Course Syllabus
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Instructor
Blayne E Mayfield
Office: 232 MSCS
Lab: 203E MSCS
Email: blayne.mayfield@okstate.edu
Web Page: http://computerscience.okstate.edu/~bem
Office hours: Face-to-face and by Zoom;
Tue 8:30 – 10:00 AM, Thu 1:30 – 3:00 PM, and by appointment

Teaching Assistant
Stevens Johnson
Office: 225 MSCS
Email: sjohn53@ostateemail.okstate.edu
Office hours: Face-to-face and by Zoom
Mon 3:00 – 4:00 PM, Wed 4:00 PM – 5:00 PM, Fri 11:00 AM - Noon,
and by appointment

Meeting Logistics
Class dates/times: TuTh 10:30 – 11:45 AM Central Time
Classroom: 222 MSCS

We plan to record and post sessions on the course Canvas site for those times you cannot participate live. We will do our best to assure that recorded sessions are available, but technical difficulties beyond our control could prevent any given session from being recorded. So, if you can attend class, you are urged do so.

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)
• Extended reality, 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 CS 4743-5743 Extended Reality – Combined – Fall 2021. (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.

Assignments
Individual assignments .................................................................................................................................................. up to 130
Topical discussion 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.)

Topical discussion assignments – At various times during the semester, the instructor will post questions or topics for discussion to the Discussions page of the course Canvas site, along with a due date/time for participation. Each student who makes at least one meaningful post in response to the instructor or to another student, no later than the due date/time, will receive 5 points for the assignment.
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.

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 Logistics
There are two 100-point exams in this course. They will be held in our classroom according to the following schedule. Should changes be necessary to this schedule, the changes will be announced in class and on the Canvas announcements page.

- **Midterm exam:** Thursday, Oct 7, 10:30 AM; 75 minutes in length.
- **Final Exam:** Tuesday, Dec 7, 10:00 AM; 110 minutes in length.

Software/Hardware requirements

- A computer running **Windows 10 or 11 (production version), or macOS Catalina, Big Sur, or Monterey (production version)**. You are encouraged to have a laptop computer with you during our sessions.
- A **fairly up-to-date mobile device**.
  - Android running v 7.0 (Nougat) or later.
  - Apple running iOS/iPadOS 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.
  - **Unity 2021.1.x**, where the condition is satisfied. 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**

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.

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**

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

**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.