CS 4173 Video Game Development

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Other times available by appointment.

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Primary Text (recommended): Joseph Hocking, *Unity in Action: Multiplatform game development in C#*, 2nd edition, Manning Publications (2018). ISBN : 978-1-61729-496-9.

Secondary Text (recommended): Rob Miles, *C# Programming Yellow Book*, available at `https://www.robmiles.com/s/CSharp-Book-2019-Refresh.pdf`. A copy will be placed on canvas.

Background Text (optional): Jason Gregory, *Game Engine Architecture*, 3rd Edition, CRC Press, 2019. ISBN 978-1-138-03545-4.

Prerequisites: CS 2133, CS 2433, and MATH 2144 or equivalent courses.

Course Catalog Description: History of video games. A survey of various game platforms. Computer graphics, audio tools and techniques, and artificial intelligence for game development. Game engines. Game development tools and techniques. An overview of the video game industry from a development perspective.

Grading:

Online quizzes	20%
Game Reviews	10%
Programming Exercises	20%
Programming Assignments	16%
Game Project	10%
Exam I	12%
Exam II	12%
Graduate project	10%

Grading Scale: for score x in

$90\% \leq x$	A
$80\% \leq x < 90\%$	B
$70\% \leq x < 80\%$	C
$60\% \leq x < 70\%$	D
$x < 60\%$	F

Graduate project — research paper and presentation: graduate students have the addition work of a research paper due at the end of dead week. The paper must be

related to an academic paper presented at the game developers conference(GDC) within the last three years. The research paper will be worth 10% before renormalizing back to a total of 100%.

Dates: **Exam I** : **October 1**
Exam II : **November 5**
Game Project : **December 4**

Examinations: Exams I and II will be programming based exams. You can use Unity documentation and the rest of the internet as a static resource. That is, you can use existing resources to help solve the questions, but you should not have dynamic content generated to help you solve a question (that is, don't ask for answers). You should submit solutions as you finish each question. Answers submitted within three hours of starting the exam have no penalty. Anwsers submitted after three hours and before 24 hours will have a 10% penalty. Answers submitted after 24 hours and before 48 hours will have a 30% penalty. Answers submitted after 48 hours and before 96 hours will have a 50% penalty. After 96 hours, anwsers can not be submitted.

Online Quizzes: quizzes will be posted on canvas. Typically will be due at 11:59 on Wednesdays. You may take each quiz three times, with the highest score used for grading. Quizzes will be available for three weeks after initial due date with no late penalty.

Game Reviews: everyone will select two different games for review. A review will consist of three components: a presentation, a written design document, and a discussion.

Assigned work: There will be individual ~~and group base assignments~~. Programs will be required to use the Unity framework. Solutions may be submitted via drop box on canvas or using git (information on git will be given in class). Multifile solutions submitted to drop box must be archived using zip or tar. All files needed to build and run the program must be submitted (typically, exported into a Unity package). Assignments will be due at 11:59 p.m. on Fridays. If assignments are turned in late, they lose a percentage of their graded point values according to the following schedule:

Programming Exercises and Assignments		
On time	:	0%
One week	:	10%
Two week	:	20%
More than two week	:	30%

All programming assignments and exercises must be submitted by December 4th, the Friday of deadweek.

CS user name and passwords: If you have not used the departmental server, csx.cs.okstate.edu, in your previous courses, see users names and passwords section of `https://computerscience.okstate.edu/loggingon` to create your initial password. This user name and password will be used with the git server running on cs.okstate.edu.

Game Project: a semester long project in which you can explore advance techniques and gameplay. The final project is due on December 4. An initial design document and an intermediate design and prototype will be due during the semester.

Software/Hardware requirements:

- *Unity Hub* from `https://unity3d.com/get-unity/download`, which installs and manages Unity. Unity runs on Windows, Macs, and linux. ~~It is also installed in the MSCS 222, the Mac Lab.~~
- A *git* client for your operating system (available in the visual studio installer on Windows and in the XCode command line tools on Mac). You may also wish to add a git GUI client, but all course instuctions will be for the command line.
- A Xbox compatible gamepad that will communicate with your machine (optional, but recommended).
- A headset, or speakers and a microphone (optional, but recommended).
- ~~A laptop computer (optional). If you have one, bring it to class. The OSU library has some for checkout.~~

Collaboration:

Discussion of concepts, ideas, and techniques is allowed. After discussion, each student (or team in group assignments) must write up his/her own solution. Copying another person's work, in part or whole, is not allowed. Giving another student your work, in part or whole, is considered cheating as well. If you are unsure whether your collaboration is acceptable, speak with the instructor in advance. Any violation of academic integrity would result in a non-droppable grade of zero for that assignment and an additional reduction of one letter grade in the course and a report to the university administration. Major violations will result in a grade of F!.

Disabilities act: If any student feels that they have a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and the Office of Disabled Student Services to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise the instructor of such disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

Syllabus Attachment: See `https://academicaffairs.okstate.edu/sites/default/files/Fall%202020%20Syllabus%20Attachment%20as%20of%20Aug%2010%202020.pdf` for Stillwater's syllabus attachment.

Tentative Schedule : instead of having a fixed schedule for the entire class, the course will be organized into tracks consisting of multiple modules. Everyone will complete the Foundational Track and will have the freedom to choose which other tracks to complete. Since tracks will be of different sizes and complexities, each track or module will be giving a weight value. You will need to select tracks with a total weight of 10.