CTAN504L Creative Production in Virtual Reality
Fall 2017, 2 units
Pre-req CTAN-502L

Instructor: Eric Hanson, hanson@usc.edu
Class meets Tuesdays 1-3:50p RZC117
Lab meets Fridays 10-12:50p RZC117
Office hours Tuesdays 9-noon & Wednesdays 1-4p, SCB 210P

Student Assistant: TBD

Course Description:
A creative VR studio course exploring the intersection of linear cinematic film and realtime immersive experience. Techniques employed will cover live-action capture with the Jaunt VR camera, animated graphic work utilizing Autodesk Maya, and realtime immersive narrative utilizing Unity and tethered headset. Projects will be done in team format. Intent of the class is to advance the art and creative expression in the emerging field of virtual reality.

Prior knowledge of Adobe After Effects, Autodesk Maya, and Unity helpful for preparation.

Course Requirements and Grades:
- Completion of 2 projects:
  1. Completed 2 minute linear cinematic VR film, [30%]
  2. Interactive roomscale media experience with integration of elements of linear film, [40%].

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 and three hours lab.

Books Recommended:
“The Filmmaker’s Eye: Learning Cinematic Composition”, Gustavo Mercado, Focal Press, 2010
“3D Storytelling”, Bruce Block, Phillip McNally, Focal Press, 2013

Syllabus:
Week 1 Aug 22 CLASS INTRO
Lecture: Intro to class, discussion of project structure and approaches, USC production protocol. Introduction to current state of virtual reality field.
Lab Assignment: Project ideation, gestalt images.
• Review of class and project structure
• History of immersion and virtual reality
• Current expansion of field
• Storytelling opportunities per media
• Examples/ breakdowns

Week 2  Aug 29  FUNDAMENTALS OF IMMERSIVE MEDIA
Lecture: Review of imagery, key concepts of immersion.
Lab Assignment: Project ideation.

• Physiology of immersion
• Agency versus passivity
• Methods of immersion
• Methods of interaction
• Future trends

Week 3  Sept 5  NARRATIVE IN CINEMATIC VIRTUAL REALITY
Lecture: Review of cinematic storytelling.
Lab Assignment: Create storyboard.

• Traditional linear storytelling structures
• Branching story
• Directed story
• Participant or observer
• Finding balance

Week 4  Sept 12  CINEMATIC VIRTUAL REALITY PRODUCTION
Lecture: Review of digital tools, technique, pipelines.
Lab Assignment: Begin shooting.

• Differences from conventional live action
• Impact on talent, crew
• Team structure, roles
• Digital tools in production, post, and distribution
• Production pipelines

FIELD TRIP (OPTIONAL) Sat/Sun Sept 16-17

Week 5  Sept 19  SHOOTING FOR CINEMATIC VIRTUAL REALITY
Lecture: Review of cameras, support, post processing.
Lab Assignment: Post-production of sample shot.

• Cameras for VR
• Digital file formats
• Software review
• Stereo previewing tools
• Conforming and finishing
Week 6  Sept 26  **ANIMATION AND CGI FOR VIRTUAL REALITY**  
Lecture: Review of completed shot, animation methods.  
*Lab Assignment: Test shot using Adobe AfterEffects and Mettle Skybox.*

- Review, critique of finished test shots  
- Methods of assembled shot construction  
- Autodesk Maya and 3d animation  
- Panoramic imagery  
- Use of Adobe AfterEffects and Mettle Skybox

Week 7  Oct 3  **POST-PRODUCTION OF CINEMATIC VIRTUAL REALITY**  
Lecture: Introduction to editing and audio for VR.  
*Lab Assignment: Create test edit of sample footage.*

- Editorial differences in creativity  
- Technical editorial differences  
- Use of Adobe Premiere VR toolset  
- VR players and headset review  
- Ambisonic audio capture

Week 8  Oct 10  **FUNDAMENTALS OF REALTIME MEDIA**  
First project, 2min cinematic film due.  
Lecture: Review of digital tools, technique, pipelines.  
*Lab Assignment: Ideation of realtime project.*

- Realtime versus cinematic VR  
- Realtime engine tech review  
- Roomscale experiences  
- Review of user interaction  
- Use of photogrametry

Week 9  Oct 17  **MODELING FOR REALTIME MEDIA**  
Lecture: Review of ideation.  
*Lab Assignment: Creation of basic modeling.*

- Review of modeling options for Unity engine  
- Basic Autodesk Maya  
- Pre-built model options  
- Optimization technique

Week 10  Oct 24  **INTERACTION AND UI FOR REALTIME MEDIA**  
Lecture: Review of modeling.  
*Lab Assignment: Add interaction to modeling.*
- Review of user interface issues
- Use of graphics
- Interaction versus narrative
- Review of controller options

Week 11  Oct 31  **AUTHORING FOR REALTIME MEDIA**  
Lecture: Review of UI and interaction.  
*Lab Assignment: Compile for various output.*

- Review of output options
- Dependency issues
- Distribution and platforms

Week 12  Nov 7  **PRODUCTION OF FINAL PROJECT**  
Lecture: Review of output, assist students.  
*Lab Assignment: Continue final digital production of project.*

- Assist students with individual projects

Week 13  Nov 14  **PRODUCTION OF FINAL PROJECT**  
Lecture: Review of progress, assist students.  
*Lab Assignment: Continue final digital production of project.*

- Guest speaker
- Assist students with individual projects

Week 14  Nov 21  **PRODUCTION OF FINAL PROJECT**  
Lecture: Review of progress, assist students.  
*Lab Assignment: Continue final digital production of project.*

- Assist students with individual projects

Week 15  Nov 28  **LAST CLASS MEETING, REVIEW**  
Lecture: Wrap up, guest speaker.  
*Lab Assignment: Finalize final digital production of project.*

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

*Study Days: Saturday Dec 2 – Tuesday, Dec 5*

Finals Week: **FINAL EXAM  Thurs Dec 11, 11-1p, FINAL PROJECT DUE (INTERACTIVE)**
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 Diversityhttp://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 Institutehttp://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programshttp://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