

Course title and number: Introduction to Augmented and Virtual Reality

Instructor’s name, email, and office hours will be provided by the school

Course format

All activities are online

Course prerequisites

None

Course overview

Separating hype from reality is hard... especially in the fast-growing and evolving space of augmented and virtual reality (AR/VR). Recent advances in technology has allowed AR/VR systems to become extremely sophisticated and realistic. This course introduces students to the technologies that underpin AR/VR systems. Then the course walks through 7 applications of AR/VR and how they will change and impact numerous aspects of our lives and the economy. Students will also learn about and discuss the risks and side effects of these systems, including health, privacy, and ethical implications.

Course outline by module

1. Introduction to Augmented and Virtual Reality
2. Augmented Reality Systems
3. Virtual Reality Systems
4. AR and VR in Gaming
5. AR and VR in Education
6. AR and VR in Entertainment
7. AR and VR in Healthcare
8. AR and VR in Architecture, Engineering, and Construction
9. AR and VR in Shopping
10. Social VR and Telepresence

Course calendar

The course is broken down into 10 modules (plus an introduction, Module 0) and is spread out over a 20-week semester. Each module is broken into 5 sections, which generally consist of a video lecture, a reading, and either a concept check or discussion prompt. After the 5 sections is the short answer assignment and quiz to finish the module. Enough time is worked in for the completion of these tasks.

<u>Week #</u>	<u>Module #</u>	<u>Sections</u>
Week 1	Module 0 Module 1	1 1, 2
Week 2	Module 1	3, 4, 5
Week 3	Module 2	1, 2, 3
Week 4	Module 2 Module 3	4,5 1
Week 5	Module 3	2, 3, 4
Week 6	Module 3	5

	Module 4	1, 2
Week 7	Module 4	3, 4
Week 8	Module 4 Module 5	5 1, 2
Week 9	Module 5	3, 4, 5
Week 10	Module 6	1, 2, 3
Week 11	Module 6 Module 7	4, 5 1
Week 12	Module 7	2, 3, 4
Week 13	Module 7 Module 8	5 1
Week 14	Module 8	2, 3, 4
Week 15	Module 8 Module 9	5 1, 2
Week 16	Module 9	1, 2, 3
Week 17	Module 10	1, 2
Week 18	-	-
Week 19	Module 10	3, 4
Week 20	Module 10 Review & Final Exam	5

Course objectives

Upon completion of this course, students will be able to:

- A. Define augmented reality (AR) and virtual reality (VR) and distinguish between the two
- B. Describe key technologies that have contributed to the development of AR/VR
- C. Define key terms related to AR/VR
- D. Describe the hardware and sensors used in AR/VR
- E. Compare existing companies that make hardware, software, and applications for AR/VR systems
- F. Evaluate applications of AR and VR in various end-markets, such as gaming and entertainment, education, engineering, healthcare, aerospace, and architecture
- G. Give examples of current and historical figures that have contributed to the advancement of AR/VR
- H. Discuss the pros and cons of AR and VR, including side effects of use and potential legal and ethical implications
- I. Predict the adoption of AR and VR
- J. Determine the impact of AR and VR on society, the economy, and jobs
- K. Identify potential career opportunities within AR and VR

Materials needed:

All of the required articles we will read in class will be available online.

Other Office Supplies That May Be Helpful

- A notebook or folder to store paper copies of texts that you print out
- Pen and pencil
- Highlighter
- Printer and printer paper

Software

- Basic Office suite of software (a word processor). If you do not have Microsoft Office on your computer, you can either download Open Office (a free suite of Office software) or use Google Docs.
- A web browser. Several options are free online, including Google Chrome, Firefox, or Safari.
- Access to YouTube as all video lectures and most supplemental videos are hosted on YouTube.
- A functional email address that you check every day to maintain in contact with your instructor.

Technical skills required:

- Download and upload files
- Download and install software
- Use email with attachments
- Create, save, and submit files in commonly used word processing program formats
- Copy and Paste
- Work in multiple browser windows and tabs simultaneously

Course requirements

Grading:

- Syllabus Quiz: 5%
- Class participation activities: 20%
- Discussion: 20%
- Module Quizzes: 20%
- Short answer assignments: 20%
- Final exam: 15%
- Total: 100%

Letter grades will be assigned according to the following:

- 89.5%–100% A
- 79.5%–89.4% B
- 69.5%-79.4% C
- 59.5%-69.4% D
- Below 59.5% F

Syllabus Quiz – 2.5%

Before beginning Module 1, there is an orientation called Module 0. In there you will find a preview of the course, an orientation video, and a couple of videos on evaluating sources and plagiarism. Finally, there is a quiz on the information covered in this Syllabus. This is a quiz you can re-take as many times as needed. So this is an opportunity to have a great start to this course with 2.5% in the bag!

Class Participation Activities – 30%

Students are expected to participate in the class by watching the video lectures, completing the readings, and completing the concept checks provided throughout the modules. Participation and completion of these activities will be verified through your learning management system. There will be 3% of your grade allocated to each of the 10 modules, which totals 30% contribution of participation to your final grade.

Discussion – 30%

Discussions are an important part of the learning process for students to “participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.” (Common Core CCR Standard SL.CCR.1)

Students are expected to prepare for and participate in online class discussions in the forum. Students are required to participate in at least one discussion each for each of the 10 modules. Each module’s discussions will count towards 3% of the total grade (for a total of 30%). For each module, you should contribute one initial post and reply to a minimum of 2 posts from other students.

Multiple prompts will appear in each module, generally as “reflections,” so you will not need to have an initial post for every prompt, but at least one per module. Students should contribute and check the forum at least two to three times per week. Grading for discussions will be assessed on the following qualities:

Criteria	Grading Scale			
Initial Post Student’s initial post clearly addresses the original prompt. They demonstrate a good understanding of the topic and include details from the materials covered.	10 Excellent. Initial post is of excellent quality. Student references very specific details as evidence and may offer new ideas that have not been mentioned previously.	8 Good. Initial Post is very good. Student demonstrates a good understanding of the topic and includes some evidence.	6 Satisfactory. Student’s initial post demonstrates a fair understanding of the topic.	0 No initial post is made.
Replies (2 minimum) Student responds to at least two other student’s ideas in the discussion.	10 Excellent. Student responds to at least two other students. Responses take the discussion deeper by asking questions,	8 Good. Student replies to at least two other students. The reply adds depth to the discussion.	6 Poor. Student replies to one or two other students but replies lack depth.	0 No replies made.

	challenging ideas, or addressing new topics.			
Total Points per Module: 20pts (2% of grade)				

For class discussions to be meaningful, posts must be made in a timely manner according to the class schedule. Therefore, no credit will be given for that module's discussion after a deadline passes (which is when the next module begins). The Discussion deadlines are as follows:

- Module 1: September 10, 2018
- Module 2: September 21, 2018
- Module 3: October 3, 2018
- Module 4: October 17, 2018
- Module 5: October 29, 2018
- Module 6: November 9, 2018
- Module 7: November 21, 2018
- Module 8: December 5, 2018
- Module 9: December 17, 2018
- Module 10: January 9, 2018

Quizzes – 10%

At the end of every module, students are required to take a quiz that will assess them on the learning objectives and vocabulary for that module. Each quiz will be worth 1% of your grade, so with 10 quizzes, this will total 10% of your final grade.

Assignments – 20%

Every module will have a short answer assignment and a project, which is designed to get you thinking, and more importantly, writing about and experiencing the topics discussed in that module. Each paper is only two-paged double spaced (with 12-point Arial or Times New Roman font with no more than 1-inch margins on the header, footer, left, and right margins), so be concise and make sure to address all questions. Each module's assignments will be worth 2% of your grade, so with 10 graded submissions, this will total 20% of your final grade.

Each short answer assignment will be graded according to the following rubric:

Contributions	Description	Points Assigned
Provocative	Answer goes beyond simply responding to the questions; goes deep and provides greater insight	20
Substantial	Answer provides most of the content required, but does not require further analysis of the subject	15
Superficial	Answer provides obvious information without further analysis of the concept; lacks depth of knowledge or reasoning	10
Incorrect	Answer does not accurately address the questions; rambling and/or without consistency	5
None	No response provided to the questions within the required timeframe	0

Final Exam – 7.5%

A final exam, which will cover all the materials in the course, will be available at the end of the course and will count towards 7.5% of your final grade.

Late work or retakes

Late work or re-takes of quizzes must be discussed and arranged directly with your instructor.

Getting help

It is important to seek help if you have trouble understanding course materials or encounter technical problems. Depending on the situation, questions can be addressed to your instructor or your school's help desk. For Learning Management System-specific questions, find the support email or phone number on your Learning Management System's website. For course-specific questions or issues, please email support@pointfuleducation.com

Netiquette

- Never write anything in the course that you wouldn't be comfortable printing in your local newspaper to be read by all your friends and family.
- Use appropriate emoticons (emotion icons) to help convey meaning. Use "smiley's" or punctuation such as :-) to convey emotions.
- Avoid sarcasm. People who don't know you may misinterpret its meaning.
- If you get upset by a message, take a little break. Don't respond when you're angry. Take a little while to think about it first!
- Keep posts to the point. Keep messages concise—about one screen, as a rule of thumb.
- Use appropriate language:
 - Avoid coarse, rough, or rude language.
 - Observe good grammar and spelling.
- Use appropriate intensifiers to help convey meaning.
 - Avoid sentences typed in all caps.
 - Use asterisks surrounding words to indicate italics used for emphasis (*at last*).
 - Use words in brackets, such as (grin), to show a state of mind.
 - Use common acronyms (e.g., LOL for "laugh out loud").
- Always be polite. Remember, you're dealing with real people, not just words on a screen.

(Sources: <https://www.education.com/reference/article/netiquette-rules-behavior-internet/> and Kipp, K., & Patrick, S. (2013). *Teaching on the education frontier: instructional strategies for online and blended classrooms: grades 5-12*. San Francisco, CA: Jossey-Bass.)

Plagiarism

Be careful to avoid plagiarism. All plagiarized assignments will receive a zero and could have further disciplinary actions. When in doubt, cite the source or don't use it. Ask your instructor if you need assistance on citing sources or paraphrasing.

Companies mentioned in the Course

While many companies, schools and projects are mentioned throughout the course, Pointful Education does not promote, endorse, or work with any company. All company names and products mentioned in the course are trademarks of those respective companies.

Privacy Policy

Pointful Education does not record or retain student information or data. All data is maintained and controlled by the student's institution and its respective Learning Management System. Please contact your school or your Learning Management System provider for their specific privacy policies. Additional information on Pointful Education's privacy policy can be found at:

<https://www.pointfuleducation.com/privacy-policy>

Accessibility

Pointful Education is committed to making our courses accessible to all. We have a national user base and are dedicated to continuously improving accessibility of our products with a focus on both the U.S. accessibility guidelines of [Section 508 of the Rehabilitation Act of 1973](#) (Revised in 2000), and the international [WCAG 2.0 guidelines](#) (Level AA) of the World Wide Web Consortium Web Accessibility Initiative of 2008. In addition, products are evaluated both manually and programmatically for conformance to Section 508 and WCAG 2.0 Level AA guidelines.

OCLC recognizes that creating accessible products is a continuous process that can only be improved by input from our users. Whether you have enjoyed or had difficulty using one of our products, or would like to make general comments, please contact us by emailing us at support@pointfuleducation.com.