

University of Michigan-Dearborn Syllabus



CIS 487/587 Game Design 1 - 3 credit hours

Semester and Year: Fall 2016

Prof. Bruce R. Maxim

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Office Hours: 1:00-3:00 M, 1:00-4:00 W, 2:30-4:30 Th, by appt. F

Dearborn Discovery Core Category or Categories: None

Course Meeting Times and Format(s): 6:00-8:45 W, Lecture, 1420 PEC

URL: <http://www-personal.umd.umich.edu/~bmaxim/>

<http://www.engin.umd.umich.edu/CIS/course.des/cis487.html>

<http://www.engin.umd.umich.edu/CIS/course.des/cis587.html>

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.

The work for this course will include a variety of projects. All projects will require design activities and students will be expected to make use of existing programming tools. The final project will require students to go through all phases of system life cycle: specification, design, implementation, and evaluation. Your scores on the projects and presentations will determine your grade in this course. There will be 6 graded projects. Each project will be accompanied with an oral presentation. Late work will be penalized, as will evidence of cheating in any form. Graduate students will be expected to work as individuals to complete their game projects. Undergraduate students will be required to work on project teams.

Program 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

Dearborn Discovery Core Goals: none

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 the course

- Outcome b – An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- Outcome c – An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs
- Outcome k – An ability to apply design and development principles in the construction of software systems of varying complexity

Required Materials and/or Technology:

REQUIRED: Introduction to Game Design, Programming, and Development by Gibson, Addison-Wesley, 2014.

RECOMMENDED: Learning 2D Game Development with Unity, Johnson and Henley, Addison-Wesley, 2015.

RECOMMENDED: Game Design Workshop by Fullerton, CRC Press, 2014. (CIS 487)

RECOMMENDED: Unity 4.X Game AI Programming by Kyaw, Packt, 2013 (CIS 587).

TECHNOLOGY: Unity 4.6, Unity 5.4, Construct2, and multimedia editing tools.

Assignment and Grading Distribution:

6 Project Assignments (Written and Oral)	40%
Final Reports	20%
Working Games	30%
Attendance and Participation	10%

Grading Scale:

96%- 100%	A+	77%-79%	C+
92%- 95%	A	74%-76%	C
90%- 91%	A-	70%-73%	C-
87%- 89%	B+	67%-69%	D+
84%- 86%	B	64%-66%	D
80%- 83%	B-	60%-63%	D-

Tentative Course Outline:

Date	Activity and Content
Sept 7	Video Game Evaluation Criteria, Intellectual Property G1-G8
Sept 14	Game Design, Story Telling, Puzzle Design, Agile and SCRUM F1-F5, G12,G27
Sept 21	Game Evaluation Presentations
Sept 28	Game Play, Balance, Paper Prototyping, Design Documents F6-F8,G9, G11
Oct 5	Unity Basics, Mono Development Programming G15-G26, G28,2D1-2D2
Oct 12	Sprite Animation, Movement, 2D Physics 2D3-2D8
Oct 19	User Experience Design 2D9-2D14,G13 2D Design Document Technical Reviews (reviews assigned)
Oct 26	Terrain Construction and Level Design Notes
Nov 2	2D Game Festival 6:00-9:00139 CIS
Nov 9	Prototype 2, Game AI G29
Nov 16	3D Game Concept Presentations (reviews assigned)

Nov 23-27	Thanksgiving Vacation – no class
Nov 30	Playtesting, Alpha Prototype Demos F9-F11, G10
Dec 7	Team Organization, Game Production and Marketing F12-F16, G14
Dec 21	3D Game Festival 6:30-9:30 139 CIS

University Attendance Policy:

A student is expected to attend every class and laboratory for which he or she has registered. Each instructor may make known to the student his or her policy with respect to absences in the course. 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. An instructor is entitled to give a failing grade (E) for excessive absences or an Unofficial Drop (UE) for a student who stops attending class at some point during the semester.

Academic Integrity Policy:

The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University’s standards of academic conduct as set forth by the Code of Academic Conduct (<http://umdearborn.edu/697817/>), as well as policies established by each college. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses and violations can result in penalties up to and including expulsion from the University.

Disability Statement:

The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Counseling & Disability Services (DS) every semester they are enrolled. DS is located in 2157 UC (http://www.umd.umich.edu/cs_disability/). To be assured of having services when they are needed, students should register no later than the end of the add/drop deadline of each term. If you have a disability that necessitates an accommodation or adjustment to the academic requirements stated in this syllabus, you must register with DS as described above and notify your professor.

Safety:

All students are encouraged to program 911 and UM-Dearborn's University Police phone number (313) 593-5333 into personal cell phones. In case of emergency, first dial 911 and then if the situation allows call University Police.

The Emergency Alert Notification (EAN) system is the official process for notifying the campus community for emergency events. All students are strongly encouraged to register in the campus EAN, for communications during an emergency. The following link includes information on registering as well as safety and emergency procedures information:
<http://umdearborn.edu/emergencyalert/>.

If you hear a fire alarm, class will be immediately suspended, and you must evacuate the building by using the nearest exit. Please proceed outdoors to the assembly area and away from the building. Do not use elevators. It is highly recommended that you do not head to your vehicle or leave campus since it is necessary to account for all persons and to ensure that first responders can access the campus.

If the class is notified of a shelter-in-place requirement for a tornado warning or severe weather warning, your instructor will suspend class and shelter the class in the lowest level of this building away from windows and doors.

If notified of an active threat (shooter) you will Run (get out), Hide (find a safe place to stay) or Fight (with anything available). Your response will be dictated by the specific circumstances of the encounter.