

## **CTAN502 Experiments in Immersive Design**

17916D Spring 2018, 2 units

**Instructor :** Eric Hanson, [hanson@usc.edu](mailto:hanson@usc.edu) 310.962.7261 cell  
Class meets Thursdays 9-11:50a, RZC117  
Lab meets Tuesdays 9-12:50p, RZC117  
Office hours Wednesdays 1-4p and Thursdays 1-4p, SCB 210P

**Student Assistants:** Mario Sotelo (lecture), [soteloghe@usc.edu](mailto:soteloghe@usc.edu), Jenn Fortnash (lab), [fortnash@usc.edu](mailto:fortnash@usc.edu)

### **Course Description:**

An in-depth exploration of aesthetics and techniques involved in the conceptualization, design and creation of immersive media and stereoscopic imaging. Review of techniques and aesthetic issues pertinent to immersive virtual reality and stereoscopic animation. Students create short projects utilizing emerging media formats: 3D IMAX cinema, Fulldome cinema, cinematic Virtual Reality.

No pre-requisites, but prior knowledge of Adobe After Effects and Autodesk Maya helpful.

### **Course Requirements and Grades:**

- Completion of 2 projects: [70%] (2) 15 to 60 second shorts, any media in 2 formats to be discussed. Unfinished works-in-progress will be considered incomplete. Originality, creativity, and quality of project expected.
- Final exam, multiple-choice, from lecture notes: [30%]

### **Course Length:**

15 weeks, meeting once a week, three hours each class meeting, optional 3 hr lab.

### **Books Recommended:**

“3D Storytelling”, Bruce Block, Phillip McNally, Focal Press, 2013 (\$35)

“Exploring 3D: The New Grammar of Stereoscopic Filmmaking”, Adrian Pennington, Focal Press, 2012 (\$30)

“Think in 3D: Food For Thought for Directors, Cinematographers, and Stereographers”, Clyde Dsouza, 2012 (\$22)

“The VES Handbook of Visual Effects”, Jeffery Okun, Susan Zwerman, Focal Press, 2010, (\$60)

### **Syllabus:**

#### **Week 1 Jan 11 CLASS INTRO**

Lecture: Intro to class, discussion of project structure and approaches, USC production protocol. Introduction to stereoscopy.

Assignment: Project 1 ideation, shoot stereo image set on cellphone.

- Review of class and project structure
- History of stereoscopy
- Extending storytelling opportunities in stereo
- Pitfalls in use of stereo
- Examples/ breakdowns

Week 2 Jan 18 **FUNDAMENTALS OF STEREO SCOPY**

Lecture: Critique of ideation, review of stereoscopy concepts.

Assignment: Storyboard project 1- IMAX cinema.

- Interocular distance
- Zero parallax plane
- Depth budget
- Viewing methods
- Software demonstrations

Week 3 Jan 25 **SHOOTING FOR STEREO TIMELAPSE**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Begin shooting.

- Timelapse, stereo overview
- Lensing concerns
- Review of cameras utilized
- Stereo previewing in field
- DSLR timelapse review

Week 4 Feb 1 **POST-PRODUCTION OF STEREO TIMELAPSE**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Post-production work on timelapse.

- Raw conversion using Bridge
- Digital file formats
- Stereo adjustment with Stereo PhotoMaker
- Stereo previewing tools
- Conforming and finishing in AfterEffects

**FIELD TRIP (OPTIONAL) Sat Jan 27**

Week 5 Feb 8 **FUNDAMENTALS OF GIANT SCREEN PRODUCTION (Meet in SCA IMAX)**

Lecture: Review of digital tools, technique, pipelines

Assignment: Shooting Tests.

- Introduction to SCA IMAX theatre
- Large screen differences from cinema
- Film vs digital shift in giant screen
- Production demands of giant screen
- Screening of Imax clips

Week 6 Feb 15 **POST-PRODUCTION OF STEREO TIMELAPSE** Lecture:

Assignment: Post-production work on timelapse.

- Continue production of timelapse post

Week 7 Feb 22 **TIMELAPSE DEADLINE + REVIEW (Meet in SCA IMAX), FUNDAMENTALS OF FULL-DOME CINEMA**

Lecture: review of completed shorts, intro to fulldome

- Introduction to Vortex Immersion theatre
- Fulldome differences from flat cinema
- Principles of immersion
- Review of theatre installations, dome culture
- Previewing tools

Week 8 Mar 1 **POST-PRODUCTION OF FULLDOME CINEMA**

Lecture: Review of digital tools, technique, pipelines, assist students.

Assignment: Begin shooting and/ or production.

- Fulldome differences from post in cinema
- Digital file formats
- Software review
- Stereo previewing tools
- Conforming and finishing

Week 9 Mar 8 **FUNDAMENTALS OF VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Project 3 ideation- VR content.

- Introduction to VR
- VR differences from flat cinema
- Principles of immersive storytelling
- Review of HMD hardware, VR culture

**SPRING BREAK Mar 12-16- NO CLASS**

Week 10 Mar 22 **SHOOTING FOR VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Storyboard project 3- VR.

- VR shooting differences from cinema
- CGI vs live-action limitations
- Review of cameras, software utilized
- Stereo challenges

Week 11 Mar 29 **POST-PRODUCTION OF VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines, assist students.

Assignment: Begin digital production of VR project.

- VR post-production differences from cinema
- Review of authoring applications
- Review of cameras utilized

**Week 12 Mar 29 POST-PRODUCTION OF VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines, assist students.

Assignment: Continue digital production of VR project.

- Assisting students in production

**Week 13 Apr 5 POST-PRODUCTION OF VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines, assist students.

Assignment: Continue digital production of VR project.

- Assisting students in production

**Week 14 Apr 19 POST-PRODUCTION OF VIRTUAL REALITY**

Lecture: Review of digital tools, technique, pipelines, assist students.

Assignment: Continue digital production of VR project.

- Assisting students in production

**Week 15 Apr 26 LAST CLASS MEETING, REVIEW**

Lecture: Wrap up.

Assignment: Finalize VR short for final submission.

- Review, critique of finished VR content
- Future directions for immersive media

*Study Days: Saturday Apr 28 – Tuesday, May 1*

**Tues May 8 FINAL EXAM 8-10am, VR SHORT DEADLINE**

## **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” <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>.

**Support Systems:**

*Student Counseling Services (SCS)* - [\(213\) 740-7711](tel:2137407711) – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling/>

*National Suicide Prevention Lifeline* - [1-800-273-8255](tel:18002738255)

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

*Relationship and Sexual Violence Prevention Services (RSVP)* - [\(213\) 740-4900](tel:2137404900) - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

*Sexual Assault Resource Center*

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

*Office of Equity and Diversity (OED)/Title IX Compliance* – [\(213\) 740-5086](tel:2137405086)

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

*Bias Assessment Response and Support*

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

*The Office of Disability Services and Programs*

Provides certification for students with disabilities and helps arrange relevant accommodations. <http://dsp.usc.edu>

*Student Support and Advocacy* – [\(213\) 821-4710](tel:2138214710)

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

*Diversity at USC*

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

*USC Emergency Information*

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

*USC Department of Public Safety* – [213-740-4321](tel:2137404321) (UPC) and [323-442-1000](tel:3234421000) (HSC) for 24-hour emergency assistance or to report a crime.

Provides overall safety to USC community. <http://dps.usc.edu>

**PLEASE NOTE:**

**FOOD AND DRINKS (OTHER THAN WATER) ARE NOT PERMITTED IN ANY INSTRUCTIONAL SPACES IN THE CINEMATIC ARTS COMPLEX**