

## CIS 488/588 Game Design 2 - 2 credit hours

Prof. Bruce R. Maxim

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Office Hours: 2:00-3:00 M, 2:00-4:00 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.engin.umd.umich.edu/CIS/course.des/cis488.html>

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### Course Description:

This course is a continuation of the material studied in CIS 487/587. The focus of the course will be hands-on development of computer games and computer game development tools (e.g. game engines). Students will study a variety of software technologies relevant to computer game design, including: 3D graphics, computer animation, data-driven game design, multiplayer game programming, and game AI. Lecture topics will be taken from several areas of computer science: simulation and modeling, computer graphics, artificial intelligence, game theory, software engineering, human computer interaction, and game content development.

### 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

### Course Objectives

- a. Outcomes of instruction
  - The student will be able to design a 3D multimedia computer game and create design documents for it
  - The student will be able to design an original game using an intelligent opponent of the student's own design
  - The student will be able to design an original game using an intelligent opponent of the student's own design
  - The student will be able to design trade-offs considered in formulating the software architecture design for an original 3D game

- The student will be able to develop the requirements for a 3D multimedia computer game
  - The student will be able to develop the requirements for an intelligent computer opponent for a computer game
- 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 (*Not assessed here*)
  - Outcome c – An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs (*Not assessed here*)
  - Outcome k – An ability to apply design and development principles in the construction of software systems of varying complexity (*Not assessed here*)

### **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. If you miss a lens discussion you will be required to do additional written work to make up your absence.

### **Academic Integrity**

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://www.umd.umich.edu/policies\\_st-rights/](http://www.umd.umich.edu/policies_st-rights/)), as well as policies established by each college. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses, and may be monitored using tools including but not limited to TurnItIn. Violations can result in penalties up to and including expulsion from the University. At the instructor's discretion, the penalty may be a grade of zero on the assignment up to and including recommending that the student be expelled from the University. It is the sole responsibility of the student to understand and follow academic guidelines regarding plagiarism. The University of Michigan-Dearborn has an online academic integrity tutorial that can be accessed at <http://webapps.umd.umich.edu/aim>.

### **Disability Statement**

The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Disability Resource Services (DRS) every semester they are enrolled for classes. DRS is located in Counseling & Support Services,

2157 UC. 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. Visit the DRS website at: [http://www.umd.umich.edu/cs\\_disability/](http://www.umd.umich.edu/cs_disability/). If you have a disability that necessitates an accommodation or adjustment to the academic requirements stated in this syllabus, you must register with DRS as described above and notify your professor. Upon receipt of your written notification, we will make accommodations as directed by DRS.

## Safety

All students are strongly encouraged to register in the campus Emergency Alert System, used to communicate with the campus community during an emergency. More information on the system and how it works, along with enrollment information can be found at: <http://umemergencyalert.umd.umich.edu/> Please note that the system will only communicate through UM-Dearborn email accounts, so if you primarily use a non-university account you should forward your UM-Dearborn email to your primary account.

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

Students are encouraged to identify two ways out of the building as well as to locate the building's designated assembly area where students are expected to go in the event of an evacuation: [http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Site\\_Assm\\_Areas\\_2011.pdf](http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Site_Assm_Areas_2011.pdf). For those students requiring assistance in an evacuation, please visit the following site to identify the nearest "Area of Rescue Assistance": [http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Handicap\\_Accessible\\_Locations.pdf](http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Handicap_Accessible_Locations.pdf) Please also familiarize yourself with the locations in this building identified as shelter areas in the event of severe weather. Specific shelter locations for severe weather incidents can be located at: <http://www.umd.umich.edu/691921/>

In the case of an active shooter we will shelter in place. If this becomes a necessity please:

- Contact 911 immediately to report an emergency.
- Find a safe area such as small rooms, under furniture, or other safe areas.
- Lock or block doors in rooms where you and others are located.
- For interior rooms, close blinds, shut off lights. Rooms facing outside - have blinds open!
- Get down – preferably under tables, furniture or equipment. Stay away from the door.
- Remain silent (silence all personal communication devices) and stay in place.
- If you are grouped in an area with other people, quietly select a leader.

- The leader should call 911 to report information such as number of people and location.
- Attempt to maintain a calm quiet atmosphere.
- Stay sheltered until you receive an “all clear” message from law enforcement.
- Follow law enforcement direction.

**Required Materials and/or Technology:**

REQUIRED: UDK Game Development , A. Thorn, Course Technology, 2012.  
 REQUIRED: The Art of Game Design: A Book of Lenses, J. Schell, Morgan Kaufmann, 2015.  
 RECOMMENDED: Unreal Game Development, A. Ashish and A. Pkita, A.K. Peters, 2010.  
 TECHNOLOGY: UDK, Unreal4, and multimedia editing tools.

**Assignment and Grading Distribution:**

6 Project Assignments (Written and Oral)	50%
Final Reports	20%
Working Game	20%
Attendance	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-

**Course Outline:**

Date	Activity and Content
Jan 7	Course Introduction and Unreal Basics UDK 1-2
Jan 14	Game Pitch Presentations due
Jan 21	Teams Formed Unreal Level Editing UDK 3-5
Jan 28	Terrain and Lighting UDK 6-8

Feb 4	Game Treatment Presentations
Feb 11	Kismet and Reactive Elements UDK 9
Feb 18	Alpha Release Presentations
Feb 25	Spring Break
Mar 4	Matinee and Bot Navigation UDK 9 Lens Presentations (3)
Mar 11	Unreal Scripting and AI UDK 12-14 Lens Presentations (3)
Mar 18	Karma Actors, Weapons, Characters  Lens Presentations (3)
Mar 25	Beta Release Presentations
April 1	User Interfaces, Particle Effects UDK 10-11 Lens Presentations (3)
April 8	Lens Presentations (9)
April 15	3D Game Marketing Presentation Due  Lens Presentations (3)
April 24	3D Project Fair 6:30-9:30 139 CIS