



## **CSCI 526 - Mobile Games**

**Units: 4**

**Fall 2022— *Tuesday 4-7:20pm***

**Location:** SCI 108

**Remote:** Zoom link on Blackboard

**Discord:** <https://discord.gg/DkqtXS6erR>

**Instructor: Scott Easley**

**Office:** Online

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**Office Hours:** By Request

**Course TA: Sasha Volokh**

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**Course Grader: Gehan Yang**

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**Office Hours:** By Request

### **Course Description**

Students in this course will work in small teams to build games on mobile devices. The initial half of the course will focus on learning mobile game development tools and how those can be utilized with game development. During the course, students will collaborate with each other through the use of programming, art, design, and production skills. The second half is game polish and expansion.

Working in a professional studio-like atmosphere, students in CSCI 526 will learn the fundamentals of team dynamic as it relates to game design and development, and develop a playable prototype for a social, free-to-play mobile game. In teams, students will take on the roles of Designers, Engineers, Producers, etc to learn both the basics of the roles as well as how they work together in a professional development studio setting. By taking CSCI 526 students learn how to create game pitches, build a design document and present it live in front of an audience. The course culminates with a polished, portfolio-quality vertical slice and professional quality supporting documentation.

Our game veteran instructor will provide key lectures and materials, giving students a chance to learn directly from game studio techniques and make networking connections.

### **Learning Objectives**

Students learn fundamentals of core loops and design in social games; basic technologies for mobile platforms, including working with various, commonly-used APIs; how to perform market research and analysis; how to present a polished pitch; how to create effective design and engineering documentation; how to work on a team with defined roles to collaborate on a project

## Course Notes

This course will assign a letter grade.

Students will submit work via Google Drive, Blackboard, and by showing builds to instructors and peers in class. Students will have access to an educational version of Sensor Tower. Students will work with other development and production tools, as discussed in class.

## Required Readings and Supplementary Materials

Handouts, templates, games, and sample documents will be supplied by the instructors when assigned.

## Description and Assessment of Assignments

Students will create both interactive experiences and documentation. The interactive experiences will be either simple prototypes of core game mechanics or a more polished vertical slice. Assignments will be graded on effort, collaboration, execution as compared to goal, and overall quality.

Documentation may consist of: pitch presentations, design documents, technical specifications, playtesting logs, design journals, and other forms of documentation as assigned. Students will learn professional documentation and presentation techniques. Assignments will be graded on effort, collaboration, execution, and, where applicable, iterative improvement.

## Grading Breakdown

Assignment	% of Grade	Due
Prototype deliverables	20	Week 6
Midterm deliverables	25	Week 9
Final Deliverables	25	Week 15
Final Presentation	25	Ongoing
Participation	5	Ongoing
TOTAL	100	

## Assignment Submission Policy

Written assignments and prototypes are due at the beginning of class of the assigned week.

### Missing an Assignment Deadline, Incompletes:

The only acceptable excuses for missing an assignment deadline or taking an incomplete in the course are personal illness or a family emergency. Students must inform the instructor **before the assignment due date** and present verifiable evidence for a deadline extension to be granted. Students who wish to take incompletes must also present documentation of the problem to the instructor or student assistant before final grades are due.

For assignments turned in after the assignment deadline without prior permission from the instructor, a penalty will be imposed equal to 10% of the total available points for the assignment, for each day or part of a day that the assignment is late, up to a maximum of seven days.

**Attendance Policy:**

Punctual attendance at all classes is mandatory.

Excused absences are:

- Illness (with a doctor's verification)
- Family or personal emergency (with verification)

**Diversity**

In making games and interactive media in a professional and ethical way, it is important that you consider diversity. When looking at your projects, you should consider who is depicted and how this work will impact others. What kinds of individuals and communities are represented in your work? What point of view does your work express? This class may assist you in learning how to make work that includes diverse viewpoints, and may discuss racial, religious, gender and sexual orientation issues in the context of games and interactive media.

**Creating an Inclusive Space**

In this class, we make a commitment to foster a welcoming and supportive environment where students of all identities and backgrounds can flourish. This means that you will be expected to offer content warnings when appropriate, use students' stated pronouns, and respect self-identifications. While debate and discussion are welcome, please remain aware of the implications of your words and the images that you include in your work. If the instructor or another student points out something problematic, avoid being defensive; this is a valuable opportunity for us to grow and learn together. If you have a concern about any aspect of the class, you are welcome to speak with the instructor or the advisor for the division.

**Additional Policies**

This course emphasizes teamwork, and one of the desired learning outcomes is for students to develop communication and leadership skills. Students are expected to treat each other with respect, listen to each other, and work together towards a shared, collaborative, healthy work culture. Any student found to be disruptive or engaging in behavior that doesn't meet the standards of respectful teamwork may be asked to leave by the instructor.

If you experience any problems with a fellow student regarding their work, please bring up your concerns with the instructor.

**PLEASE NOTE:**

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

## Course Schedule: A Weekly Breakdown

**\*\*Subject to change\*\***

	Topics/Lectures	In-Class	Homework
<b>Week 1</b> Aug 23	<p><b><u>Class Lecture:</u></b>  <b><u>What to Expect</u></b>                      Original mobile game                      Teams self-selected based on project interest</p> <p><b><u>Tech Lecture 1:</u></b>  <b><u>Project Planning</u></b>                      Resources and process</p>	<p><b>Research:</b> play games in different genres, pay attention to core loops, game features, possible monetization strategies.                      Think about a game genre you're interested in exploring.                      What makes them effective? What's the emotional investment?</p>	<ol style="list-style-type: none"> <li>1) Join Discord server</li> <li>2) Form Teams (6-10, either all remote or all local students)</li> <li>3) Pick 2-3 different games individually and play them daily for a week.</li> <li>4) List chosen games on your GDD</li> <li>5) Install Unity Hub</li> <li>6) Install Unity</li> <li>7) Install Version Control (Github)</li> </ol>
<b>Week 2</b> Aug 30	<p><b><u>Analytics 1 - Game Analytics: Data Collection &amp; Visualization</u></b>                      Why Analytics matter so much to the maturation and improvement of a game.</p> <p><b><u>Tech Lecture 2:</u></b>  <b><u>Tools and Resources</u></b>                      Process to begin development</p>	<p>In class Schedule Spreadsheet:                      Name your Team,                      Choose Captain,                      Choose roles (Esp. Analytics),                      Fill in team roster                      Team chooses game idea, make one-paragraph GDD post link on main page with drawing.</p> <p><b>Analytics team (<i>Team PMs</i>) begin coding tests for data collection and graphing</b></p>	<ol style="list-style-type: none"> <li>1) Team chooses game idea, make one-paragraph GDD post link on main page with basic hand-drawing.</li> <li>2) Individually work on different introductory Unity tutorials and relevant tutorials to chosen game genre - list the ones you use in GDD.</li> <li>3) As a team set up the development tools based on the technical lectures from last week.</li> </ol>
<b>Week 3</b> Sep 6	<p><b><u>Design Lecture 1:</u></b>  <b><u>Game Structure Basics</u></b>                      Design Document Overview (Base Mechanic)</p> <p><b><u>Analytics Lecture 2:</u></b>  <b><u>Data-Driven Game Design</u></b>                      What to track to inform the team how people are playing their game and why</p>	<p>Start coding to complete prototype by end of Week 5, do tests of publishing to WebGL</p>	<ol style="list-style-type: none"> <li>1) List of basic mechanics in GDD and schedule to complete it on time.</li> <li>2) Draw two graph templates in GDD</li> </ol>
<b>Week 4</b> Sep 13	<p><b><u>Design Lecture 2:</u></b>  <b><u>Game Loop vs. Core Loop</u></b>                      Making a self-contained video game ecosystem</p> <p><b><u>Tech Lecture 3:</u></b>  <b><u>Game Development</u></b>                      Organizing forward development, optimizing through hierarchy of importance for creation</p>	<p>Team document genres and primary features of game; Choose base mechanics and start working on WebGL Prototype.</p>	<ol style="list-style-type: none"> <li>1) Start web GL development for playable prototype</li> <li>2) Download and play mobile game 'Spurpunk TD'</li> <li>3) Fill in online questionnaire</li> <li>4) Make 6-minute video of your review of gameplay. Each student put links of their review in the GDD.</li> <li>5) Add a summary in the GDD of how your team is collecting and graphing analytics data from the WebGL build.</li> </ol>

			Include screenshots of data collection dashboards and examples of graphs.
<b>Week 5</b> Sep 20	<b><u>Design Lecture 3: Prototyping Basics</u></b> Focus only on mechanic for fast development  <b><u>Case Study Lecture: Spurpunk Development</u></b> A case study of mobile game and its considerations in development.	<i>Team PMs will match the two graphs drawn in the GDD with their analytics tests. Put screen captures of those graphs next to drawn graph templates in the GDD.</i>	1) Have first 2 graphs match drawn templates in GDD with short commentary as what it can determine
<b>Week 6</b> Sep 27	<b><u>Design Lecture 4: Risk and Reward</u></b> Giving player strategic choices within ecosystem of the game  <b><u>Analytics Lecture 3: - Acquisition and Expense</u></b> A game's overall 'economy'	<i>Team PMs Come up with two more data points to be tracked at midterms for a total of 4 data points</i>	1) Greybox GL Prototype works with four data analytics being graphed.
<b>Week 7</b> Oct 4	<b><u>Case Study Lecture: Game UI and UX</u></b> Showing how to guide the player through the whole experience of your game.  <b><u>Analytics Lecture 4: - Graph Interpretation</u></b> Example from Spurpunk of analytics graphs being informative to the authors.	<i>Team PMs Come up with two more data points to be tracked at midterms for total of 6 points.</i>	1) Teams plan for all 6 graphs and analytics being successfully graphed in their midterm game.
<b>Week 8</b> Oct 11	<b><u>Design Lecture 5: Mobile Game Controls</u></b> Guiding the player as they play, silently and invisibly.	Greybox Prototype published on WebGL, link on schedule page. Analytics work for WebGL build.  <i>Team PMs review open GL prototype and discuss the reason for tracking existing four points of data. Implement the six total data points to track in game, graphs drawn in GDD.</i>	1) All six analytics and graphs work with web GL build. Entire team's midterm grade will depend on it. 2) Make sure screenshots of graphs are placed next to mockups of graphs in GDD.
<b>Week 9</b> Oct 18	<b>No lecture - MIDTERM</b>	<b>MIDTERM (PROTOTYPE)</b> 526 students present (in teams) their games with analytics graphs, showing the collected data. Everyone plays everyone else's games in their team	1) Everyone play each team's game 2) Fill out online survey for that game 3) Prepare for your analytics and graphs to be presented in the next class.

		breakout rooms, alongside their corresponding PM team.	
<b>Week 10</b> Oct 25	<b><u>Design Lecture 5 – Mobile Game Controls</u></b> How to make sure you have eased player interaction throughout your game.	<b><i>Teams Review data from midterms. Discuss with PMs how design may be impacted by the data and what things can be implied by the data? Hypothesize causes and brainstorm solutions.</i></b>	1) List all issues inferred by midterm analytics results in tandem (with questionnaire feedback) to create your team' hypothesis what to fix/improve in the game. Place it in GDD.
<b>Week 11</b> Nov 1	<b><u>Tech Lecture 4: Unity UI</u></b> How to make sure you have optimized your UI setup in Unity	Choose and list in GDD the analytics-informed improvements the team has time to do as well as other than the team does not have time to do.	1) Final conversations with team on evolution of game with analytics – suggestions for future
<b>Week 12</b> Nov 8	<b><u>Design Lecture 6 - Prototyping Physics</u></b> Optimizing game mechanics to have minimal CPU load	Schedule Improvements to the player's experience in game according to feedback from forms and analytics.	1) Scheduled plan for changes/fixes/updates for final presentation clearly represented in the GDD.
<b>Week 13</b> Nov 15	<b><u>Tech Lecture 5: Level Design to XML</u></b> Level design as a simple data from within Excel	Choose the top 3 or 4 most surprising or difficult analytics to discern their meaning and determine the fix to include in final presentation.	1) Prepare analytics feedback from graphs as part of the final presentation.
<b>Week 14</b> Nov 22	<b><u>Supplemental Lecture: Getting a Job in Game Industry</u></b>	Sort out the midterm's presentation for what will be showcased, the progression of thought, the inclusion of feedback and what the team determined from it, the analytics and meaning, and the results.	1) Prepare for Final presentation, sort the various links on the team schedule page.
<b>Week 15</b> Nov 29	Final Project Presentations	<b>CS 526 teams will present final work</b>  Students will show the game live <ul style="list-style-type: none"> <li>- One or more team emcees</li> <li>- Recap the game idea</li> <li>- Show it at midterm</li> <li>- Show chosen analytics data</li> <li>- Show team decisions on it</li> <li>- Showcase current game</li> <li>- Current &amp; later Improvements</li> <li>- 3-5 minutes max.</li> <li>- Playable link</li> <li>- Up to date GDD</li> </ul>	<b>DUE:</b> <b>Final Presentation</b> <b>Final Publication</b> <b>Final Documentation</b>

## 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” <https://policy.usc.edu/student/scampus/part-b>. 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, intimate partner violence, stalking, and harassment are prohibited by the university. You are encouraged to report all incidents to the *Office of Equity and Diversity/Title IX Office* <http://equity.usc.edu> and/or to the *Department of Public Safety* <http://dps.usc.edu>. This is important for the health and safety of the whole USC community. Faculty and staff must report any information regarding an incident to the Title IX Coordinator who will provide outreach and information to the affected party. The sexual assault resource center webpage <http://sarc.usc.edu> fully describes reporting options. Relationship and Sexual Violence Services <https://engemannshc.usc.edu/rsvp> provides 24/7 confidential support.

### 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://ali.usc.edu>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* <http://dsp.usc.edu> 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.

### Syllabus Updates:

This syllabus is liable to change up to the beginning of class and possibly over the semester. Please check the posted syllabus regularly, and note all changes that are shared by the instructor in class.