

George Mason University
College of Education and Human Development
Educational Psychology

EDUC 896 001 (22331)
Chat GPT, Generative AI and Learning
Wednesday 4:30pm – 7:10pm
Innovation Hall 203

Faculty

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Pre-requisites/Co-requisites

None.

University Catalog Course Description (EDUC 896):

Explores selected topics in education across all doctoral specializations. Offered by School of Education. May be repeated within the term for a maximum 6 credits.

Course Overview

This course will review tools in generative AI (genAI), and their applications for teaching and learning. It will cover topics such as the how genAI tools are developed, responsible uses of genAI, limitations and drawbacks of genAI, global and local policies regarding genAI, narrow applications of genAI in selected content areas, genAI funding opportunities, applications of genAI for classroom use, and future directions.

Students will demonstrate their understanding of generative AI and its uses in education by: (a) creating a workbook of their use of various generative AI tools; (b) demonstrations of genAI in action; and (c) a scholarly paper on genAI and education.

Course Delivery Method

This course will be delivered face-to-face and using the Blackboard Learning Management system (LMS) housed in the MyMason portal. You will log in to the Blackboard (BB) course site using your Mason email name and email password. The course is structured around readings, reflections on readings, class projects, technology activities, and writing assignments. This

course will be taught using lectures, discussions, and, as technology allows, small group activities. Discussions will be held using BB. On occasion, a class meeting may occur over Zoom.

Expectations

- Course Week: Our course week will begin on the day and place as indicated on the Schedule of Classes.
- Log-in Frequency:
Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 3 times per week. In addition, students must log-in for all scheduled online synchronous meetings.
- Participation:
Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- Technical Competence:
Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.
- Technical Issues:
Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- Workload:
Please be aware that this course is **not** self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the **Class Schedule** section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.
- Instructor Support:
Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.
- Netiquette:
The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words.* Remember that you are not competing with classmates, but sharing

information and learning from others. All faculty are similarly expected to be respectful in all communications.

- Accommodations:

Learners who require effective accommodations to ensure accessibility must be registered with George Mason University Disability Services.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

- Demonstrate an understanding of the design and use of genAI tools.
- Develop an increased awareness of the ways in which genAI can be applied to instruction.
- Become familiar with aspects of contemporary issues in education related to the use of genAI.
- Understand the relationship among genAI and learning, critical thinking, and problem-solving processes.
- Develop an appreciation for and understanding of the impacts of genAI for culturally diverse and exceptional learners.
- Review funding opportunities tied to genAI.
- Review the use of genAI in narrow domains (e.g., medicine).
- Demonstrate an understanding of how genAI may relate to classroom management, instruction, and assessment.
- Learn to analyze and evaluate various policy implications of the use of genAI in the broader society.
- Design instruction that uses genAI tools.
- Develop and reinforce critical thinking, oral presentation, technological, and writing skills.

Professional Standards (American Psychological Association)

Upon completion of this course, students will have met the following professional standards:

Principle 1: The Nature of Learning Process

Principle 2: Goals of the Learning Process

Principle 3: Construction of Knowledge

Principle 4: Strategic Thinking

Principle 5: Thinking about Thinking

Principle 6: Context of Learning

Principle 7: Learning and Diversity

For more information please see:

American Psychological Association (2015). *Top 20 Principles from Psychology for PreK-12 Teaching and Learning*. (<http://www.apa.org/ed/schools/cpse/top-twenty-principles.pdf>)

American Psychological Association (1997). *Learner-Centered Psychological Principles: Guidelines for the Teaching of Educational Psychology in Teacher Education Programs*. (<https://www.apa.org/ed/governance/bea/learner-centered.pdf>)

Alignment with Program Standards:

Standard 1. Candidates will use their knowledge and skills to apply concepts, principles, and theories of learning, cognition, motivation, and development to analyze and design educational activities in diverse applied settings.

Standard 4. Candidates will demonstrate oral and written communication relevant to educational psychology, including knowledge and use of APA style and professional formats (e.g., oral presentations, poster presentations, article abstracts, literature reviews, research proposals, reports).

Standard 5. Candidates will demonstrate professional dispositions relevant to educational psychology such as critical thinking, collaboration, interpersonal communication, intercultural competence, ethical leadership, professionalism, and technological skills.

Required text

Kosslyn, S. (2023). *Active learning with AI: A practical guide*. Alina Learning.

Recommended Texts

American Psychological Association. (2019). *Publication manual of the American Psychological Association* (7th ed.). Author.

APA Style (online guides)

<https://apastyle.apa.org/>

https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html

Strunk, W., & White, E. B. (2009). *The Elements of Style* (5th ed.).
xiii. ISBN 978-0-205-31342-6.

Supporting readings:

A list of additional readings will be provided on Blackboard (<https://mymasonportal.gmu.edu>).

General resources

Blackboard resources Plagiarism and SafeAssign:
https://help.blackboard.com/SafeAssign/Student/Avoid_Plagiarism

English as a second language support: <https://intomason.gmu.edu/current-students/learning-resource-center>.

Writing support:

<https://writingcommons.org/the-writers-guide-to-writing-commons/>

In preparation for class meetings, you may find these resources useful:

- *GMU Library Info Guides for Education*:
http://infoguides.gmu.edu/sb.php?subject_id=27294
- *PsycNet*: <https://psycnet.apa.org/search>
- *National Resource Council*: <https://www.pnas.org/psychological-and-cognitive-sciences>
- *What Works Clearinghouse* (reviews of studies with judgments of quality):
<http://ies.ed.gov/ncee/wwc/ReviewedStudies.aspx>
- *NSF Award Abstracts* (source of research activity that's in process but not yet published):
 <http://www.nsf.gov/awardsearch/>
- Presentations and webinars on education at GRAILE.ai.

Other resources:

- <https://stearnscenter.gmu.edu/knowledge-center/>

NSF project videos on learning

<https://stemforall2022.videohall.com/>

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard).

Assignments and/or Examinations (see end of syllabus for rubrics)

A. Attendance and participation (10%)

Because of the importance of lecture and classroom discussions to students' total learning experience, each student is expected to actively participate in class discussions and activities. Additionally, assigned readings are to be completed before class. Attendance, punctuality, preparation, and active contribution to small group activities are essential. These elements of behavior reflect the professional attitude implied in the course goals and will account for 10% of the course grade. In the event a student misses a class, the instructor should be notified, preferably in advance, and the student is responsible for any assignments and materials assigned or discussed that day.

B. GenAI workbook (40%)

Each student will complete a workbook describing their use of the various genAI tools. The workbook should be created using Word, supplemented by summary tools, such as Excel. This

assignment will reinforce important skills that will apply throughout the semester and in other courses. The assignment will be described in class.

C. Oral and slide presentation of genAI tools in action (15%)

Students will present slides that summarize their main points of their individual papers. A genAI demonstration is not required.

D. Individual paper (35%)

Students should choose from among the following themes or discuss an alternative theme with the instructor. Candidate themes to consider include the educational implications of: (a) genAI and bias and fairness, including algorithmic bias; (b) genAI, security and privacy (e.g., implications for FERPA); (c) genAI and academic integrity for students, teachers or researchers, including, but not limited to plagiarism; (d) genAI with implications for research skills and productivity; (e) genAI and creativity, including collaboration between AI and humans; (f) genAI and workforce development, including necessary knowledge, skills and abilities for future employment; (g) genAI, ethics and responsible use; (h) genAI and assessment (formative and summative); (i) genAI and narrow use cases, such as AI and medicine; (j) genAI and the digital divide; (k) genAI and its use with special learners; (l) genAI and personalized learning; (m) genAI and misinformation, disinformation or malinformation; (n) genAI and what it means for a learner or teacher to be “AI ready”? (o) what would a genAI, multimodal reformulation of a selected area of STEM look like, and how might it support teaching, learning or assessment? Or (p) for a selected area, comparing human vs. human plus genAI performance in terms of brainstorming, model generation, model application, model analysis, model synthesis or transdisciplinary model development across these stages.

Students should discuss the outline of the proposed paper with the instructor early in the semester.

The paper should be 30 pages double spaced, not counting references.

Other Expectations

It is expected that each student will:

1. Read all assigned materials for the course
2. Attend each class session
3. Participate in classroom activities that reflect critical reading of materials
4. Critique and/or discuss assigned articles
5. Not record peer discussions in this class unless approved in advance by the instructor (as in the case necessitated by a learning disability). If you have any questions, please ask the instructor.

Format for written work:

- 1-inch margins on all sides, double-spaced, 12-point Times New Roman font.

- Include the following information: your name, title of the paper, date, instructor's name, course number.
- Fully proofread for spelling, grammar, and clarity errors and citation and references in APA (7th edition) format. Be sure to include page numbers.

Late Assignments

Late assignments will be marked down by half a letter grade for each day the assignment is late. If there are questions or concerns about a particular situation, please contact me via email in advance of the deadline.

Grading

Your final grade for this class will be based on the following percentages:

A+ = 98 – 100	B = 83 – 87
A = 93 – 97	B- = 80 – 82
A- = 90 – 92	C = 70 – 79
B+ = 88 – 89	F < 70

Professional Dispositions

See <https://cehd.gmu.edu/students/polices-procedures/>

Class Schedule*

*This is a tentative course schedule and is subject to change. The most current schedule will be available on the Blackboard site.		
Date	Class Topics/ Activities	Readings/Assignments Due
Week 1 January 17	Introduction and Overview	Review of syllabus and course requirements. Student introductions. Review of students' goals for the course. Introduction to genAI tools Academic integrity and responsible use of AI GenAI lab activities Kosslyn chapters 1 & 2
Week 2 January 24	Introduction to Generative AI and Responsible Use	Different types of generative AI (text, images, music, etc.) Review of current tools (e.g., futuretools.io) AI hallucinations and implications for teaching [Wolfram API] Academic integrity and responsible use of AI Privacy, security, and data protection in educational AI tools GenAI lab activities Kosslyn chapter 2
Week 3 January 31	genAI and ethics, DEI	"If you have a face, you have a place." Bias; discrimination; algorithmic unfairness; misinformation Discussion of paper topics GenAI lab activities Kosslyn chapter 3
Week 4 February 7	Educational policies and genAI, globally and locally.	Review of major policy documents (e.g., OECD, White House, and individual government documents) Kosslyn chapter 4 GenAI lab activities
Week 5 February 14 Education Conference in Peru Asynchronous session	Funding opportunities for using genAI in education <i>No Face-to-face meeting</i>	<i>No Face-to-face meeting</i> Federal and philanthropic funding opportunities around positive and negative uses of genAI. How to read RFPs. Review of abstracts of funded projects. GenAI lab activities

Week 6 February 21	genAI for Lesson Planning	<p>Review of standard approaches to lesson planning</p> <p>Review of related literature, including curriculum development</p> <p>Using generative AI for creating lesson plans for different students</p> <p>Customizing lesson plans with AI assistance</p> <p>Incorporating diverse and inclusive materials using AI</p> <p>AI hallucinations and implications for teaching [Wolfram API]</p> <p>Discussion of paper topics</p> <p>Kosslyn chapter 5</p> <p>GenAI lab activities</p>
Week 7 February 28	Personalized Learning with Generative AI	<p>Introduction to personalized learning</p> <p>Review of related literature, including using intelligent tutoring systems</p> <p>Limitations of unimodal student models for tutoring</p> <p>Building student models using chatGPT, including tutoring personas</p> <p>Addressing diverse learning styles and needs</p> <p>Monitoring and supporting student progress</p> <p>AI hallucinations and implications for personalized learning [Wolfram API]</p> <p>Kosslyn chapter 6</p> <p>GenAI lab activities</p>
Week 8 March 6	Spring Break	No class meeting
Week 9 March 13	Assessment and Feedback with AI	<p>Review of central models of assessment and validity</p> <p>Review of related literature</p> <p>Using AI for formative assessments</p> <p>Personalized feedback mechanisms tied to formative assessment</p> <p>AI tools for grading and learning analytics</p> <p>AI hallucinations and implications for assessment [Wolfram API]</p> <p>Kosslyn chapter 7</p> <p>GenAI lab activities</p>
Week 10 March 20	Narrow applications of genAI	<p>Medical diagnosis</p> <p>Kosslyn chapter 8</p> <p>GenAI lab activities</p>

Week 11 March 27	genAI for Mathematics Education	Issues in using genAI tools for supporting mathematics learning and teaching Kosslyn chapter 9 GenAI lab activities
Week 12 April 3	genAI for Science Education	Issues in using genAI tools for supporting science learning and teaching Kosslyn chapter 10 GenAI lab activities
Week 13 April 10	GenAI and creativity	Review of related literature AI in art, music, and image generation Fostering multimodal creativity and innovation through AI projects Interdisciplinary learning incorporating AI Kosslyn chapter 11 GenAI lab activities
Week 14 April 17	GenAI and adoption	Issues in AI adoption. Review of Rogers' Diffusion of Innovations theory Review of related literature "AI readiness" for teachers Pedagogical challenges in integrating AI Managing change and expectations in AI adoption Future trends in AI and education
Week 15 April 24	Review	Review of course materials with discussion
Exam Week May 1	Individual slide presentations in person	Upload student slide presentations by noon May 1 to BB. Individual papers due by May 5 midnight on BB.

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

GMU Policies and Resources for Students

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).

- Students must follow the university policy for Responsible Use of Computing (see <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <https://ds.gmu.edu/>).

Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to VIA should be directed to viahelp@gmu.edu or <https://cehd.gmu.edu/aero/assessments>. Questions or concerns regarding use of Blackboard should be directed to <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking:

As a faculty member, I am designated as a “Non-Confidential Employee,” and must report all disclosures of sexual assault, sexual harassment, interpersonal violence, and stalking to Mason’s Title IX Coordinator per [University Policy 1202](#). If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as [Student Support and Advocacy Center](#) (SSAC) at 703-380-1434 or [Counseling and Psychological Services](#) (CAPS) at 703-993-2380. You may also seek assistance or support measures from Mason’s Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

For additional information on the College of Education and Human Development, please visit our website <https://cehd.gmu.edu/students/>.

Attendance and Participation Rubric (10 points)

Student participation is imperative to student learning and a successful class. The following rubric outlines how student participation scores will be determined in this course. All students are expected to demonstrate specific characteristics and actions throughout the semester. The quality and quantity of these actions will determine the points assigned for participation.

Students are expected to:

- a. Be punctual, present and attentive, and well prepared for class.
- b. Participate fully in class activities and assignments—take an active part in small and large group discussions (without dominating conversations) and pay attention to class lectures.
- c. Make insightful comments, which are informed by required readings, and demonstrate reflection on those readings. Specifically, students should come to class with questions, comments, and thoughts on the current readings.
- d. Treat class activities, group discussions, and class discussions as important components of the course, showing respect for fellow classmates and the course material.
- e. Avoid using electronic devices for personal communication or other non-class-oriented purposes during class time.

Each of these criteria will be assessed on a 5-point scale:

- 5 = Student *consistently* demonstrated the criterion throughout the semester.
- 4 = Student *frequently* demonstrated the criterion throughout the semester.
- 3 = Student *intermittently* demonstrated the criterion throughout the semester.
- 2 = Student *rarely* demonstrated the criterion throughout the semester.

Rubric for individual paper 35 points

<u>Sections</u>	Does Not Meet Standards	Approaching Standards	Meets Standards
Statement of purpose: A clear and complete explanation of <u>why</u> you chose the topic and <u>how</u> the context you chose is relevant to the use of genAI	Neither the argument for the choice of context nor the justification for using genAI is developed. References are sparse, lack relevance, or are overly general. [0-2]	Either the argument for the choice of context or the justification for using genAI is underdeveloped. References cited lack relevance or are overly general. [4-8]	A clear argument is made as to why the context and problem area were chosen, including the reasons why genAI is relevant in this context. Comprehensive and relevant supporting references are provided [12-15]

<p>Description of context of use with sufficient detail to assess relevance of the genAI theme, and the window of application.</p>	<p>Vague or overly brief description the relevance of the genAI theme with little consideration of the time window of applicability. [0-2]</p>	<p>The paper describes a genAI theme without sufficient detail to ground the theme in terms of relevance. Further, either short or long-term implications are discussed, but not both [3]</p>	<p>The paper grounds the development and exploration of the genAI theme with sufficient detail that the implications from the use of genAI are clear. Both short and long-term implications are discussed [12-15]</p>
<p>Writes clearly and effectively and <u>follows APA style</u></p>	<p>Writing is fraught with typos or errors in grammar, punctuation, spelling and word usage that make the writing unclear [0-2]. APA style not followed.</p>	<p>Writing is sometimes unclear and may contain typos or errors in grammar, punctuation, spelling and word usage. APA style poorly followed. [3]</p>	<p>Writing is clear; argument is and focused with minimal minor typos or errors in grammar, punctuation, spelling and word usage. APA style followed. [4-5]</p>

Rubric for slide/oral presentation: 5 points

Content and Presentation	Unsatisfactory	Needs Improvement	Satisfactory
Statement of purpose	Neither the argument for the choice of context nor the justification for using genAI is developed. [0-.74]	GenAI is well described but its larger implications are unexplored or underdeveloped [.75]	The listener is clear about the importance of the theme and how a genAI perspective deepens our understanding [1]
Detailed analysis of how the larger theme and elements of genAI intersect and mutually inform	A free-floating treatment of the topic where real world and time actionable implications are unclear or overblown (e.g., “AI will doom us all” [0-.74]	The case for the value of a genAI perspective on a serious topic is proposed, but while plausible, the analysis appears overly speculative given the state of the art (e.g., “no one needs to learn programming anymore” [.75]	The presentation is empirically grounded in the context of application so that the practical implications of the analysis are clear and plausible. [2]
Presentation	Disorganized and ran over time; poor presentation skills [0]	Organized and stayed within time guidelines; good presentation skills [1]	Professional performance in all respects [2]

Technical requirements for virtual class meetings

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with standard up-to-date browsers. To get a list of Blackboard’s supported browsers see: https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#supported-browsers
- To get a list of supported operation systems on different devices see: https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#tested-devices-and-operating-systems
- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.

- Students will need a headset microphone for use with the Blackboard Collaborate web conferencing tool.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download:
 - Adobe Acrobat Reader: <https://get.adobe.com/reader/>
 - Windows Media Player: <https://support.microsoft.com/en-us/help/14209/get-windows-media-player>
 - Apple Quick Time Player: www.apple.com/quicktime/download/

Under no circumstances, may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.