Course description: Interactive digital technologies are increasingly breaking out of the traditional model of users navigating a single character through hand-designed levels using a standard controller. Increasingly, new ways are being developed to interact with these simulated worlds, often incorporating voice commands, physical motion, or even brain-computer interfaces. Moreover, new methods are being developed to move games beyond focusing on thumb response challenges and lock & key puzzles and towards full-blown procedural simulations of complex environments and scenarios. In this course, we’ll explore the algorithms which have enabled this innovation.

Overview: In this seminar course, we will discuss new algorithms and technologies that are pushing forward the state-of-the-art in digital environments. Topics will include: procedural generation, new user interaction modes, real-time simulations, the role of machine learning in games, computer narrative generation, and user-generated content. Course work will include student-led presentations, in-class discussions, and a semester-long project showcasing course concepts.

Variable Credit Hours.
This course can be taken for 1 - 3 credit hours (1-3 c.h.):
- Students enrolled for 1 c.h. will have to participate in class discussions, do readings, and write brief responses to the readings.
- Students enrolled for 2 c.h. will also lead class discussions, and participate in some short programming assignments.
- Students enrolled for 3 c.h. will also do a semester long project, and present on their progress throughout the course.

Attendance Policy
As in-class discussion is a central goal for this course, students are expected to attend every lecture. If you will miss more than one lecture please see me to discuss possible arrangements.

Readings
This is a seminar-style course which will focus heavily on discussion, sharing ideas, and giving each other feedback. To make class time as productive as possible, it will be important for everyone to have done the readings before class begins.
Programming Assignments.
Coding assignments in this class will take primarily two forms:

- **Game Jam(s)** - Work individually or in pairs over the first weeks of the course to make a simple, “experimental” game. (2+ c.h.)
- **Experimental Game Project** - A semester long project. Work on the project will be split over a project proposal, several update and feedback presentations, and a final presentation. (3+ c.h.)

Presentations and Discussion.
Students in this class will engage in a variety of in class presentations and discussions including:

- **Paper presentations** - Several papers will be presented in student lead discussions. We’ll be rotating presentation duty throughout the semester. (2+ c.h.)
- **Daily participation** - All student will be expected to participate vigorously in class discussions. (1+ c.h.)
- **Game Jam Showcases** - (2+ c.h.)
- **Project Presentations** - (3+ c.h.)

Additional Information
Statements on disabilities, mental health, non-discrimination, and sexual harassment can be found on the course webpage.