can help minimize the chances of miscommunication and perceived disrespect. This CET resource provides possibilities for what to include in your course policy.

It is also recommended that you encourage students to contact you with questions or concerns about complying with a policy. For instance, if a student is unable to keep their camera on during the synchronous Zoom session, encourage them to contact you prior to the class session to discuss expectations and accommodations needed.

For the safety of the classroom environment, students must login to Zoom through their USC account. https://usc.zoom.us

Synchronous session recording notice
Synchronous sessions will be recorded and provided to all students asynchronously. Information for faculty on recording class sessions can be found on the Academic FAQs for Faculty on the USC COVID-19 Resource Center.

Sharing of course materials outside of the learning environment
The sharing of any synchronous and asynchronous course content outside of the learning environment is prohibited and against USC university policy.

SCampus Section 11.12(B)

Distribution or use of notes or recordings based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study is a violation of the USC Student Conduct Code. This includes, but is not limited to, providing materials for distribution by services publishing class notes. 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. (SeeSection C.1 Class Notes Policy).

COVID-19 Information for Students Coming to Campus
USC has COVID-19 and health protocols requirements for students who will be coming to campus.

Please consult the USC COVID-19 resource center website for the latest COVID-19 testing and health protocol requirements. Requirements are continuously updated so please check frequently.

Students should also stay informed with the "We Are USC" portal:
https://we-are.usc.edu/students/

Students are also expected to follow the University's Expectations on Student Behavior.

PLEASE NOTE:
FOOD AND DRINKS (OTHER THAN WATER) ARE NOT PERMITTED IN ANY INSTRUCTIONAL SPACES IN THE SCHOOL OF CINEMATIC ARTS COMPLEX

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

Student Health Leave Coordinator – 213-821-4710
https://policy.usc.edu/student-health-leave-absence/
Located in the USC Support and Advocacy office, the Health Leave Coordinator processes requests for health leaves of absence and advocates for students taking such leaves when needed.
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 and Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

USC Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu
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. 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. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

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

usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, 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 Campus Support & Intervention - (213) 821-4710
campussupport.usc.edu
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) 442-1200 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
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.