CIS 587 Sections 001/002
Game Design 1
3 Credit Hours, Fall 2021
6:00-8:45 W, Lecture, in-person and on-line

Contact Information:

- Professor Bruce R. Maxim
- Email: bmaxim@umich.edu
- Phone Number: 313-536-9155

- Office Hours: 3-5 T W Th by appt. MF
- Office Location: 233 CIS

Course Description:

This course deals with the study of the technology, science, and art involved in the creation of computer games. The focus of the course will be hands-on development of computer games. Students will study a variety of software technologies relevant to computer game design, including: programming languages, scripting languages, operating systems, file systems, networks, simulation engines, and multi-media design systems. Lecture and discussion topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, real-time processing, game theory, software engineering, human computer interaction, graphic design, and game aesthetics.

Learning Goals:

Dearborn Discovery Core Category and Goals:

- None

Program Learning Goals:

- Our graduates will be successfully employed in a computer and information science-related field or another career path, in an industrial, commercial, academic, governmental, or non-governmental organization, or will be a successful graduate student in a program preparing them for such employment
- Our graduates will lead and participate in culturally diverse teams, becoming global collaborators and adapting to an ever changing field.
- Our graduates will continue their professional development by obtaining continuing education credits, professional registration or certifications, or post-graduate study credits or degrees

Course Objectives:

a. Outcomes of instruction

- The student will be able to apply techniques for play-testing computer games
- The student will be able to assess the quality of game products
- The student will be able to create analysis models for a game software product
- The student will be able to participate in the peer review of software engineering documents and software products

b. Student outcomes addressed in this course

- Outcome 1 – Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Outcome 2 – Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Outcome 3 – Communicate effectively in a variety of professional contexts.
- Outcome 5 – Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Required Materials and/or Technology:

- REQUIRED: Introduction to Game Design, Prototyping, and Development by Bond, Addison-Wesley, 2017.

- RECOMMENDED: Game Design Workshop by Fullerton, CRC Press, 2018.

- TECHNOLOGY: Unity 2017.X or Unity 2018.X and multimedia editing tools.

- URL: http://www-personal.umd.umich.edu/~bmaxim/
         http://groups.engin.umd.umich.edu/CIS/course.des/cis587.html

Assignments and Grading Distributions:

6 Project Assignments (Written and Oral)	30%
2 Final Reports	20%
2 Working Games	30%
Presentation on Game Topic	20%

97-100%	**A+**	84-86%	**B**	70-73%	**C-**
94-96%	**A**	80-83%	**B-**	67-69%	**D+**
90-93%	**A-**	77-79%	**C+**	64-66%	**D**
87-89%	**B+**	74-76%	**C**	60-63%	**D-**

Tentative Course Outline and Schedule:

Date	Activity, Content, Assignments
Module 1 Sept 01	Video Game Evaluation Criteria, Intellectual Property B1-B6
Module 2 Sept 08	Game Design, Story Telling, Puzzle Design, Unity Basic F1-F5, B8, B12, B13, B17
Sept 15	Austin Krauss – guest lecture Game Evaluations - Peer reviews done at home
Module 3 Sept 22	Game Play, Balance, Prototyping F6-F8, B9, B11
Module 4 Sept 29	Design Documents, 2D Physics B7, B18-B27, Notes
Module 5 Oct 06	User Experience Design, Agile, SCRUM B12, B14
Oct 13	2D Design Document and Prototype Reviews (reviews assigned) Peer reviews done at home
Module 6 Oct 20	Sound Design, Level Design, Sprite Animation, and Movement B16, Notes
Module 7 Oct 27	Terrain Construction, Physics, Game AI B28, B29, B35
Nov 03	2D Game Festival (reviews assigned) Peer reviews done at home
Module 8 Nov 10	Team Organization, Game Production, and Playtesting F9-F16, B10, B15

Date	Activity, Content, Assignments
Nov 17	3D Game Concept Presentations (reviews assigned) Peer reviews done at home
Nov 22 to Nov 28	Thanksgiving Vacation – no class
Dec 01	Team Meetings On-line
Dec 08	Alpha Prototype Demos (reviews assigned) Peer reviews done at home
Dec 15?	CIS 3D Game Festival 6:30-9:30 Peer reviews done at home

Course and University Policies:

A student enrolled in a course (lecture, laboratory, recitation, colloquium, seminar, or other university approved format) is expected to participate every scheduled aession of the course. The instructor of each course will make known to the students the course attendance policy with respect to student absences. It is the student's responsibility to be aware of this policy. The instructor makes the final decision to excuse or not to excuse an absence.

Presence or participation is also expected in online courses. Participation in online courses can take various forms; it is the instructor who determines what form of presence or participation is expected. Students enrolled in online courses are responsible for being aware of that policy/expectation. An instructor is entitled to give a failing grade for excessive absences or for a student who stops participating in class at some point during the semester.

The Faculty of the University of Michigan - Dearborn, College of Engineering and Computer Science (CECS) believe that our students are honorable, ethical, trustworthy people. Students who engage in cheating of any kind, place the academic integrity and reputation of our university and our college in jeopardy.

To ensure that all CECS students receive an equitable education and are prepared for the workforce, the University of Michigan - Dearborn Academic Code of Conduct will be strictly enforced in all CECS courses. All CECS students are required to read, understand, and follow the Academic Code of Conduct, as well as any additional rules that the course instructor provides. Students who violate the Academic Code of Conduct or course rules, are subject to all penalties indicated, including failing the course, potential loss of scholarship funds or expulsion from the university.

Cheating includes, *but is not limited to*:
- Receiving assistance of any kind, on any individual, graded assignment or exam
- Providing assistance of any kind, on an individual, graded assignment or exam
- Using materials that are prohibited on any graded assignment or exam
- Test/Exam Parties - i.e., completing an individual exam as a group project
- Collusion/Deception of any kind, including but not limited to:
    - coordinating with others to obtain or distribute prohibited or unpublished materials
    - giving false information to receive time extensions or re-takes
    - obtaining and using previous exams not provided by the instructor
- Using a mobile device (including smart watches) to communicate with others during an exam
- Paying another person to complete coursework, including exams
- Receiving payment to complete another student's work, including exams
- Requesting and using help from Chegg, Course Hero or any other such service
- Submitting examination information to Chegg, Course Hero or any other such service
- Plagiarism - using another person's work without properly citing
- Storing equations or solutions in a calculator to use on a quiz or exam when not permitted
- Screenshots of Canvas quizzes or exams
- Any "hacks" used to access Canvas content or other materials before released
- Any other dishonest action that violates course rules and/or the Academic Code of Conduct

If you are questioning an action you are about to take and cannot reach your instructor to verify, it is likely that you should not proceed with that action. Oral exams may be given to determine if a student understands the course material.

Course lectures may be audio/video recorded and made available to other students in this course. As part of your participation in this course, you may be recorded. If you do not wish to be recorded, please contact bmaxim@umihc.edu the first week of class (or as soon as you enroll in the course, whichever is latest) to discuss alternative arrangements.

Face Mask Policy

Face coverings are required inside all UM-Dearborn buildings (especially in laboratory and classroom spaces) and on campus transportation for all faculty, staff, students and guests. Face coverings may be removed when actively eating or drinking or when in an office by yourself with the door closed. The University will provide face coverings to any student, faculty, or staff member upon request.

Anyone attending class in person without a proper and visible face covering will be asked to put one on or leave. Instructors will end class if anyone present refuses to appropriately wear a mask for the duration of class. Students should also be sure they are situated at least six feet away from anyone in the class and located in a seat designated to ensure that distance.

Students who refuse to wear face coverings or appropriately adhere to other stated requirements may face disciplinary action under the Disruptive Student Behavior policy.

Students may contact [Disability Services](#) to determine if an accommodation is reasonable under the Americans with Disabilities Act.

Library Resources

The library's here to help! Go to the Mardigian Library website at [library.umd.umich.edu](#) for information about accessing research help, accessing the library's [online databases](#), [journal articles](#), and [books/ebooks](#), and checking out physical items from the library. Research librarians will be available to help you with your research needs through [live chat, text, email, and virtual appointments](#), as well as in the library for walk-in help. Check-out for [books](#), [course reserves](#), and [loanable technology (such as Chromebooks)](#) is also available at the Library Info Desk. For any of your questions, feel free to ask the Mardigian at [library.umd.umich.edu/ask](#).

Food Pantry

The pantry exists to support individuals on their journey as they work toward achieving their goals. We are committed to increasing access to food as a key to success, by assisting any student in need! If you need access or have questions, please contact the Office of Student Life by phone at 313-593-5390, by email at [umdearbornpantry@umich.edu](#).

University-Wide Policies or Statements Relevant to Courses:

Please see the 'Course Policies' Menu on Canvas for information on the following:
- University Attendance Policy
- Academic Integrity Policy
- Counseling
- Disabilities Services
- Safety Statement
- Harassment, Sexual Violence, Bias, and Discrimination