IMMERSIVE COMPUTING
CS 4743 / CS 5743

Course Syllabus

Last updated: January 28, 2020   4:00 PM

Instructor

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Teaching Assistants

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Meeting Logistics

Class sessions take place: TuTh 9:00 – 10:15 AM
Classroom: 222 MSCS

Optional Textbooks and Papers

- *Virtual Reality Technology & Applications* by Mihelj, Novak, and Beguš (freely available for download through the OSU library).
- *C# Programming Yellow Book* by Rob Miles, 2019 edition (a.k.a., the "Cheese" edition); Department of Computer Science, University of Hull (freely available for download)
- Immersive computing, Unity, or other eBooks available at the OSU Library site.
- Other papers, books, or book chapters as specified during the semester.

Canvas

You can access the course Canvas site by signing in to https://canvas.okstate.edu and looking for the course CS4743. (All CS4743 and CS5743 sections have been combined on Canvas.) With the exception of exams, all materials for the course will be available through Canvas.

Prerequisites

Object-oriented programming experience.

Course Objectives

Survey the history, state-of-the-art, and future of immersive computing, a.k.a VAMR (virtual, augmented, and mixed realities), a.k.a. XR (extended reality). Learn to use appropriate tools and techniques to develop for a variety of target platforms. Examine the human physiological factors that affect the design and development of immersive systems. Investigate the relationship between immersive computing and IoT (Internet-of-Things). Learn about the construction of virtual environments and tracking between real and virtual objects. Study the applications of immersive computing to solve real-world problems.

Assignments

Individual assignments .... up to 130
Group participation assignments .... up to 50
Team assignments .... up to 120
Exams (2 @ 100) 200

Undergraduate Credit Total Points: up to 500

Project for Graduate Credit 50

Graduate Credit Total Points: up to 550

Honors Section

Students enrolled in the Honors section will meet with the instructor as a group for one extra hour per week (weekday and time to be determined) and must complete an extra project that will be graded as pass/fail with respect to the Honors requirements.

Due Dates & Assignment Logistics

The due date and time for each assignment is specified on its assignment handout posted on the course Canvas site. Solutions must be submitted via drop boxes on the same site. Solutions that consist of multiple files must be zipped into a single file for submission. (NOTE: zip is the only form of aggregation/compression accepted.)

Late Work Policy

Individual assignments may be turned in late, but they lose a percentage of their graded point values for each class day that they are late, according to the following schedule:

On time:	0%
Up to 1 class day late:	10%
Up to 2 class days late:	30%
Up to 3 class days late:	60%
More than 3 class days late:	100%

Individual assignments: If you lose points due to errors in your solution, you will be given the opportunity to submit one corrected version of the solution within one week of the date you were notified of your score and the errors.

- For example, if you are notified of your score/errors on Tuesday of one week, you may submit your corrected solution no later than Tuesday, 11:59 PM of the following week.
- An exception is made if the latter date falls during spring break; then the assignment will be due two weeks after the score/errors notification date.
- The corrected solution will be graded as though it was turned in on the same date as the original.

All other types of assignments are worth zero points if turned in late.

Grading policy

Semester grades will be assigned based on point totals as follows:

100% to 90%:	A
90% to 80%:	B
80% to 70%:	C
70% to 60%:	D
60% to 0%:	F

In addition, each student must earn at least half of the points for individual assignments to receive a passing grade for the course.

Exam Dates and Times

Unless an announcement is made to the contrary, exams will be held at the following dates/times:

Mid-Semester exam: Tuesday, March 3, 9:00 – 10:15 AM
Final Exam: Tuesday, May 5, 8:00 – 9:50 AM

Software/Hardware requirements

- *A computer running Windows 10 or macOS Mojave or later.* You may use the computers in our classroom or bring your own laptop computer.
- *A fairly up-to-date mobile device.* (See this page for more details.)
  - Android running v 7.0 (Nougat) or later.
  - Apple running iOS 11 or later.
- *Internet access* and an HTML5-compatible Web browser.
- *A headset, or speakers and a microphone*. (Optional, but encouraged.)
- *Unity Hub*, which manages the versions of Unity you have installed and serves as the Unity launching page.

- o *Unity 2019, version 2019.3.0f3 or later* – I suggest you install this from within *Unity Hub*.
- *SourceTree* *GIT GUI client* (freeware) or a similar GIT client.
- *GIMP* 2D image editor (freeware).
- *InkScape* 2D vector image editor (freeware).
- *SketchUp Free* 3D Modeling system (web-based freeware).
- *Blender* 3D modeling system (freeware).
- *Audacity* audio capture and edit utility (freeware)
- *7-Zip* (freeware) or some other zip utility. (Optional, since our operating systems have built-in zip capabilities.)
- Other hardware and software as specified during the semester.

Collaboration policy

Individual assignments: Discussion of concepts, ideas, and techniques is acceptable. After discussion, each student must write up his/her own solution. Copying another person's work, in part or in whole, is not allowed. Giving another student your work, in part or in whole, is considered cheating as well. If you are unsure whether your collaboration is acceptable, speak with the instructor in advance. Take care that your solutions are not exposed to or by other students.

Team assignments: Sharing of work among students on a project team is acceptable. Inter-team discussion of concepts, ideas, and techniques is acceptable, but inter-team sharing of work is not permitted. If you are unsure whether your collaboration is acceptable, speak with the instructor in advance.

Examinations: During an examination period, no communication of any kind about the exam (except with the instructor or proctor) is allowed.

Students who do not comply with the collaboration policies described above will be assigned sanctions in accordance with OSU policy 2-0822 (*Academic Integrity*). Depending on the circumstances of the violation, the sanctions may result in a score of zero on an assignment, a final grade of *F!* for the course, or dismissal from OSU. In all instances, the violation will be reported to the appropriate institutional officials.

Syllabus attachment

Other useful information, such as important dates throughout the semester, can be found on the OSU-Stillwater syllabus attachment.

Office of Student Disability Services

If you think you have a qualified disability and need special accommodations, read the appropriate section of the syllabus attachment or addendum, and contact the appropriate office as soon as possible.