

ECE 407/ECE 507/MSIM 695
Introduction to Game Development
Spring 2010

1. Instructor Information

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Old Dominion University

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Office Hours:

3:30 PM – 5:30 PM, Monday and Thursday, or by appointment.

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2. Course Description

Introduction to Game Development is an exciting introductory course focused on game development theory and practices using Microsoft XNA Game Studio with emphasis on educational game development. Topics covered in this course include game architecture, computer graphics theory, user interaction, audio, high level shading language, animation, physics, and artificial intelligence. Students will develop games related to science (e.g., physics, chemistry, and biology), technology, engineering, and mathematics (STEM) education. The developed games can run on a variety of platforms, including Microsoft Windows, Xbox 360, and Zune Digital Media Player.

3. Textbooks

Required:

- A. Lobao, B. Evangelista, J. Farias, and R. Grootjans, *Beginning XNA 3.0 Game Programming: From Novice to Professional*, Apress, 2009, ISBN 1430218177.
- A. Troelsen, *Pro C# 2008 and the .NET 3.5 Platform (4th Edition)*, Apress, Berkeley, CA, 2007, ISBN 1590598849.

Optional:

- R. Grootjans, *XNA 3.0 Programming Recipes: A Problem-Solution Approach*, Apress, 2009, ISBN 143021855X.
- J. Ball, *XNA Game Studio Express: Developing Games for Windows and the Xbox 360*, Course Technology, 2007, ISBN 1598633686.
- A. Stellman and J. Greene, *Head First C#*, O'Reilly Media, Inc., Sebastopol, CA, 2007, ISBN 0596514824.

4. Software and Hardware

- Microsoft Visual C# 2008 Express Edition
- Microsoft XNA Game Studio 3.1
- Personal Computer
- Xbox 360 Controller, or Xbox 360 Wireless Controller and Receiver for Windows

5. Prerequisites

Basic mathematical preparations in linear algebra (in particular, matrix operations), geometry, trigonometry, and calculus are required. Students must have previous experience in one of the following languages: C++, Java, or C#. Students also should understand basic data structures, such as trees and graphs. A brief introduction to C# is provided and students are required to write their program in C#. Students without the prerequisites are not permitted to take this course.

6. Lecture Hours

Hours: 4:20 PM – 7:00 PM, Wednesday.

7. Assignments and Grading

Undergraduate students will have 4 programming assignments and one final demonstration and presentation. Graduate students will have 4 programming assignments and one final project with presentation. Both undergraduate and graduate students have the option of one additional project for extra credits. There are no exams in this course.

Reading materials and homework problems will be provided, but will not be graded.

8. Attendance

As per university policy, students are expected to attend classes. Students should notify instructors in advance when a class will be missed. In the event of an emergency that causes a class to be missed, instructors must be notified as soon as possible. Students who must miss a class are responsible for all information and announcements provided during class. Classes are expected to begin on time, and students will respect the time boundaries established by the professor.

9. University Email Policy

The Old Dominion University e-mail system is the official electronic mail system for distributing course-related communications, policies, announcements and other information. Students should activate their Old Dominion University e-mail accounts and check them before each class. If the student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.

10. Withdrawal

A syllabus constitutes a contract between the student and the course instructor. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable

hardship for you, you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes.

11. Honor Pledge

By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. The honor code is as follows:

I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned.

12. Special needs

In compliance with PL94-142 and more recent federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must have been identified, as "special needs" by the university and an appropriate letter(s) must be provided to the course instructor. Provision will be made based upon written guidelines from the university "special needs students" resource office. All students are expected to fulfill all course requirements.

13. Course Disclaimer

Every attempt is made to provide a syllabus that is complete and that provides an accurate overview of the courses. However, circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students.

14. Course Outline (Tentative)

The following topics are planned for this course.

1. Course Introduction
2. C#: A Brief Introduction
3. Math Review
4. 2D Game Basics and User Interactions
5. Audio and More 2D Games
6. Deploying Games on Xbox 360 and Zune Media Player
7. 3D Computer Graphics Basics: Part I and Part II
8. Guest Lecture: 2D and 3D Content Generation
9. Effects and HLSL Shaders
10. Content Pipeline
11. Skeletal Animation and Third Person Shooter Game
12. Advanced Topics: Physics and Artificial Intelligence
13. Guest Lecture: Games for Education
14. Student Game Demonstrations and Presentations