

EDUC 618: Educational Applications of Augmented and Virtual Reality

Winter 2022, Beginning January 25, 2022

Tuesdays, 4:00-6:00 pm

Virtually, through Zoom + Gather.town + XR

INSTRUCTORS

Please address all communication about the course to Dr. Quintana and Ms. McGee through the Canvas email system. Office hours are by appointment.

<p>Dr. Rebecca Quintana (Instructor) Pronouns: she, her, hers Office: Online through Zoom Email: rebeccaq@umich.edu</p>	<p>Ms. Christine McGee (GSI) Pronouns: she, her, hers Office: Online through Zoom Email: csomcgee@umich.edu</p>
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OVERVIEW OF THE COURSE

Extended reality (XR) technologies—which encompass virtual, augmented, and mixed reality tools—are gaining increased attention within and beyond our campus. As can happen with new technologies, bold claims are being made about how advances in XR technologies have the potential to transform education, changing the way learners interact with instructional content, educators, and other learners. What is needed is a closer examination of XR and learning to better understand the ways in which these technologies might (or might not) support learning, how current literature about learning theory, psychology, and human-computer interaction inform the affordances and constraints of XR in learning contexts, and how thoughtful designers might go about creating XR experiences that are effective for different kinds of learning goals and environments. Through a close examination of relevant literature and contemporary XR technology, students will be able to critically examine the potential for “breakthrough” technologies to support learning.

Students will engage in a range of experiential learning opportunities to explore the potential for XR to support learning. Special attention will be given to topics of representation, social learning, identity, and empathy.

CLASS REQUIREMENTS

The following explains expectations concerning class preparation:

- All course readings will be made available through our course Canvas site
- Through the Shapiro Library, students will be able to borrow an Oculus Quest for the duration of the course.
- Please read [this FAQ](#) for additional information about using the Oculus Quest
 - *Please do not use factory reset functionality*
 - *You may download any freely available app from the Oculus store*

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- Students are expected to participate actively in course activities, including interacting with course materials and peers through Canvas, Gather.town, and Zoom
- Instructors will provide regular communication regarding weekly course activities through Canvas Announcements at least one week in advance of each class.

COURSE LEARNING GOALS

Through participation and engagement in the course, students will be able to:

- Identify learning affordances related to augmented and virtual reality in educational contexts
- Apply critical perspectives to claims that are made about the efficacy of augmented and virtual reality environments for learning.
- Connect concepts from educational research to personal experiences using educational applications of augmented and virtual reality
- Explore emergent issues related to how people learn using augmented and virtual reality
- Develop new feelings, values, and interests concerning augmented and virtual reality through active learning experiences
- Evaluate the suitability of new applications of augmented and virtual reality to be used within educational settings

Driving questions for the course:

- *What are the claims that are being made about educational applications of XR?*
- *How can we use evidence from scholarly literature to support or refute these claims?*

COMMUNICATION TOOLS AND RESOURCES

- **Canvas** - The University of Michigan's standard learning management system (LMS). We will use Canvas for posting assignments, readings, and formal class materials.
- **Hypothes.is** - document annotation and discussion tool, accessed through Canvas. We will use Hypothes.is for online discussions of readings prior to class.
- **Slack** - A tool for team communication, accessible via mobile app, desktop app, and web. We will use Slack for reminders, general conversation, and in-the-moment resources.
- **Gather.town** - is an online platform that allows students and instructors to re-create some of the interactions that are possible when physically interacting on campus. We will use it to recreate a classroom space to allow for sharing, collaboration, and discussion.

CLASS SCHEDULE

Date/Time	Agenda	Course Materials
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Seminar 1: January 25 @ 4 -6 pm	Welcome and setting the agenda for the course	Materials: Zoom + Gather
Seminar 2: February 8 @ 4-6 pm	Claim #1: Multiple Representations	Materials: Oculus First Steps + Wander
Seminar 3: February 22 @ 4 -6 pm	Claim #2: Social learning	Materials: Spatial.io
Seminar 4: March 8 (asynchronous)	Emergent Topic	Materials: Canvas
Seminar 5: March 15 @ 4-6 pm	Claim #3: Identity	Materials: AltspaceVR + Gather
Seminar 6: March 29 @4-6 pm*	Claim #4: Empathy	Materials: Traveling While Black; Anne Frank; We Live Here, Altspace VR
Seminar 7: April 12 @ 4 -6 pm	Presentations	Materials: Gather

* Meet in Shapiro Design Lab

**Pre-work required. We will be joined by a special guest (in VR), Professor Jeremy Bailenson.

COURSE READINGS

- Seminar 1: Affordances of XR for Learning
 - Di Natale, A. F., Repetto, C., Riva, G., & Villani, D. (2020). Immersive virtual reality in K-12 and higher education: A 10-year systematic review of empirical research. *British Journal of Educational Technology*, 51(6), 2006-2033.
 - Optional: Cook, M., & Lischer-Katz, Z. (2021). Practical steps for an effective virtual reality course integration. *College & Undergraduate Libraries*, 27(2-4), 210-226.
- Seminar 2: Multiple Representations
 - Ainsworth, S. (2018). *Multiple Representations and Multimedia Learning*. *International Handbook of the Learning Sciences*, 96-105.
- Seminar 3: Social learning
 - Cheng, K. H., & Tsai, C. C. (2013). Affordances of Augmented Reality in Science learning: Suggestions for future research. *Journal of Science Education and Technology*, 22(4), 449-462.
 - Dunleavy M., Dede C. (2014) Augmented Reality Teaching and Learning. In: Spector J., Merrill M., Elen J., Bishop M. (eds) *Handbook of Research on Educational Communications and Technology*. Springer, New York, NY.
- Seminar 4: Emergent Topics
 - TBD
- Seminar 5: Identity

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- Lee, J. J., & Hoadley, C. M. (2007). Leveraging identity to make learning fun: Possible selves and experiential learning in massively multiplayer online games (MMOGs). *Innovate: Journal of Online Education*, 3(6), 5.
- Davis, D. Z., & Chansiri, K. (2019). Digital identities—overcoming visual bias through virtual embodiment. *Information, Communication & Society*, 22(4), 491-505.
- [Our digital selves: My avatar is me](#)
- Seminar 6: Empathy
 - Bailenson, J. (2018). *Experience on demand: What virtual reality is, how it works, and what it can do*. W. W. Norton & Company.
 - Chapter 3: Walking in the Shoes of Another
 - Nelson, Jeremy. "Anti-Black Racism and the Promise of Virtual Reality with Guest Dr. Courtney Cogburn." *Center for Academic Innovation*, The University of Michigan, 30 June 2020, <https://ai.umich.edu/blog/mixr-studios-podcast-courtney-cogburn-anti-black-racism-and-vr/>

ASSIGNMENTS

There are **three components** to the grade you will earn for EDUC 618:

- **Active participation** during seminars (synchronously) and in preparation for and following seminars (asynchronously)
 - **Synchronous:** Active participation during our class seminars, in Gather.town, and in XR.
 - You will participate in a variety of activities during seminars that are designed to allow you to interact with the seminar's topics in an experiential way, such as watching short informational videos, interacting with thematic knowledge artifacts, and engaging in small and large group discussions with peers. You will share a short reflection on what you have learned by completing an exit card at the end of class.
 - **Asynchronous:** Thoughtful annotations of course readings through Hypothes.is in Canvas; responses to peers who choose to post their weekly reflections through the Gamut Workbook tool in Canvas.
 - You will participate in online, asynchronous discussions in advance and following seminar meetings. These interactions will be critical for informing the focus of synchronous discussions that take place during our seminar meetings and for advancing ideas that have been raised during seminar meetings.
- **Workbook reflections**
 - Weekly reflections using the Gamut Workbook tool in Canvas. Each week you will be provided with a prompt or series of prompts that relate to the topic for the week. Workbook reflections will be due one week (7 days after class session).
 - Prepare thoughtful and substantive responses to prompts posed by the instructor.

- Choose whether or not to publish your reflections for the week to our classroom gallery
- Optional: Browse through the classroom gallery and respond to your peers' reflections
- **Independent project proposal and presentation**
 - A two-three page proposal submitted in the third week of the course that identifies an educational application of XR that will be good fodder for a project that uses scholarly evidence to support or refute claims about the application with respect to its utility as a learning tool.
 - A digital artifact or poster that summarizes your findings. You will also prepare a lightning talk presentation (3 minutes) to share what you have learned with your peers. This will be presented in a conference space in Gather.
 - You will propose and develop an independent project that relates to the driving questions for the course: What are the claims that are being made about educational applications of XR? How can we use evidence from scholarly literature to support or refute these claims? You should focus on one claim and one application of XR in your Independent Project.

EXPECTATIONS

Learning in community:

- Participation is of paramount importance in this course, and there is a range of ways that you can participate. Within our virtual spaces, our practices, and our interactions, we should strive to be as inclusive as possible. Mutual respect, kindness, and the ability to listen and observe others carefully are crucial to the goal of learning in community. Active, thoughtful, and respectful participation in all aspects of the course will make our time together as productive and engaging as possible.

We encourage the following **social annotation participation pattern**:

- Log in to Hypothes.is and create annotations on one or more of the readings two or more times throughout the weeks between seminars. This will allow you to see how the discussion evolves and to provide responses to your peers.
- Please remember that your peers may have annotated a reading after you have completed your annotations. Consider returning to articles that you have already annotated and respond or build on to your peers' annotations.
- We ask that you contribute a minimum of five annotations across one or more readings in advance of seminars that require it (seminars 2-6).

We encourage the following **seminar participation pattern**:

- Arrive on time for our seminar each week. The first thirty minutes of each seminar will consist of "free exploration" in the Gather space.
- Your instructors will embed interactive tools around the space that include prompts connected to the theme for each seminar. Please look for opportunities to contribute to knowledge artifacts, such as virtual whiteboards, videos, Google tools, and bulletin

boards.

- You can also interact with your peers and instructors during this time, using the proximity-based audio/video interactions within Gather.

We encourage the following **workbook reflection participation pattern**:

- After seminars 1-6, log into Canvas and locate the Gamut Workbook section connected to the relevant seminar. Respond to the prompt(s) provided within one week of the previous seminar.

Grading approach:

- This course will use a “specifications” approach to grading. A specifications approach to assessment provides a series of requirements for students to meet (Nilson, 2015). All specifications are equally necessary, providing a passing grade (i.e., an “A”) if all are met. Students are required to raise their efforts to the level of the specifications, because there is no partial credit.
- In order to ensure that all students will be successful in the course, the instructor will provide a clear list of requirements for each assignment or category of assignments (workbook reflections, participation, and individual project proposal and presentation). Additionally, if a student does not meet one or more requirements for an assignment or category of assignments, the instructor will provide substantive feedback and a reasonable number of resubmission opportunities, providing a “safety net” and pathway for improvement.
- Any issues that cannot be addressed through the approach outlined above will be resolved through discussion between the instructional team and the student.

ADDITIONAL POLICIES AND EXPECTATIONS

1. Academic and Professional Integrity

It is expected that you will conduct yourself with integrity related to all aspects of our academic and professional lives. This includes making certain that plagiarism never occurs. If you are unsure about how to correctly attribute ideas, words, work, etc. to others, please ask. Please refer to the [School of Education's Academic Integrity guidelines](#) for specific policies and procedures related to academic and professional integrity.

2. Accessibility & Access

Every member of this learning community has the right to full participation. If you need extra support for any reason, please do not hesitate to contact either of the instructors so we can fully support your learning. We will, of course, keep our discussions private and confidential. If you need an accommodation(s) for any type of disability, please let any of us know at your earliest convenience. We can work together with [Services for Students with Disabilities](#).

3. Discrimination/Harassment

No member of this learning community should be subject to discrimination of any kind and/or harassment. Please refer to [the University's policies](#) related to discrimination and harassment.

4. Observance of Religious Holidays

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Although the University of Michigan, as an institution, does not observe religious holidays, it has long been the University's policy that every reasonable effort should be made to help students avoid negative academic consequences when their religious obligations conflict with academic requirements. This year, Ramadan is projected to fall approximately between April 13th and May 13th. At least two of our seminar dates fall in this range. Instructors are aware that some students may be fasting for Ramadan and will work with students to provide reasonable alternative opportunities for engagement. *For Ramadan and all other religious holidays that you may observe, please provide instructors with reasonable notice of the dates on which you will be absent.*

5. Attendance, Participation, and Communication

You are expected to attend all seven course seminars and participate fully in all online discussions and activities. If you know that you have to miss a class session or will be unable to participate in online activity within the expected time frame, *please notify the instructors in a timely way beforehand.* You are responsible for obtaining all materials and information missed and making up any missed work. All work is due on the date listed on the syllabus.

6. Gender Pronouns

All people have the right to be addressed in a way that aligns with their personal identity. In this seminar, we will share the name we prefer to be called, and if we choose, share the pronouns we wish to be addressed by. Also of note: there is an option to indicate your personal pronouns in Wolverine Access using the Gender Identity tab under Student Business. The faculty will do our best to address and refer to students accordingly and support classmates in doing so as well.

Any student who faces challenges securing food, housing or other basic needs and believes this may affect their performance in the course is urged to contact the instructors or the Dean of Students Office (734-764-7420; deanofstudents@umich.edu; 609 Tappan Street) for resources and support.

Please note: This will be a dynamic course and the syllabus may change at any time. The instructor will notify the class of changes when they occur, both in class and through other communication methods such as email or Slack. *These may include additions or changes to the readings, in class activities, assignments.* Please pay close attention to class announcements to learn about any updates or changes!