Extended Reality
CS4743 / CS5743

Course Syllabus

Instructor
Dr. J. Cecil
Office: 316 MSCS
Lab: 316 MSCS
Email: j.cecil@okstate.edu
Office hours:
Meeting times can be arranged by sending email to Dr. Cecil (always copy the TA when sending email to Dr. Cecil)
Students need to note that Dr. Cecil may sometimes be on work travel within the US or overseas. Requests for appointments MUST ALWAYS be copied to TAs to ensure TA can assist when Dr. Cecil is not available.

Teaching Assistant
Harika Mekala
Office: 316 MSCS
Email: hmekala@okstate.edu
Office hours: Meeting times with TA can be arranged by sending email to TA and copying Dr. Cecil.

Meeting Logistics
As this is a distance ed course, the lecture sessions will be recorded, and class notes posted on the course Canvas site. There will be 2 lecture sessions each week. These will be posted each week (by Thursday of each week).

Optional Textbooks and Papers
- Papers, websites, books, or book chapters may be 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 CS 4743-5743 Extended Reality – Combined – Spring 2024. (All CS4743 and CS5743 sections for the semester have been combined on Canvas.) 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 extended reality (XR), a.k.a VAMR (virtual, augmented, and mixed realities), a.k.a. immersive computing. 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 XR systems. Investigate the relationship between XR and IoT (Internet-of-Things). Learn about the construction of virtual environments and tracking between real and virtual objects. Study the applications of XR to solve real-world problems.
Grading Breakdown

Assignments (Homework and Quizzes) ................................................................. 30%
Semester Project .................................................................................................. 30%
Mid Term Exam .................................................................................................... 20%
Final Exam ........................................................................................................... 20%

* Graduate students will be expected to do additional work which will be indicated as necessary on some of the assignments and the Project work.

Honors Section

Those enrolled for Honor credits will be expected to email the instructor in the first week to discuss the deliverables and grading. They must complete additional assignments that will be graded as pass/fail with respect to the Honors requirements.

GRADUATE STUDENTS: Graduate students will be expected to do more work than undergraduate students in this class. They will be required to work on a programming assignment or given other requirements related to an additional homework or additional work pertaining to the mid-term and final exam project deliverables. Most deliverables require students to work as part teams. For team-based deliverables, all students are expected to contribute to ensure fairness. Note that peer evaluations will be used to get feedback on contribution and roles of each student in a team. Students who have not contributed to their fair share of work will be given a lower grade point than the grade points given to the overall team.

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%

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

For the online exams on canvas, you are expected to complete the exams within the allocated time. Canvas will end your session if you exceed the time allocated. STUDENTS SHOULD NOT EMAIL THE INSTRUCTOR REQUESTING MORE TIME AND EMAILING THE DELIVERABLES. NO DELIVERABLE WILL BE ACCEPTED BY EMAIL FOR THESE EXAM DELIVERABLES. THERE WILL BE NO MAKEUP FOR ONLINE MIDTERM AND FINAL EXAMS. PLEASE DO NOT CALL OR EMAIL THE INSTRUCTOR AFTER THE EXAM DATE/TIME HAS EXPIRED AND REQUEST TO TAKE THE EXAM ANOTHER DAY, ETC.

Sick Policy

Please do not ask instructor for additional time because you fall sick on the day of the deliverable or deadline. Students are expected to start working on their homework and other deliverables well before the deadlines.
If a student falls sick on the day of the online exam or the day before, it is the student’s responsibility to obtain a signed letter from a medical doctor that the student was seen for a medical illness and send this electronic document to the instructor and copy the TAs. The doctor’s letter needs not provide details of your medical condition other than clearly stating student was seen by doctor and on what day/time. Submitting a nurse’s note will not be sufficient.

**This medical documentation is to ensure fairness to all students. Without any documentation, simply contacting the instructor after missing in-class work or exam does not ensure that student will be given a makeup deliverable (exam or homework or anything else).**

**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

*Instructor reserves the right to curve the grades.*

**Exam Logistics**
Exams will be online and are typically closed. Following are the tentative dates of the exams. Should changes be necessary to this schedule, they will be announced in class and on the Canvas announcements page.

- Midterm exam: March 15, 2024
- Final Exam: will be announced later and will occur during the university final exam week.

**Software/Hardware requirements**
- A computer running Windows 10 or 11 (production version), or macOS Catalina. You are encouraged to have a laptop computer with you during our sessions.
- 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.
  - **Unity 2021.1.x**, where x ≥ 16. I suggest you install this from within **Unity Hub**.
- **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.

**OTHER POLICIES REGARDING TEAM AND INDIVIDUAL WORK**
Homework, project reports and other submissions are expected to be well organized. If you are submitting any deliverable as part of a team, the names of all the team members should be written (using first initial and last name) along with the Team number assigned. All submissions are to be uploaded on canvas; please make sure to submit it well before the deadline as CANVAS will close your submission folder exactly at the deadline date/time. Along with the team deliverable (on specific deadlines), confidential peer evaluations must be
submitted by each team member regarding contribution of each member. Peer evaluations MUST be submitted for each team-based deliverable. This will be used to allocate individual grade points of each student for a given team-based deliverable. **Failing to submit these peer evaluations will result in zero grade points for that deliverable.** A template will be provided for peer evaluations. Students who receive poor peer evaluations will be given a reduced score / grade which can include being given zero points for not contributing to team deliverables.

**TEAM SUBMISSIONS**

Some of the deliverables may involve team presentations; students have to work together to create a well-organized presentation which needs to be recorded and posted in the appropriate folder making sure to meet the deadline and other requirements. A student not participating in such a team presentation or not contributing to team-based deliverable will not receive any points or credit for that assignment or deliverable; extraordinary circumstances involving health reasons or family emergencies will be reviewed on a case-by-case basis when appropriate documentation is provided. If a student falls sick, a letter from a medical doctor is required (a note from a nurse is insufficient, see more information on this below). If the instructor is not convinced about the medical reason given, that student may not get an opportunity to re-do the presentation and will receive zero points. **FOR THIS REASON, EACH STUDENT IS DISCOURAGED FROM MISUSING MEDICAL OR HEALTH REASONS.**

Each student is expected to contribute their equal share in any team based deliverable or submission. Students who miss team meetings and/or do not contribute to any team-based deliverable WILL receive zero grade points or a lower grade than the grade points given to other team members.

Falling sick on the day of the deliverable is not an automatic excuse for a late submission or for a makeup of any deliverable; without adequate documentation (see below), students may not be given an opportunity for a makeup exam. Undocumented late submissions will be evaluated based on the late assignment policy indicated earlier.

Any student who provides medical documentation for missing class or any other activity will need to provide the following (no excuses): The medical physician should provide a letter (using the Hospital or Health Care facility’s letterhead) along with a signature, and time/day of the doctor’s appointment along with a phone number. Submitting a sheet of paper without adequate details is not acceptable (for e.g.: a note from a nurse or doctor that you have seen them is not adequate – a letter is needed). The letter need not share any personal medical details of the health condition but should clearly indicate what date/time the student was seen by the physician.

If a student has to miss an exam due a family emergency, they may be allowed to take a makeup exam after the planned class exam date (not before). Students who fall sick on the day of an exam must contact the instructor / TA as soon as possible along with explicit documentation from a physician or health center explaining the reasons for missing the exam (simply turning in a signed note from a nurse does not constitute adequate documentation). Instructor reserves the right to reduce the exam grade or assign a grade of zero points for makeup exams.

**Collaboration policy and academic integrity**

Read and understand the OSU [Violations of Academic Integrity](#) webpage. Further, we will adhere to the following:

- **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 is allowed, except with the instructor or proctor. No cell phones or access to notebooks or web or any other source is allowed. Violations will be reported to appropriate institutional officials.

Students who do not comply with the collaboration policies described here 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**

The breakdown of topics by week will be posted after the drop/add deadline to allow instructor to take into consideration team presentations.

**Office of Student Accessibility Services**

If you think you have a qualifying disability and need accommodations, contact the Office of Student Accessibility Services as soon as possible to start the registration process and to ensure timely implementation of appropriate accommodations. More information can be found in the syllabus attachment.

**Other Important Resources**

The OSU community is here for you and wants to provide all the tools and resources to best support your mental health. If you or someone close to you is having a difficult time, our mental health resources are available to help. Whether it's mental or physical health, we have student wellness resources to ease the stress of college life.

Reach out to your advisor or instructor if you need support or help in your courses and utilize the many academic resources available on campus. Our faculty's goal is to assist you, whatever the circumstances might be.

We are working to ensure that your time at Oklahoma State is both safe and formative, and many times that begins with your mental wellbeing.