

CTAN502 Experiments in Immersive Design

17916D Spring 2017, 2 units

Instructor : Eric Hanson, hanson@usc.edu 310.962.7261 cell
Class meets Thursdays 9-11:50a, SCB102
Lab meets Tuesdays 9-12:50p, SCB102
Office hours Wednesdays and Thursdays 1-4p, SCB 210P

Student Assistant: David Nessler, nessl@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: 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 12 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 19 **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 26 **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 4 Feb 2 **SHOOTING FOR STEREO TIMELAPSE, GIANT SCREEN PRODUCTION**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Begin shooting.

- Giant screen shooting differences from cinema
- Lensing concerns
- Review of cameras utilized
- Stereo previewing in field
- DSLR timelapse review

FIELD TRIP (OPTIONAL) Sat/Sun Feb 4!

Week 5 Feb 9 **POST-PRODUCTION OF STEREO TIMELAPSE**

Lecture: Review of digital tools, technique, pipelines.

Assignment: Post-production work on timelapse.

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

Week 6 Feb 16 **POST-PRODUCTION OF STEREO TIMELAPSE** Lecture:

Assignment: Post-production work on timelapse.

- Continue production of timelapse post

Week 7 Feb 23 **TIMELAPSE DEADLINE + REVIEW, FUNDAMENTALS OF FULLDOME CINEMA (Meet in SCA IMAX)**

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 2 **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 9 **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

Mar 14 **NO CLASS- SPRING BREAK**

Week 10 Mar 23 **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 30 **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 Apr 6 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 13 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. 20 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 27 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 April 29 – Tuesday, May 2

Tues May 9 FINAL EXAM 8-10a, 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 Section 11, *Behavior Violating University Standards*<https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. 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/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity*<http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men*<http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute*<http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs*http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

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.

PLEASE NOTE:

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