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Artificial Intelligence: Uses and Challenges for Teaching and Learning

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Housekeeping

- Session is being recorded
- Feel free to use Zoom chat to make comments and ask questions
- Send Jeff questions by Monday and I'll respond by the end of the week
- I'll share my thoughts and then allow for about 15 minutes of Q&A
- For final 30 minutes, Jeff will speak about the FLC program

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GenAI in Education: Three Challenges

What is the scale of the problem we want to solve?

University-level? Classroom? Assignment level?

How can we teach faculty what they need to know about Generative AI while respecting their time and approach to teaching?

Getting buy-in, understanding different teaching contexts, finding the right support

How can we equip students with the knowledge and skills to engage Generative AI in an ethical and critical way?

Are all students impacted equally? How are students using it now? Where do want to see students be able to do in the coming years, for their education and for their career?

Challenge #1:

What is the scale of the problem we want to solve?

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GenAI in Education: An Outsized Issue

1 **Time**

Time needed to learn the tech and keep up with developments

2 **People**

People available with the knowledge and skills to synthesize the issues and provide guidance

3 **Money**

Financial resources to support any interventions

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Boston College's Approach to GenAI

Center for Teaching

Consults, pedagogy workshops, online resources, guidance for assignment design

Digital Innovation

Special projects, experimentation (e.g., chatbots in class)

Library

AI literacy for students, ethical issues with GenAI, research support

IT

Licenses, data privacy, research services, how-to workshops

CAMPUS WIDE: Technology Grants, AI Steering Committee, Organizing Local Conferences

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CTE Approach to GenAI

Critical AI Literacy

Acceptance of GenAI as a powerful tool.

Teaching faculty how to use it for teaching, and how to cultivate AI literacy amongst students.

Process-Centered Assessment

Encouraging faculty to assess the **process** of completing assessments over or equal to **product**.

Centering the **"human-in-the-loop"** adage.

Open Dialogue

Encouraging faculty need to have **open conversations with students** about GenAI's potential risks, opportunities, and its appropriateness for class.

Transparent Expectations

Providing faculty with **guidelines on how to design assignments**, clarify meaning of academic integrity, and

CTE Support/Programming

1 Online Resource

BC CTE Resources

Artificial Intelligence in Teaching and Learning

There are many artificial intelligence (AI) tools that can generate “human-like” responses to a wide range of questions and statements. Among the most popular generative AI (or GenAI) tools is ChatGPT, a text-based to...

2 Excellence in Teaching Day

BC Boston College

Excellence in Teaching Day - Campus-Wide Programs - Programs & Events - The Center for Tea...

Dr. Ruha Benjamin delivered the ETD keynote on “Generative Imagination: Retooling the Default Settings of Technology & Society.”

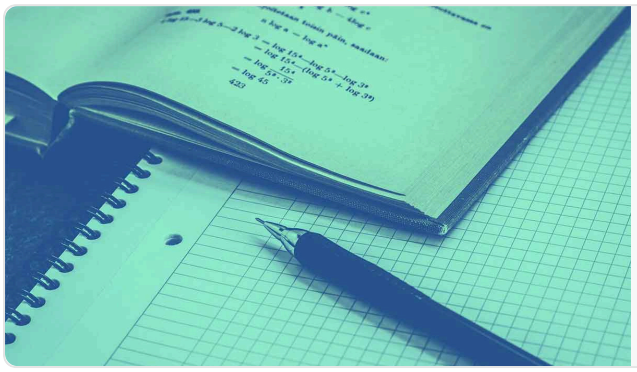
3 Pedagogy Reading Group

BC Boston College

Pedagogy Reading Groups - Campus-Wide Programs - Programs & Events - The Center for Tea...

The CTE organizes occasional reading groups open to instructors interested in delving into a particular author’s work or into a timely pedagogical text. Meetings are informal and are meant to provide an opportunity to share...

4 Workshops



bc.campuslabs.com

Back-to-School: Ethics of AI in Teaching and Learning (on ...

Discover unique opportunities at! Find and attend events, browse and join organizations, and showcase your involvement.

5 Consults as needed

6 Cohort planned for 2024-25

"Knowledge in the Age of GenAI"

Challenge #2:

How can we teach faculty what they need to know about Generative AI while respecting their time and approach to teaching?

GenAI Essentials For Faculty

Generative AI exemplifies probabilistic technology

Experimenting with GenAI now routine faculty practice

Learning to prompt is now an essential skill

AI 101 for Teachers (code.org)

YouTube

AI 101 for Teachers: Demystifying AI for Educators

Introduction to the fundamentals of Artificial Intelligence which will equip you with the foundational knowledge to understand the profound impact of AI in o...

Prompt Engineering

What is Prompt Engineering?

- **Prompt engineering is the process of designing and crafting input prompts or queries to generative AI models to elicit desired outputs or responses.** The choice of words, format, and context in the prompt can significantly influence the generated content.
- How to structure prompts for desired outputs:

- Be Clear and Specific
- Specify the Format
- Add Context
- Use Examples
- Control the Tone
- Ask the Model to Think Step by Step
- Use Keywords
- Provide Constraints
- Experiment
- Iterate and Refine

Acknowledge the Variety

Tools, Platforms, and Software

- **ChatGPT** – chatbot, text generator
- **Midjourney/Dall-E2** –text to art
- **Wisdolia** – plugin, generate flash cards for any website, video, or PDF you are on.
- **RunwayML** – Extreme video/picture editing.
- **Microsoft 365 copilot** – brings AI across the entire Microsoft office suite
- **Eleven Labs** – voice recognition. You speak to it, then you can feed it scripts and it will read them in your voice and cadence.
- **Synthesia** – create a realistic avatar that can speak any script it is given.
- **Mixo/Sitekick** – type a product idea and it creates a full website.
- **Tome** – makes presentations from simple prompts.
- **Tableau's Ask Data** – ask questions, receive data visualizations as responses.

Implications for Writing

Plagiarism undetectable

Plagiarism detection tools are often unreliable

Emphasizing writing process

Emphasize the writing process to help students with thinking, project planning, brainstorming, research, outlining, drafting, and revision.

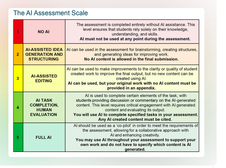
Risks involved

There are risks involved: GenAI may impair original thinking and problem-solving, and the output may contain fabrications, falsifications, biases, or errors. Students are nonetheless responsible for the work they turn in, including the truthfulness, academic integrity, and biases of content.

Assignment and Assessment Design

AI Assessment Scale

Perkins, Mike, Leon Furze, Jasper Roe, and Jason MacVaugh. 2024. "The Artificial Intelligence Assessment Scale (AIAS): A Framework for Ethical Integration of Generative AI in Educational Assessment." *Journal of University Teaching and Learning Practice* 21(06). doi:10.53761/q3azde36.



AI Assessment Scale

1	**NO AI**	The assessment is completed entirely without AI assistance. This level ensures that students rely solely on their knowledge, understanding, and skills. **AI must not be used at any point during the assessment.**
2	**AI-ASSISTED IDEA GENERATION AND STRUCTURING**	AI can be used in the assessment for brainstorming, creating structures, and generating ideas for improving work. **No AI content is allowed in the final submission.**
3	**AI-ASSISTED EDITING**	AI can be used to make improvements to the clarity or quality of student created work to improve the final output, but no new content can be created using AI. **AI can be used, but your original work with no AI content must be provided in an appendix.**
4	**AI TASK COMPLETION, HUMAN EVALUATION**	AI is used to complete certain elements of the task, with students providing discussion or commentary on the AI-generated content. This level requires critical engagement with AI-generated content and evaluating its output. **You will use AI to complete specified tasks in your assessment. Any AI created content must be cited.**
5	**FULL AI**	AI should be used as a 'co-pilot' in order to meet the requirements of the assessment, allowing for a collaborative approach with AI and enhancing creativity. **You may use AI throughout your assessment to support your own work and do not have to specify which content is AI generated.**

Course Policy Consideration

Syllabus Policies

Google Docs

Syllabi Policies for AI Generative Tools

Syllabi Policies for AI Generative Tools If you would like to submit your course guidelines/policy or revise your submission, please submit it in this form. Update: If you would like a more searchable version of this document, try out this spreadsheet that allows...

For Faculty Potential Uses for Faculty in Teaching

Streamline Tasks

AI can help with quiz generation, creating rubrics, creating slideshows, and lesson plan creation.

Analyze Course Grades

Upload a spreadsheet with grades—with all identifiable info redacted—to see patterns.

Customized Feedbacks

AI can help you craft feedback that addresses specific issues with a student's coursework.

TeacherServer

Created by USF St. Petersburg Education Professor Zafer Unal, TeacherServer provides free AI tools to assist planning, assessment, preparation, research and more.

www.teacherserver.com

TeacherServer AI Tools

TeacherServer is an AI tool and service provider dedicated to supporting educators with innovative solutions.

The AI Pedagogy Project

aipedagogy.org

Assignments – The AI Pedagogy Project

This is an evolving collection of curated assignments that integrate AI tools from educators around the world. If you're just getting started with AI, check out our AI Guide first.

Sample Prompt for Instructor Use

Teaching Ideas [1]

"**Suggest a teaching idea for these ethical issues.** Do not align to a particular subject area. Build out robust and interesting lesson activity ideas which can be applied to any of the 9 areas.

Do not align activities with the 9 areas. Use contemporary teaching practices, and a mix of discussion, research, student centred, and explicit instruction.

Produce a title for the activity (use markdown to format headings), one or two learning intentions, and the description of the activity. Limit activity to a maximum of 50 minutes."

As an Example Generator [2]

"I would like you to act as an example generator for students. When confronted with new and complex concepts, adding many and varied examples helps students better understand those concepts.

I would like you to ask what concept I would like examples of, and my year in college. You will provide me with four different and varied accurate examples of the concept in action."

Challenge #3:

How can we equip students with the knowledge and skills to engage Generative AI in an ethical and critical way?

GenAI Literacy for Students

GenAI Ethics 101 Curriculum

Data & Privacy

The use of personal information to train GenAI models raises concerns about privacy and potential misuse.

Bias

GenAI models can perpetuate existing biases found in the data they are trained on, leading to unfair or discriminatory outcomes.

Hallucinations

GenAI models can generate false or misleading information, potentially impacting the accuracy of information dissemination.

Academic Integrity

The use of GenAI for academic work raises questions about plagiarism and the authenticity of student work.

Copyright & Intellectual Property

The generation of content that may infringe on existing copyrights raises legal and ethical concerns.

Human Labor

The development and training of GenAI models may involve exploitation of human labor, particularly in data annotation tasks.

Environmental Impact

The energy consumption associated with training and running GenAI models has significant environmental implications.

Spreading Misinformation

The potential for GenAI to generate and spread false or misleading information poses a threat to public discourse.

Examples of Student Use

As a retrieval tutor [1]

"Act as an expert tutor for a first year university biology course.

I need to study the topics of cell biology, evolution, and genetics. **Generate a passage that contains statements that integrate and interleave these topics.**

Wait for my responses to the passage and then give me feedback on my responses."

As a universal simulator [2]

"I want to do deliberate practice about how to conduct bedside consultations in a large hospital. You will be my teacher.

You will simulate a detailed scenario in which I have to engage in a patient consultation. You will fill the role of the patient or their family, I will fill the role of the doctor.

You will ask for my response to in each step of the scenario and wait until you receive it. **After getting my response, you will give me details of what the other party does and says.**

You will grade my response and give me detailed feedback about what to do better using medical consultation models. You will give me a harder scenario if I do well, and an easier one if I fail."

As an explainer [3]

"I would like you to act as an example generator for students. When confronted with new and complex concepts, adding many and varied examples helps students better understand those concepts.

I would like you to ask what concept I would like examples of, and my grade level. You will provide me with four different and varied accurate examples of the concept in action."

Considerations for Instructors

Help your students learn how to **identify misinformation** and **combat the spread of misinformation**...

Because, the ability "to discern what is and is not A.I.-generated will be **one of the most important skills we learn in the 21st century**" (Marie, 2024, para.3).

Resources:

- Teacher and Student Guide to Analyzing AI Writing Tools (see "Questions About the Text Produced by the AI Writing Tool").
- AI Pedagogy Project: AI Misinformation Campaign Lesson.
- Can You Spot Fake AI?
- Checkology: Misinformation Lesson

Readings:

- AI Misinformation: How It Works and Ways to Spot It.
- Commission on Information Disorder Final Report
- How to deal with AI-enabled disinformation

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Questions

At what scale can you make an intervention?

University-level? Classroom? Assignment level?

What is one new thing you can learn about GenAI?

Prompting?

Variety of tools?

How others are using it in their classrooms?

What do you think is most essential to teach students about AI?

How to prompt?

How to spot misinformation?

The environmental impact?