CTAN502A Experiments in Immersive Design
Spring 2016, 2 units

Instructor :   Eric Hanson, hanson@usc.edu 310.962.7261 cell
Class meets Tuesdays 9-11:50a, SCB102
Office hours Mon 9am-noon, Tues 1-4pm, SCB210P

Student Assistant: TBD

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 (3) short projects utilizing 3 emerging media formats: 5 weeks in IMAX cinema, 5 weeks in Fulldome cinema, 5 weeks in Virtual Reality.

No pre-requisites, but prior knowledge of Adobe AfterEffects and Autodesk Maya helpful for preparation.

Course Requirements and Grades:

- Completion of 3 projects: [60%] (3) 15 to 60 second shorts, any media in 3 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%]
- Attendance: [10%]

Course Length:

15 weeks, meeting once a week, three hours each class meeting.

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 STEREOSCOPY**
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**
Lecture: Review of digital tools, technique, pipelines (Meet in SCA IMAX Theatre).
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 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

Week 5   Feb. 9 **POST-PRODUCTION OF GIANT SCREEN PRODUCTION**
Lecture: Review of digital tools, technique, pipelines.
Assignment: Post-production work on IMAX short.

- 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 GIANT SCREEN PRODUCTION**
Lecture: Review of completed shorts (Meet in SCA IMAX Theatre).
Assignment: Watch fulldome film at Griffith Planetarium.

- Review, critique of finished shorts
- Introduction to Fulldome cinema

Week 7   Feb. 23   **FUNDAMENTALS OF FULLDOME CINEMA**
Lecture: Introduction to Fulldome cinema (Meet at Vortex Immersion).
Assignment: Project 2 ideation- 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   **SHOOTING FOR FULLDOME CINEMA**
Lecture: Review of digital tools, technique, pipelines.
Assignment: Storyboard project 2- Fulldome.

- Fulldome shooting differences from cinema
- CGI vs live-action limitations
- Review of cameras utilized
- 8mm/ DSLR timelapse review
- Relation to VR format

Week 9   Mar. 8   **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

Mar. 15   **NO CLASS- SPRING BREAK**
Assignment: Continue on fulldome short production

Week 10   Mar. 22   **POST-PRODUCTION OF FULLDOME CINEMA**
Lecture: Review of completed Fulldome shorts (Meet in Vortex Immersion Theatre).
Assignment: Readings on rise of VR.

- Review, critique of finished fulldome shorts
- Introduction to rise of virtual reality

Week 11   Mar. 29   **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

Week 12   Apr. 5 **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 13   Apr. 12 **POST-PRODUCTION OF VIRTUAL REALITY**
Lecture: Review of digital tools, technique, pipelines, assist students.
Assignment: Begin digital production of project 3- VR.

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

Week 14   Apr. 19 **POST-PRODUCTION OF VIRTUAL REALITY**
Lecture: Review of digital tools, technique, pipelines, assist students.
Assignment: Continue digital production of project 3- VR.

- Assisting students in production

Week 15   Apr. 26 **LAST CLASS MEETING, REVIEW**
Lecture: Wrap up, guest speaker.
Assignment: Finalize all 3 shorts for final submission.

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

Tues May 10 **FINAL EXAM 8-10am**

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 Standardshttps://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

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.htmlprovides 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

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.