**USC**Viterbi

**CSCI-526 Advanced Mobile Devices & Games**

**Units: 4-1**

**Term—Day—Time: Fall – Wednesdays 3:30pm to 6:50pm**

**Location:** Taper Hall THH-201

**Instructor: Michael Zyda**

**Office:** EGG-209

**Office Hours:** ONLINE

**Contact Info:** zyda@usc.edu

**Teaching Assistant:**

**Office:**

**Office Hours:**

**Contact Info:**

|  |
| --- |
|  |

**Course Description**

This course covers the design and implementation of mobile games, using the multiple current platforms including the Apple iOS SDK, Google’s Android, Unity & Unreal. Emphasis is placed on building entertainment and serious games as well as novel applications of mobile embedded technology.

**Learning Objectives**

Topics include the introduction to mobile game development basics, game play design, mobile phone architectures, mobile networking and protocols, introduction to mobile gaming API’s and their usage for building games, multimodality and location awareness in mobile phones,multi-modal enablers. At the end of the semester, students are expected to demonstrate a mobile game based on what they have learned in the class lectures.

**Prerequisite(s):** CSCI-420 or CSCI-580 or equivalent course/experience in computer graphics.

**Required Readings and Supplementary Materials**

Wendy Despain “100 Principals of Game Design,” Publisher Amazon Services, LLC, available for Kindle.

**Course Schedule: A Weekly Breakdown (see below)**

|  |  |  |  |
| --- | --- | --- | --- |
| Week 1 | Introduction to mobile games | What is a mobile game?   * Mobile game development * Capabilities of modern mobile phones. * Game engines for mobile development * Networked mobile games – 5G futures   How to draft a Pitch ppt for your proposed mobile game.  Pitch Document   * Game Title * Summary * Game Goals * Key Features * Target Audience * Game Structure * Main Characters * Art Direction * Production Plan | Semester Long Project: Select a mobile game project your team will work on all semester, including the implementation technology to be utilized in that project. Draft a three slide ppt for presentation in class week 2. |
| Week 2 | The Game Design Document | What belongs in the game design document (GDD) for your proposed mobile game?  The Game Design Document   * Overview * Premise * Inspirations * Gameplay Overview * Goals * Engineering * Key Features * Art Direction * Story * Sound & Music * Target Demographic * Similar Games * Levels * Production Plan | In class presentation of three slide ppt of proposed semester long project.Begin drafting the Game Design Document (GDD) for your semester long project. The GDD will be maintained and updated by your team as the semester progresses. The initial draft of the GDD is due week 3. |
| Week 3 | Game Design Principles 1 | Universal Principles of Game Innovation   * A/Symmetric Play and Synchronicity 4 * Aces High; Jokers Wild 6 * Bartle’s Player Types 8 * Cooperative vs. Oppositional 10 * Fairness 12 * Feedback Loops 14 * Gardner’s Multiple Intelligences 16 * Howard’s Law of Occult Game Design 18 | Team meetings with instructors to present the GDD. These team meetings are expected to be seven to ten minutes long. |
| Week 4 | Game Design Principles 2 | Universal Principles of Game Innovation   * Information 20 * Koster’s Theory of Fun 22 * Lazzaro’s Four Keys to Fun 24 * Magic Circle 26 * Making Moves 28 * MDA: Mechanics, Dynamics, and Aesthetics 30 * Memory vs. Skill 32 * Minimax and Maximin 34 | Team meetings with instructors to demonstrate progress on semester long project, including live demos. These team meetings are expected to be seven to ten minutes long. |
| Week 5 | Game Design Principles 3 | Universal Principles of Game Innovation   * Nash Equilibrium 36 * Outcomes: Pareto Optimality 38 * Payoffs 40 * Prisoner’s Dilemma 42 * Puzzle Development 44 * Rock, Paper, Scissors 46 * Seven Universal Emotions 48 | Team briefings & live demos to the class on progress for the semester long project. These team briefings/demos are expected to be seven to ten minutes long. |
| Week 6 | Game Design Principles 4 | Universal Principles of Game Innovation   * Skinner Box 50 * Social Ties 52 * Tragedy of the Commons 54 * Transparency 56 * VandenBerghe’s Five Domains of Play 58 * Volunteer’s Dilemma 60 | Team meetings with instructors to demonstrate progress on semester long project, including live demos. These team meetings are expected to be seven to ten minutes long. |
| Week 7 | Game Creation Principles 1 | Universal Principles for Game Creation   * The 80/20 Rule 64 * Brainstorming Methods 66 * Consumer Surplus 68 * Core Gameplay Loop 70 * Define the Problem 72 * Design by Committee 74 * Environmental Storytelling 76 * Experience Design 78 | Team briefings to class on progress for the semester long project, including live demos. These team briefings/demos are expected to be seven to ten minutes long. |
| Week 8 | Midterm | Midterm presentation of progress on semester long project. PPT and live demo of mobile game developed. Students turn in their midterm draft of their GDD. | Midterm presentation of progress on semester long project. PPT and live demos of mobile games developed. Students turn in their midterm draft of their GDD. |
| Week 9 | Game Creation Principles 2 | Universal Principles for Game Creation   * Flow 80 * Four Ways to Be Creative 82 * Game Genres 84 * Game Pillars 86 * Game Tropes 88 * Gestalt 90 * House Rules 92 * Iteration 94 | Team meetings with instructors to demonstrate semester long project. These team meetings are expected to be seven to ten minutes long. |
| Week 10 | Game Creation Principles 3 | Universal Principles for Game Creation   * Magic Wand 96 * Metagames 98 * Objects, Attributes, States 100 * Ooh, Shiny! 102 * Paper Prototyping 104 * Pick Two: Fast, Cheap, Good 106 * Play Testing 108 | Team meetings with instructors to demonstrate semester long project, including live demos. These team meetings are expected to be seven to ten minutes long. |
| Week 11 | Game Creation Principles 4 | Universal Principles for Game Creation   * Problem-Solving Obstacles 110 * Prototyping 112 * Risk Assessment 114 * Supply and Demand 116 * Synergy 118 * Theme 120 | Team briefings to class on progress for the semester long project, including live demos.These team briefings/demos are expected to be seven to ten minutes long. |
| Week 12 | Game Creation Principles 5 | Universal Principles for Game Creation   * Time and Money 122 * User-Centered Design 124 * Wayfinding 126 | Team meetings with instructors to demonstrate semester long project, including live demos. These team meetings are expected to be seven to ten minutes long. |
| Week 13 | The Art of Game Design | The Art of Game Design – A Deck of Lenses   * Jesse Schell’s card deck of game play inspiration. * How to use this deck - examples of its usage. | Team briefings to class on progress for the semester long project, including live demos. These team briefings/demos are expected to be seven to ten minutes long. |
| Week 14 | Advanced Topics | Highlights from recent papers on innovations in mobile games | Team meetings with instructors to demonstrate semester long project. These team meetings are expected to be seven to ten minutes long. |
| Week 15 | Advanced Topics | Highlights from recent papers on innovations in mobile games | Team briefings to class on progress for the semester long project, including live demos.These team briefings/demos are expected to be seven to ten minutes long. |
| FINAL | Presentations | In class presentations – formal presentations on mobile games developed – live demos of mobile games, trailers & team websites. Final Game Design Documents are due. | Formal presentations on mobile games developed – live demos of mobile games, trailers & team websites. Final Game Design Documents are due. |

**Grading Breakdown**

Each student is expected to develop a mobile game. Each student team will spend the first weeks of the semester creating a game design document (GDD) that describes the proposed mobile game - that GDD will be maintained and updated as the semester progresses. The defined project runs continuously all semester, the code testing the student’s knowledge of the in-class lectures and reading material. Final demos will be presented on the last day of class, including live demo, trailer of what has been produced, the GDD and a team website showing the semester long project.

**Midterm Grading**

**Game design document midterm 0 to 30 points possible**

**Complete** - has all appropriate GDD sections written 21 - 30 points possible

**Partially Complete** - missing appropriate GDD sections 11 - 20 points possible

**Insufficient GDD or Missing Key Sections** - 0 - 10 points possible

The range of points is graded based on the quality of the written material.

**Presentation & Progress midterm - 0 - to 20 points possible**

**Outstanding presentation** - 15 - 20 points possible

**Good presentation** - 10 - 14 points possible

**Presentation problems** - 5 - 9 points possible

**Unacceptable presentation** - 0 - 4 points possible

The range of points in each category is determined by comparing to other student presentations in the class.

**Final Grading**

**Game design document final 0 to 20 points possible**

**Complete** - has all appropriate GDD sections written 15 - 20 points possible

**Partially Complete** - missing appropriate GDD sections 10 - 14 points possible

**Insufficient GDD or Missing Key Sections** - 0 - 9 points possible

The range of points is graded based on the quality of the written material.

**Game trailer & website final - 0 to 10 points possible**

**Game trailer** - 0 - 5 points

**Website** - 0 - 5 points

**Final Presentation - 0 - to 20 points possible**

**Outstanding presentation** - 15 - 20 points possible

**Good presentation** - 10 - 14 points possible

**Presentation problems** - 5 - 9 points possible

**Unacceptable presentation** - 0 - 4 points possible

The range of points in each category is determined by comparing to other student presentations in the class.

The total points are added up and the final letter grade is as below.

**Letter Grading**

A: 94 – 100

A-: 90 – 93

B+: 87 – 89

B: 83 – 86

B-: 80 – 82

C+: 77 – 79

C: 73 – 76

C-: 70 – 72

D+: 67 – 69

D: 63 – 66

D-: 60 – 62

F: < 60

**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](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, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

**Support Systems:**

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*

[studenthealth.usc.edu/counseling](https://studenthealth.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](http://www.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) 740-9355(WELL), press “0” after hours – 24/7 on call*

[studenthealth.usc.edu/sexual-assault](https://studenthealth.usc.edu/sexual-assault/)

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

*Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298*

[equity.usc.edu](https://equity.usc.edu/), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

*Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298*

[usc-advocate.symplicity.com/care\_report](https://usc-advocate.symplicity.com/care_report/)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](http://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 Campus Support and Intervention - (213) 821-4710*

[campussupport.usc.edu](https://campussupport.usc.edu/)

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](https://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*

[dps.usc.edu](http://dps.usc.edu/), [emergency.usc.edu](http://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*

[dps.usc.edu](http://dps.usc.edu/)

Non-emergency assistance or information.

*Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)*

[ombuds.usc.edu](https://ombuds.usc.edu/)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.