CS4803 Special Topics Syllabus

Educational Game Design, 3 credits

Instructor: Elizabeth (Betsy) DiSalvo

Course Description

This project-based class offers students the opportunity to critically analysis learning in video games and to design and prototype educational games. Students will gain insights into perspectives and theories of how people learn and how those theories map to video games. They will explore game mechanics to evaluate their usefulness in promoting learning. Building on these understandings, students will design learning games through several low-fidelity prototypes and a final team-based project to promote learning.

Course Learning Outcomes

Upon completing this course, you should be able to:

- Identify and articulate learning principles in games
- Understand basic perspectives of how people learn
- Understand and reflect on key game mechanics
- Analyze and evaluate games for effective learning & engagement
- Evaluate & select learning objectives and game elements appropriate to specific audiences
- Design and develop games that promote learning

Required Course Materials

The Canvas resources will include a variety of text and video links, but there are no required readings for the course. You will need to have access to educational games; many are free, or you can watch in-depth videos of gameplay.

Grading Policy

Your final grade will be assigned as a letter grade according to the following scale:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F below 60%

Grades will be based upon this breakdown:

- Participation (10%)
- Game Critiques (20%) (4 critiques to be presented in class)
- Prototype Games (30%)
- Learning Game Pitch (2%)
- User Research and Design Insights (8%) (Group Project)
- Final Project – Prototype Educational Game (30%) (Group Project)

Assignment Length

Suggested assignment lengths are approximate. Some people will do a good job in fewer, and some will require many more pages. Don't worry about the page count--just make sure that you've completed the assignment well.

Late Policy:

- Individual Assignments: Each student may use a total of three late days over the semester. Once you've used those up, work will not be accepted.
- Team Assignments: Team assignments are time-critical, so we can discuss and play together. Late team assignments will not be accepted.

These policies are in place to ensure you do not fall behind, which can make learning more difficult and cause unnecessary stress. If you have a serious illness, family emergency, or legitimate reason for using additional late days, please contact me directly for accommodations.

Use of AI

The use of artificial-intelligence (AI) tools – including but not limited to text, image, video, or code generators, research assistants, or problem-solving systems – is prohibited unless the instructions for a particular assignment, activity, or assessment state otherwise. Unauthorized use of AI may constitute academic misconduct under the university's Policy on Academic Honesty. If you are unsure whether an action constitutes AI use, ask me before proceeding.

Description of Graded Components

This course engages student to learn content, inquiry and analysis, and problem-solving through applying learning theory to their critique of existing games and the design of new games individually and in teams. Please use assignments in Canvas for final due dates and detailed instructions – if there is a conflict between the schedule below and an assignment, the Canvas assignment is correct and should be followed.

Participation (10%)

You are expected to attend class in person and to engage by asking questions, offering insights and participating during in person critiques (both presenting your prototypes and giving feedback to other students).

Game Critique Presentation (20%)

You will present four critiques of learning games in short presentations in class.

Prototype Games (30%)

Over the course of the semester, you will create three prototype games that use learning principles and game mechanics covered in class. These are to be low fidelity prototypes, (paper and pen, Figma or other methods).

Learning Game Pitch (2%)

You will present a one min pitch to your class on your best game idea. This will be a way for you to identify a team to work with for the final project.

User Research and Design Insights (10%) (Group Project)

Working with a group in class you will conduct user research/design research activities to inspire and guide your final project. The professor and TAs will observe these activities, and you will submit a short write up outlining your activity and findings.

Final Project – Prototype Educational Game (30%) (Group Project)

This is a group project and your team is expected to produce a working prototype of an educational game building on principles you learned in class. During the finals period for this class all team will present their game and a poster identifying game design and learning concepts used in their protype at a public demo/poster session.

ATTENDANCE AND/OR PARTICIPATION

Attendance is required and will be part of the participation grade.

- We will take attendance every day.
- You are expected to listen, ask questions, comment, and engage with your classmates daily.
- If you do not attend or participate, your grade will be lower.
- You will be marked as absent if you are more than 20 min late.

You will need to follow institute rules on excused absences

Academic Integrity

This class abides by the Georgia Tech Honor Code, which can be found here: http://www.honor.gatech.edu/plugins/content/index.php?id=9. Please read the Code and contact the instructor or the TA if you have any further questions.

Accommodations for Students with Disabilities

If you need any accommodations, you must inform us during the first week of classes and provide us with an accommodation approval letter from the GT Office of Disability Services. We need to confirm during the first week of classes (by the first Friday at 4 pm) that we can accommodate your requests.

Student-Faculty Expectations Agreement

We hold that all **students** have the right to expect:

1. a positive, respectful, and engaged academic environment inside and outside the classroom;
2. to attend classes at regularly scheduled times without undue variations and without penalty if the student cannot attend instructional, lab, or examination hours not institutionally scheduled; to have their instructor of record be present during most scheduled lecture periods.
3. to receive a syllabus which should include an outline of the course objectives, evaluation criteria, and any other requirements for successful completion of each course during the first week of class meetings and to be clearly informed of any changes made to the syllabus during the semester with reasonable time to adjust to these changes;
4. to consult with faculty outside of usual classroom times through regularly scheduled office hours or a mutually convenient appointment;
5. to have reasonable access to Institute facilities and equipment in order to complete course assignments and/or objectives;
6. to have reasonable time to learn course material prior to the administration of an examination;
7. to receive a clear explanation of the faculty's definition and interpretation of academic misconduct within the course that extends over and beyond those clearly defined in the Georgia Tech Honor Code;
8. to have reasonable access to graded materials for assignments, projects, or exams, to review graded material in a timely fashion, and to have a clear explanation of grading criteria and grade determination;
9. to have their letter grade in a class based on their performance based on course criteria and not solely on their performance relative to their classmates;
10. faculty to adhere to formal Institute policies, rules and regulations, such as the policy on Final Instructional Class Days and Reading Periods, and the confidentiality policies of FERPA.
11. faculty to be supportive of students' desires and needs to find rewarding careers after graduation from Georgia Tech. Faculty should be flexible in allowing students to attend the Georgia Tech All Majors Career Fair that occurs in the Fall and Spring Semesters and should refrain when possible from scheduling quizzes or tests on those days;
12. faculty to be flexible during the semester when students have off campus interviews for jobs or graduate/professional schools and should allow students to make up missed work when possible.
13. to be allowed to make up course assignments that were due prior to the student's addition of that course during Phase II registration.

We hold that all **faculty** members have the right to expect:

1. a positive, respectful, and engaged academic environment inside and outside the classroom;

2. students to appear regularly for class meetings in a timely fashion;
3. to select qualified Teaching Assistants in accordance with departmental protocols as well as the right to delegate grading, studio and laboratory instruction, tutoring, and other academic activities to these individuals;
4. students to appear at office hours or a mutually convenient appointment for official matters of academic concern;
5. full attendance at examination, midterms, presentations, studios, and laboratories, with the exception of formal pre-approved excused absences or emergency situations;
6. students to be prepared for class, appearing with appropriate materials and having completed assigned readings and homework;
7. full engagement within the classroom, including meaningful focus during lectures, appropriate and relevant questions, and class participation;
8. to cancel class due to emergency situations and to cover missed material during subsequent class meeting times at the discretion of the instructor;
9. students to act with integrity and to adhere to the principles of the Georgia Tech Student Honor Code;
10. students to adhere to the formal Institute policies, such as the Student Code of Conduct.
11. students to make every effort to minimize their absences from scheduled lectures, laboratories, and studios during the Georgia Tech All Majors Career Fair that occurs in the Fall and Spring Semesters, and to notify them in advance if they intend to miss class to attend the Georgia Tech All Majors Career Fair;
12. students to notify them as soon as possible when they have off campus interviews for jobs or graduate/professional schools that conflict with class attendance.
13. students would be responsible for obtaining and completing any missed assignments or material in a timely manner when they add a course during Phase II registration after the first class meeting.

Pre Requisites

None. However, the course will be most appropriate for students with some exposure to Human Computer Interaction, education/learning sciences, **OR** with game development. We will be covering a lot and working in teams with students who have different strengths, having some experience will allow you to focus on learning areas that you know less or refine your understanding in areas you wish to specialize.

Campus Resources for Students

Academic Support for Undergraduates

Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, , or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide (gatech.edu)

Draft Schedule

Date	9:00 - 10:15	10:30 - 11:45	12:00 - 1:15
5/21/26	Into, Learning Principles	Behaviorist Learning, Critiques Behaviorist Games	Game Design Mechanics, Dynamics, and Aesthetics
5/25/26	Day off		
5/28/26	Student Presentations Game Critiques Students in-class play testing Behaviorist Game	Prototyping Basics, User Experience and Engagement	Playtesting 100
6/1/26	Student Presentations Game Critiques Students in-class play testing Constructivist Game+	Constructivism Learning, Critiques constructivism Intro Final Project; Learning Goals Situated Learning, Critiques situated learning games	Kids and Games Game Narrative Game Pitches and Team Formation
6/4/26	Student Presentations Game Critiques Students in-class play testing Situated Learning Game	Iterative Design Process Game Software	Pin Up Prototypes Critiques of Unique Game Mechanisms for Learning
6/8/26	Student Presentations Game Critiques	Designing for Accessibility	Evaluation and Funding
6/11/26	Participatory Design	Prototype Critiques	Prototype Critiques
6/15/26	Final Project Play testing	Final Project Play testing	Final Project Play testing
6/18/26			
6/22/26			
6/25/26			