



School of Engineering

ENG 254: Immersive Storytelling For Innovators and Makers

Units: 2

Instructor: Daniel Druhora, MFA (druhora@usc.edu)

Meeting times: 100 minutes once per week

Office Hours: Fridays 1:00 pm – 2:00 pm

Catalogue Course Description

Creating and leveraging immersive stories that shape the process of engineering innovation and push the bounds of empathy in solving global grand challenges.

Expanded Course Description

We've been telling stories for centuries whether through great novels, plays, movies and games. However, as the technology and distribution platforms evolve and transform the way humans create, share and experience stories, product designers, engineers, scientists and leaders of innovation are utilizing time-tested principles and new methods of digital, immersive storytelling to shape the innovation process from ideation to product launch.

Stories are the currency of human connection. They cut across cultural, social and linguistic barriers. Successful innovators and engineers at Apple, SpaceX, Pixar, IBM, Google and Amazon have used storytelling to shape the creation and dissemination of their revolutionary products. It isn't just in the pitch, the 60-second commercial or in the product launch. Storytelling is a fundamental part of the process from idea to prototype to MVP to global rollout. They understand that products need stories if they are to be understood, financed and validated by hundreds of millions of users. That's why today engineers that run the innovation labs of these companies are also asking themselves: "what is the story we're trying to tell with this solution or product?" Likewise, in our information-loaded world, storytelling is being rediscovered as an effective tool for helping us make sense of the constant data barrage that drives our decision-making process. "Data without story is like a palette without a painting," said Louis Richardson the Chief Storyteller for IBM. Stories reveal the reasons behind the numbers. They provide insight and understanding that cannot be directly observed or quantified, giving richer context to engineering and problem-solving endeavors. As such, stories not only hold the power to

inform and transform innovation; they take us on a journey that changes how we think, feel, act and make decisions.

While courses on storytelling taught at USC Cinema and USC Annenberg are designed for students who wish to pursue storytelling as means of communication, self-expression or artistic creation, this medium-agnostic course differentiates itself by: 1) approaching storytelling through the lens of engineering innovation and design, particularly for solving global challenges; 2) instilling principles of immersion regardless of format or medium; 3) exploring how storytelling drives empathy in the entire innovation process; and 4) merging immersive storytelling with user-centered design and systems thinking in solving global challenges.

Via interactive workshops and student-led projects, we will explore what makes a story relevant and impactful. How can engineers, technologists, scientists and innovators utilize digital storytelling to inform and transform the innovation process? What does it mean for an experience or story to be immersive? How can we craft authentic narratives that stimulate interaction and generate empathy? How can we integrate user centered design with visual and auidial immersion? How do we, as innovators, effectively utilize stories within a qualitative research framework?

Students in the course are trained to view storytelling as a tool in understanding and communicating global grand challenges and solutions. They learn how to collect and present user narratives in a way that brings the world's most pressing challenges closer to engineers, innovators and global citizens, pushing the bounds of empathy. The projects you will create are meant to lift the veil off of global challenges, giving you a deeper understanding of the everyday realities of people affected by these challenges.

It also approaches the concept of story from a systems perspective – story as a catalyst in a web of systems. When used effectively, story helps us make sense of those systems. Your final projects are expected to display an understanding of the dynamic, complex systems at play in the problem space you are exploring and places where human innovation can intervene in those systems to affect change.

Learning Outcomes

This course dives into emerging and dynamic storytelling landscapes that are actively transforming the way we create and share stories. As such, a first requirement for this course is an open mind that isn't trapped by rigid rules or assumptions, but agile at adopting and testing principles that cut across mediums. In this course, you will:

- Master a framework that will help you hone your storytelling abilities.
- Develop methods to systematically and ethically collect user stories as narrative data that inform engineering innovation and problem-solving.
- Experiment with a variety of mediums: 360 video, VR/AR, writing, audio, photography, illustration, performance, art installation, etc.

- Learn how to produce results from multidisciplinary teams working to complete a creative project under heavy constraints.
- Gain multimedia competency by producing transmedia projects.
- Discover how storytelling shapes human behavior and influences the engineering innovation process.
- Understand story development workflows how these can be integrated into engineering and product design.
- Learn to incorporate narrative and storytelling into systems thinking.
- Build the skills and self-confidence to deliver impactful pitches and presentations.
- Explore strategies for creating and implementing story-powered branding.
- Cultivate a keen sense of ethics, trust and authenticity in a media landscape marked by misinformation.

Topics Covered

- Core principles and practice of story structure and design
- Developing a visual language as an engineer or innovator
- Thinking in 2D versus 3D
- Previsualizing and storyboarding for product designers
- 360 Video
- Neuroscience of emotion
- Transmedia
- Database narratives
- Ethnographic and documentary storytelling: how to utilize participatory storytelling in user-centered research and engineering design
- Interviewing techniques
- The value of narrative inquiry in user research
- Storytelling and systems thinking
- The role of the engineer / scientist / innovator as storyteller
- Narrative ethics (trusted stories for trusted engineering solutions)
- Culture and perspective-taking
- Narratives of immersion: from storytelling to storyliving
- Crafting the successful product pitch
- Designing stories for interactivity and
- Distribution platforms
- Creating an origin story and a share of mind of a product brand
- How story takes on a social life

Teaching Methods

A combination of lectures, workshops, hands on training, team projects, fieldwork, experiments with new immersive storytelling tools and techniques, discussions and guest lectures. Additional out of class time required for directed learning, course assignments and reviewing relevant material.

Class Communication

Slack, Trello, Zoom and Miro will be used to communicate with the class (individuals and teams), to submit assignments and to track progress.

Required Software

We will use various software solutions in this course. Below is a list of solutions and instructions for downloading them. All of the following software is *free* for students.

Trello (project management tool)	https://trello.com/dandruhora/boards
Otter.ai (transcribing)	https://otter.ai
Studio Binder (production workflow)	https://www.studiobinder.com
Qualtrics (surveys)	https://itservices.usc.edu/qualtrics/
Miro (visual 2D collaboration, concept mapping)	https://miro.com
DaVinci Resolve (video editing, color, effects)	https://www.blackmagicdesign.com/uk/products/davinciresolve/
Audacity (audio editing)	https://www.audacityteam.org

Required Hardware

- Smartphone
- Access to a newer laptop or desktop computer.
- Google Cardboard kit (approx. \$20). See a list of viewers compatible with your phone here: google.com/get/cardboard/

*All other equipment such as 360 camera / audio recorder will be provided by the instructor with a class rental policy. Any other equipment that you want to purchase or rent outside of what's available in the course will require advance instructor approval.

Assignments

Learning in the course relies heavily on project-based assignments. There is only one required textbook: [“Digital Storytelling: A Creator’s Guide To Interactive Entertainment”](#) by Carolyn Handler Miller. It covers most of the topics in the lectures and discussions and will be often referenced in class. Recommended readings / watching / experiencing are encouraged but not required.

Assignment 1 (Solo fictional product script: “creating the product that never was”):

Each student will write a short story (5-7 pages) about a fictional product or an engineering solution that currently does not exist in the world. The prose and dialogue must demonstrate how the product is to be used by a person or a wider community. The goal of this exercise is to understand the story ideation process and to allow you the creative freedom to explore blue sky ideas with only imagination, ink and paper as a limit. Volunteers will be asked to read their stories in class.

Assignment 2 MIDTERM (Rough Team Story Presentation): At the beginning of the semester, students will be paired into groups of three to four and tasked with creating a multimedia / immersive story / experience that explores the creation of a product or a solution that addresses a global challenge from the list of one of the 14 Global Grand Challenges for Engineering put forth by the National Academy of Engineering. The story must showcase one of the 14 Global Grand Challenges for Engineering and a potential solution (physical, digital, process or service) that can directly address the challenge. The final story / experience will be presented at the end of the semester. The result will be a novel product or solution that “solves” a global challenge, created solely through storytelling. This project is platform agnostic, meaning that your team can choose from a variety of platforms. Here are some options:

- A) *Short video:* (2D or 360 video) between 3 - 5 mins running time (rough concept can be 5 – 7 mins in length).
- B) *An audio story:* between 5 -12 mins running time (rough concept can be shorter, but no longer than 15 mins).
- C) *A short animation or explainer* using stop motion or graphics: 3 mins max (rough concept can be shorter or longer and can be storyboards and sketches)
- D) *Series of illustrations or comic book panels:* 13 – 15 fully finished panels.
- E) *Photo essay:* 20 – 30 photographs (Midterm should be at least 15 unedited photos presented as a slideshow). The final photo essay can be presented as a webpage or printed / physical installation.
- F) *Interactive website:* 7 to 10 pages with at least 5 interactive elements (for the rough version you may present a mock-up and at least 2 early phase interactive elements).
- G) *Blog:* consisting of a minimum of 15 written entries and at least one visual element (photo, illustration or graphic with each entry). The Midterm consists of at least 5 blog entries.
- H) *Data visualization:* 3 different data visualization concepts that tell the story of a particular data set. (Present up to 6 concepts as a rough concepts / sketches at Midterm).

Any other option will need to be approved by the instructor in advance.

Assignment 3 (Solo user-participatory exercise): Each student is required to conduct one field narrative gathering exercise using audio, video or photography. Students will choose one potential user of the product / solution in their team story project as the subject of their solo narrative exercise. This is a user-participatory exercise, meaning that the user or subject of your narrative will self-record or self-document their story in a medium that they are comfortable with (video, photos, writing, drawing, etc). The final story will be edited or curated by you but told through the eyes or perspective of your user. The purpose of this assignment is to test the bounds of empathy allowing you to see the world “through the eyes” of a single person living in the midst of a global challenge.

Assignment 4 (Case studies, teams teaching exercise): Every team will research and present an exemplary case study of the use of storytelling in the real world, whether it’s used to launch a product, drive a campaign or raise awareness of an emerging innovation.

Good examples of this include IKEA’s 2002 “Unboring” campaign and Google’s Creative Lab’s “Lines of Play.” Teams will teach the rest of the class the lessons they learned, such as: how story was used in the innovation process, how the company used story to generate empathy and drive impact, citing evidence, and giving an overview of how the story was developed and executed. Every team member is required to have a role in the presentation.

Assignment 5 (FINAL Team Story Screening): Student teams will deliver a final story project to be showcased / presented at the end of the semester to an audience made up of USC students, faculty and industry guests.

Grading

Students will be graded on class participation; one midterm individual “solo” project and ... a final team project consisting of a multimedia immersive story, and one team in-depth analysis and team-teaching exercise where your team will present to the class a state-of-the-art example of influential storytelling in a real-world innovation enterprise.

Assignment 1: Solo fictional product story project	15%
Assignment 2: MIDTERM - Rough Team story project presentation [Milestone 1]	25 %
Assignment 3: Solo user-participatory exercise	15%
Assignment 4: Team case study teaching exercise	10%
Assignment 5: Final Team story project presentation [Milestone 2]	35%

Collaboration

For your final project, you will be assigned to work in teams of four to five. At the core of your experience in this course is collaboration. A functional team involves open communication, shared responsibility and mutual trust. You will be expected to work as an equal with your partners, resolve disagreements in a constructive manner, and make sure that all of you have a full opportunity to take responsibility in turn for all the roles you will undertake. If you feel this is not happening in your team, talk to your partners. If this is not successful, contact the instructor. You cannot take over your teammate’s responsibilities. Use these moments to develop the collaboration and communication skills that will help you in your career for the rest of your life.

It's assumed that students have no more than the minimal intro-level experience with digital storytelling, and the course is designed for experientially learning by doing, as well as through instruction and class discussions. Student teams are required to work on their projects over the course of the entire semester even if they could finish the projects in 3 weeks. There should be a learning curve from week to week as a result of seeing your results and getting feedback. Failure is also part of the learning process as is bold experimentation.

Attendance

While there will be some lectures and discussions, this is a studio environment where we work toward *creating* multimedia projects. Missing class means missing far more than you can make up by reading some notes. Therefore, more than two unexcused absences will be penalized one letter grade.

Class Participation

This is a highly interactive class. You will be asked to give critical feedback on student projects, present your own ideas and contribute significantly on your group projects outside of class. The instructor will regularly check-in on individual participation within your assigned group.

Don't Be Late!

In the professional world, you never get credit for something that is submitted late without a prior discussion and agreement on a different deadline. This means anything you submit late without a discussion with the instructor in advance will get an F grade. In what circumstances would it be acceptable to turn in late work? Only for those that would fly in the business world, and for which you can provide evidence or valid explanations.

Course Schedule: A Weekly Breakdown

Meeting 1	What is story? Core principles and practice of story structure and design. The role of the innovator as storyteller. An intro to scriptwriting for multimedia production. Lecture and discussion. Required reading: Chapter 1: "Storytelling Old And New" + Chapter 6: "Structure in Digital Storytelling" (Digital Storytelling, Miller)
Meeting 2	Your brain on story: Story and neuroscience of emotion – lecture and discussion. Thinking in 2D versus thinking in 3D exercise. Concept mapping workshop. Required reading: Chapter 5: "Characters, Dialogue, and Emotions" (Digital Storytelling, Miller)
Meeting 3	ASSIGNMENT 1 DUE: Solo fictional product script project due. Select works to be workshopped in class Required reading: Chapter 9: "Guidelines: Creating a New Project" (Digital Storytelling, Miller)
Meeting 4	Immersion and mixed reality – designing stories for interactivity. (Guests: David Beier, VR filmmaker and Jyo Kadimi VR developer) Required reading: Chapter 3: "Interactivity and Its Effects" + Chapter 17: "VR, AR, and Mixed Reality (XR)" (Digital Storytelling, Miller) Instructor-selected teams announced
Meeting 5	Thinking visually as engineers and innovators. Developing a visual language (tools, techniques and workflows) workshop. Team project concepts due for instructor approval (Midterm Milestone 1)
Meeting 6	The art of the interview and the role of narrative inquiry in user research. Lecture and discussion. Audio immersion workshop. Creating worlds and evoking empathy with sound.

Meeting 7	Ethnographic and documentary storytelling for user-centered research and design in a global context. Culture and perspective-taking. Lecture and discussion.
Meeting 8	ASSIGNMENT 2, MIDTERM DUE - Rough team projects presentations
Meeting 9	Understanding your audience. Narratives of immersion: from storytelling to storyliving lecture and discussion. Team projects workshop. Required reading: Chapter 7: "Your Audience" (Digital Storytelling, Miller)
Meeting 10	Narrative ethics, manipulation vs. inspiration. Lecture and discussion. Team projects workshop.
Meeting 11	Storytelling and systems thinking. Storing the story in data - database narratives. Required reading: Chapter 14: "Database Narratives" pgs. 478-487 (Digital Storytelling, Miller). ASSIGNMENT 3 DUE: Individual narrative gathering exercise due
Meeting 12	Branding strategies - creating a share of mind. The origin story of a brand. The pitch as story: using story to move investors and partners. Guest: Jared Blitz (Blitz Creative Studio).
Meeting 13	ASSIGNMENT 4 DUE: Case studies: teams teaching exercise (same teams)
Meeting 14	Distribution platforms, interactivity. Social media storytelling. How story takes on a social life. Transmedia class exercise. Required reading: Chapter 10: Using Digital Storytelling to Teach, Promote, and Inform pgs. 300-317 + Chapter 20 "Considerations in Creating a Professional Showcase pgs. 686 - 697) (Digital Storytelling, Miller)
Meeting 15	Last round of class critiques + discussion of final projects
Final Exam Week	ASSIGNMENT 5 DUE: FINAL Team project presentations/ showcase (during regular class time)

Required Textbook

Carolyn Handler Miller, ["Digital Storytelling: A Creator's Guide To Interactive Entertainment, 4th Edition."](#)

Recommended Reading / Watching / Experiencing

- Simon Sinek, ["Start with Why: How Great Leaders Inspire Everyone to Take Action."](#) **[MEETINGS 1 & 12 TOPICS: the role of innovator as storyteller; creating the origin story of a product or brand.]**
- Ed Catmull and Amy Wallace, ["Creativity, Inc.: Overcoming the Unseen Forces That Stand in the Way of True Inspiration."](#) **[MEETINGS 1 & 12 TOPICS: the role of innovator as storyteller; creating the origin story of a product or brand.]**
- Lisa Cron, ["Story or Die: How to Use Brain Science to Engage, Persuade, and Change Minds in Business and in Life."](#) **[MEETING 2 TOPICS: Storytelling and the neuroscience of emotion].**
- "Lisa Feldman Barrett, ["How Emotions are Made: The Secret Life of the Brain."](#) **[MEETING 2 TOPICS: Storytelling and the neuroscience of emotion].**

- Immersive Journalism: Immersive Virtual Reality for the First-Person Experience of News (http://www.mitpressjournals.org/doi/pdf/10.1162/PRES_a_00005)
[MEETING 4 TOPICS: Immersion and mixed reality – designing stories for interactivity.]

- BBC Planet Earth 2 360 Video
(https://www.facebook.com/bbcearth/videos/1361120467254839/?autoplay_reas on=gatekeeper&video_container_type=0&video_creator_product_type=7&app_id=2392950137&live_video_guests=0&_mref=message) **[MEETING 4 TOPICS: Immersion and mixed reality – designing stories for interactivity.]**

- United Nations Virtual Reality Campaign (UNVR)
http://unvr.sdgactioncampaign.org/vr-films/#.X8l0_apKiLg **[MEETINGS 4 & 14 TOPICS: Immersion and mixed reality – designing stories for interactivity; transmedia and distribution platforms.]**

- “Noise, Storytelling with Sound, and Visuals on the Radio with Radiolab’s Jad Abumrad,” Designing Sound (15 August 2013).
<https://designingsound.org/2013/08/15/noise-storytelling-with-sound-and-visuals-on-the-radio-with-radiolabs-jad-abumrad/>
[MEETING 6 TOPICS: Creating worlds and evoking empathy with sound.]

- The Tucker Zone (A 3D Sound Experience) (Wear earphones)
<https://www.youtube.com/watch?v=3txhT2ncNOU>
[MEETING 6 TOPICS: Creating worlds and evoking empathy with sound.]

- “Where We’re Going, We Don’t Need Roads” This American Life Episode 539
<https://www.thisamericanlife.org/539/the-leap/act-two>
[MEETING 6 TOPICS: The art of the interview; audio documentaries]

- “Coronation”, a film by Ai Weiwei <https://vimeo.com/ondemand/267483>
[MEETING 7 TOPICS: ethnographic filmmaking and documentaries. Culture and perspective taking.]

- Faith L. Lagay [“The Ethical Force of Stories: Narrative Ethics and Beyond.”](#) AMA Journal of Ethics. **[MEETING 10 TOPICS: Narrative ethics.]**

- “VR and AR: Transforming Learning and Scholarship in the Humanities and Social Sciences”. EduCause Review (6 October 2017).
<https://er.educause.edu/blogs/2017/10/vr-and-ar-transforming-learning-and-scholarship-in-the-humanities-and-social-sciences>
[MEETING 11 TOPICS: Storytelling for user research and systems thinking.]

- Jonah Berger, [“Contagious: Why Things Catch On.”](#) **[MEETING 12 TOPICS: Branding strategies, creating a share of mind.]**

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” 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, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

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 Services (RSVP) - (213) 740-4900 – 24/7 on call
engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of 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.

Bias Assessment Response and Support - (213) 740-2421
studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation 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 Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssaa

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

dsp.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) 442-120 – 24/7 on call

dsp.usc.edu. Non-emergency assistance or information.