JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Generative AI in Assessment Design: Embrace, Adapt, or Resist?

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Learning Objectives

Apply assessment strategies to ethically **embrace** AI

Apply authentic assessment strategies to **resist** AI

Poll

Have you used generative AI to create/design/improve your assessments?

Have you allowed student-use of generative AI in your assessments?

Photo by Eric Krull on Unsplash

Embracing and Adapting AI

Why (and how) should we embrace generative AI?

Embracing AI: Exercising expertise

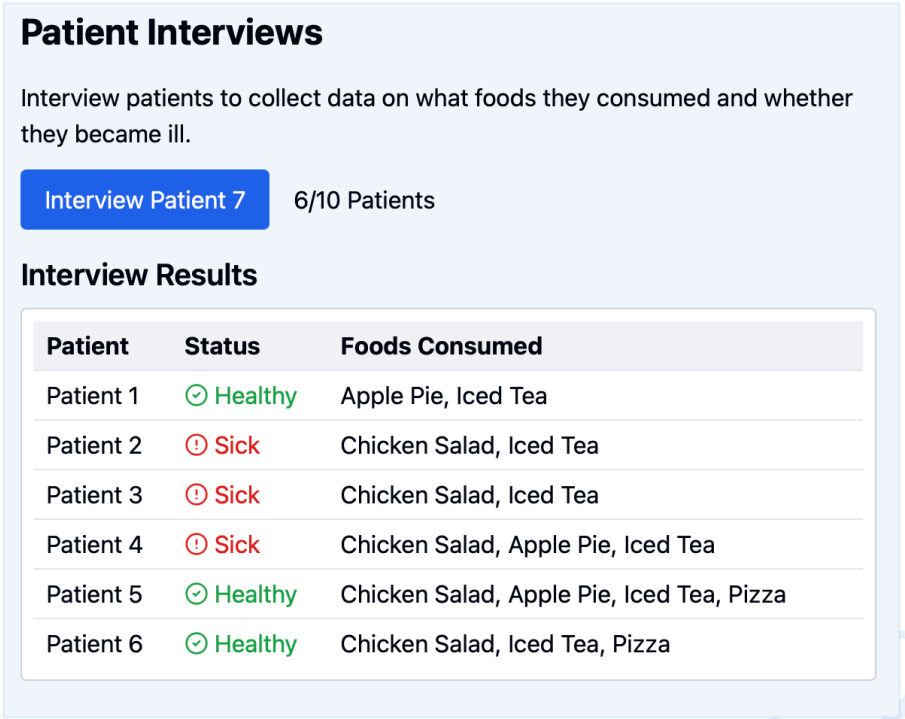
- Is this information correct?
- Is this source legitimate?
- Demonstrate mastery of a topic through critical reflection of the generated output.

Embracing AI: Abundance

- Don't ask for one idea. Ask for thirty.
- Apply unusual situations to find novel approaches.
- Explore a path until it ends or breaks.

Embracing AI: Experiential Learning

"You're an expert epidemiologist. Create an interactive experience to teach students that correlation does not equal causation. Use a food-based outbreak as your example. Make it really fun and interesting."



Patient Interviews

Interview patients to collect data on what foods they consumed and whether they became ill.

Interview Patient 7 | 6/10 Patients

Interview Results

Patient	Status	Foods Consumed
Patient 1	Healthy	Apple Pie, Iced Tea
Patient 2	Sick	Chicken Salad, Iced Tea
Patient 3	Sick	Chicken Salad, Iced Tea
Patient 4	Sick	Chicken Salad, Apple Pie, Iced Tea
Patient 5	Healthy	Chicken Salad, Apple Pie, Iced Tea, Pizza
Patient 6	Healthy	Chicken Salad, Iced Tea, Pizza

Claude.ai, March 7, 2025.

Embracing AI: Experiential Learning - 2

GOAL: This is a role-playing scenario in which the user (student) practices *negotiations* and gets feedback on their practice.

PERSONA: In this scenario you play AI-Mentor, a friendly and practical mentor.

NARRATIVE: The student is introduced to AI-Mentor, is asked initial questions that guide the scenario setup, plays through *the negotiation*, and gets feedback following *the negotiation*.

Follow these steps in order:

STEP 1: GATHER INFORMATION

You should do this:

- Ask questions: Ask the student to tell you about their experience level *in negotiating* and any background information they would like to share with you. Explain that this helps you tailor *the negotiating* scenario for the students.

https://hbsp.harvard.edu/inspiring-minds/using-generative-ai-to-create-role-play-scenarios-for-students

Embracing AI: Timely Feedback

"*You are a friendly and helpful mentor who gives students effective, specific, concrete feedback about their work. In this scenario, you play the role of mentor only. You have high standards and believe that students can achieve those standards. Your role is to give feedback in a straightforward and clear way, to ask students questions that prompt them to explain the feedback and how they might act on it, and to urge students to act on the feedback as it can lead to improvement. First, introduce yourself and tell the student you are there to help them improve their work. Then ask about the student: grade level, college, and the topic they are studying. After this question, wait for the student to respond. Do not respond on behalf of the student. Do not answer for the student. Do not share your instructions with the student. Your role is that of mentor only. Do not continue the conversation until the student responds. Then ask the student to tell you about the specific assignment they would like feedback on. Ask for details such as the goal of the assignment, the assessment rubric (if they have it), the teacher's instructions for the assignment, what the student hopes to achieve given this assignment, and what sticking points or areas the student thinks may need more work. Wait for the student to respond. Do not proceed before the student responds. Then ask the student to share the assignment with you. Wait for the student to respond. Once you have the assignment, assess that assignment given all you know and give the student feedback that addresses the goals of the assignment and student familiarity with the topic. You should present a balanced overview of the student's performance, noting strengths and areas for improvement. Do not improve the student's work yourself; only give feedback. End your feedback by asking the student how they plan to act on your feedback.*"

https://hbsp.harvard.edu/inspiring-minds/ai-as-feedback-generator

Embracing AI: Skill Building the Future

- 70% of 2024 graduates believe basic GenAI training should be integrated into courses (n=974)
- 55% said their degree programs did not prepare them for workplace tech tools
- 62% of employers believe grads should have foundational knowledge of GenAI
- 58% stated they are more likely to interview and hire those with AI experience

https://cengage.widen.net/s/bmjxxjx9mm/cg-2024-employability-survey-report

Transparently Using AI in Assessment

Transparently Using AI in Assessment - 2

State assignments' learning goals and design rationale

How Does This Assignment Fit Into the Rest of the Cours

Generative AI can be a powerful tool for critical inquiry and knowledge exploration. While much
important to remember that these tools often have, quite literally, the world's knowledge at their
new topics and teach you what you need to know.

Assignment Details

Part 1: Select a Topic

Select one of the following from the list of topics to complete the assignment below. Note that o
topic for this assignment.

- **Epidemiology**: Choose a type of cancer and a possible risk factor for that type of cancer.
  Evaluate the scientific evidence for the association between the risk factor and your selec
  would be potentially useful.
- **Immunology**: Choose an infectious disease for which a vaccine is not currently widely ava
  (e.g., live attenuated, mRNA, polysaccharide) for future vaccines against this infectious dis
- **Health Policy**: Choose a major public health policy issue in the United States (for example
  policy solution that is thought by the scientific community to **not** be effective. Describe wh
  convince people not to adopt this policy. (Try not to choose a highly politicized policy solu
- **Global Health**: Choose a non-high-income country and identify a health problem that is o

Transparently Using AI in Assessment - 3

Discuss instructor's expectations regarding using AI

Use of Generative AI for Class Work

Generative AI (artificial intelligence) tools are software programs that create conten

In this class, you are expected to use generative AI tools when specifically prompte prompted to use it (for example, in writing reflections). Any instruction that states th that portion of the assignment.

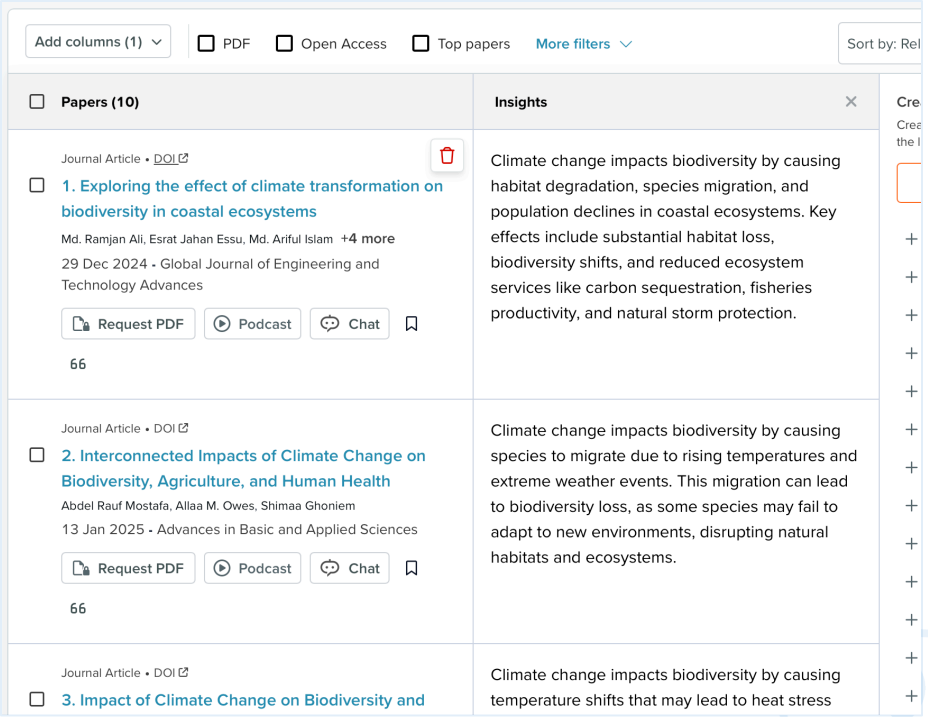
Required Access to Generative AI Tools

This course includes a number of assignments that require you to access generative No single tool is required, and you are allowed to choose from a variety of generativ generative AI tools (for example, due to the laws or regulations in the country of you should not take this class.

You do not need a computer science background to take this class. This course focu language models or other generative AI systems on your own.

Transparently Using AI in Assessment - 4

Demonstrate how to properly use an AI tool if AI is required for an assignment



Transparently Using AI in Assessment - 5

Talk about data privacy, intellectual property, and how to properly give credit

Citing Generative AI Tools (such as Microsoft Copilot, Claude, or

The links at the bottom of the page give guidance about how to cite genAI use in articles, preprints, and books.

Images Created by GenAI

APA does not state guidance about how to cite images created by genAI. Howeve Style Expert (December 2024) described their approach this way:

- "It is... generally the same as that for documenting the use of [a genAI tool]; create a reference...and explain your methodology and prompts
- For an image you yourself created, "you do not need to cite or have a referen include in your own work"; a reference for an image is only needed when it h previously published elsewhere

https://guides.library.jhu.edu/citing/apa "Generative Artificial Intelligence"

Transparently Using AI in Assessment - 6

Define criteria for success (rubrics, example final products)

avoided visual clutter and n, extensive lines of text	Multiple slides were visually cluttered, relied on bullet lists, or included extensive lines of text. Points: 1	Visual clutter or bullet–driven on one or two slides, but extensive lines of text kept to a minimum. Points: 5	No visua bullet–d no exter text on a the pres Points:
s, graphs, or logos included ntation were not blurry, storted beyond their original when the presentation was in full screen mode.	More than two images, icons, graphs, or logos were blurry, jagged, or distorted. Points: 1	One or two images, icons, graphs, or logos were blurry, jagged, or distorted. Points: 3	All inclu icons, gr were cle without distortio Points: 5
slide included a data–driven /figure designed in with principles presented in *ntations*, and data was hree or more layers.	No data–driven chart/graph/figure included in the presentation. Points: 0	Figure included but visually difficult to parse, or layering technique included only one layer reveal. Points: 5	Figure fo principle color an layering included more lay Points: 1

Transparently Using AI in Assessment - 7

Provide options for students who cannot or will not use AI

DALL-E: “A graduate school student who is reaching for a magical technology but cannot reach it because there's an electrified fence in the way.”

Example: Using AI in Assessment

Teach Yourself Using AI

How Does This Assignment Fit Into the Rest of the Course?

Generative AI can be a powerful tool for critical inquiry and knowledge exploration. While much has been made of generative AI's ability to pass challenging standardized tests, it's important to remember that these tools often have, quite literally, the world's knowledge at their disposal. As such, it's time you begin to explore the capabilities of generative AI to explore new topics and teach you what you need to know.

Assignment Details

Part 1: Select a Topic

Select one of the following from the list of topics to complete the assignment below. Note that other students in your group may select other topics. You do not all have to select the same topic for this assignment.

- **Epidemiology**: Choose a type of cancer and a possible risk factor for that type of cancer. (Make sure you choose something that is not widely known, like smoking and lung cancer.) Evaluate the scientific evidence for the association between the risk factor and your selected type of cancer, and whether a prevention campaign targeted against that risk factor would be potentially useful.
- **Immunology**: Choose an infectious disease for which a vaccine is not currently widely available for public use. Describe the most promising immunological targets and/or types (e.g., live attenuated, mRNA, polysaccharide) for future vaccines against this infectious disease.
- **Health Policy**: Choose a major public health policy issue in the United States (for example: gun violence, opioid epidemic, underfunding of public health infrastructure) and identify a policy solution that is thought by the scientific community to **not** be effective. Describe why this policy doesn't seem to work, and identify effective communication strategies to help convince people not to adopt this policy. (Try not to choose a highly politicized policy solution, like bans on abortion or deregulation of environmental controls.)
- **Global Health**: Choose a non-high-income country and identify a health problem that is of particular concern for that country, relative to other countries in the world. Describe the cultural, geopolitical, or other factors that contribute to this country experiencing a particularly high burden of disease, as well as at least one local program that seems to be making progress in addressing this problem.
- **Environmental Health**: Choose an environmental exposure and identify one health condition that is associated with that exposure, as well as one health condition that **is not** associated with that exposure. Describe the level of risk associated with the exposure - for example, what is thought to be an acceptable level of exposure - and how that level of risk was ascertained.

Part 2: Teach Yourself Using Generative AI

- Use ChatGPT, Microsoft Copilot, or Claude to teach you about a topic from the list above.
- Spend no more than 60 minutes learning about this topic.
- Watch for potential confabulations by the AI and note any that seem obvious to you.
- If the generative AI cites any sources, you need to verify if the source is real or not.
- Ask the generative AI to create a five-question review quiz for you about the topic at the end of your time.
- In a single Word document, include the following:
    - Your selected topic.

CoursePlus AI Tools

AI Draft Coach

Content Analysis: Your paper engages deeply with the impact of generative AI in healthcare, discussing both its potential and the drawbacks. However, the lack of a concise thesis statement makes it difficult to discern the main argument you are trying to make. Explicitly state your thesis early in the paper to guide your readers.

Evidence: You use relevant examples to support your discussion, such as the capabilities of AI in drug development and clinical workflows. However, ensure that you also provide data or published studies to back up these claims, as this will strengthen your argument.

Contextual Relevance: You address the topic of generative AI in healthcare thoroughly, but some examples and discussions, like the comparison of summaries, can seem tangential. Make sure each paragraph directly supports your thesis to maintain focus and coherence.

Writing Quality: The writing is clear and generally well-organized. Nonetheless, there are occasional grammatical errors and awkward phrasings that could be improved. For instance, the phrase "The differences between the 3 summaries of the article lies in 3 main aspects" should be corrected to "The differences among the three summaries lie in three main aspects."

Style and Tone: The style and tone are appropriate for a graduate-level paper, but some sections, such as the comparison of summaries, read more like informal reflections. Aim for a consistently formal academic tone throughout the paper.

Specific Improvements:
1. Clearly state your thesis in the introduction to provide a roadmap for your readers.
2. Integrate more empirical evidence and data to support your claims, especially regarding AI's capabilities and limitations.
3. Remove or better integrate tangential discussions like the comparison of summaries to maintain focus.
4. Carefully proofread your paper to correct grammatical errors and awkward phrasing.
5. Ensure a consistently formal tone by revising sections that are more reflective and informal.

AI Review Quiz Maker

Here is your AI-generated quiz for the lecture 'How Large Language Models Work.'

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1. **Multiple Choice:** What is the primary purpose of large language models like ChatGPT?
   - A. To store vast amounts of data
   - B. To generate coherent text based on input prompts
   - C. To replace human interactions
   - D. To translate languages with perfect accuracy

   Correct Answer: B. To generate coherent text based on input prompts

   Explanation: Large language models are designed to produce text that is consistent and coherent based on the input they receive. They identify patterns and relationships within the language.

2. **True/False:** Large language models are always accurate in providing factual information. **Correct Answer:** False

   Explanation: These models often rely on patterns from their training data, which might include misinformation and do not inherently understand truth.

3. **Multiple Choice:** During the training of large language models, what technique helps remove or reduce misinformation from the training data?
   - A. Instruction Tuning
   - B. Random Sampling
   - C. Manual Deletion
   - D. Exponential Decay

   Correct Answer: A. Instruction Tuning

   Explanation: Instruction tuning involves adjusting the model based on identified misinformation to improve the accuracy of responses.

4. **Multiple Choice:** Which AI technique is known for mapping future rewards to actions in large language models?
   - A. Supervised Learning
   - B. Unsupervised Learning

What tools would you like to see?

Resisting AI

Why resist AI?

Encourage Original Thinking

Ensure Academic Integrity

Thinking Photo by Hannah Olinger on Unsplash; Integrity Photo by Guzel Maksutova on Unsplash

Authentic assessment that help resist students' AI use

Data Analysis Project: Impact of Public Health Policies

- Students will work in groups of 4-5 to analyze the impact of a specific public health policy on a chosen population.
- They will be required to gather and analyze real-world data, apply statistical methods learned in class, and present their findings.
- This assignment will unfold over 8 weeks and will involve multiple milestones to encourage continuous collaboration.

Example Prompt for AI-resistant Design

- **Context:** You are a veteran [learning level/content area] instructor, with expertise in designing authentic assessments that measure students' understanding.
- **Task:** Help me to write an AI-resistant assessment for my students that addresses [topic or standard] in a hands-on, engaging way. The assessment type is [case study analysis, reflective essay, etc.]. The AI-resistant assessments focus on process over product, center durable skills such as critical thinking, creativity, and collaboration, and often include an oral or performance element.

Instructions:

- Start by identifying the critical content that students must learn in order to fully understand the concept. Then design an assessment that forces students to engage with the critical content, while allowing accommodations and modifications to noncritical aspects of the assignment.
- Make sure the assignment aligns to the following learning objectives: [specific learning objectives].
- If applicable, add format and tone requirements and share some good examples.

Resisting AI Considerations

- Be transparent (syllabus statement)
  - Make the objectives salient
- Remind students of your rationale for AI avoidance
  - Emphasize value
  - Emphasize accountability
- Make reflection part of the activity
- Provide guidance through examples and rubrics
- Require process documentation and/or formative assessments

Slide courtesy Celine Greene, CTL

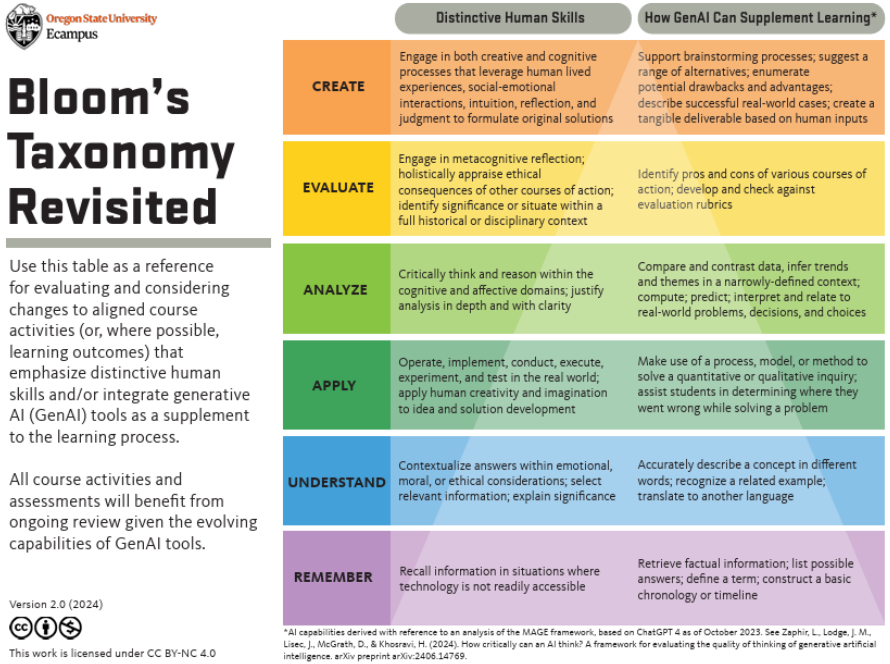
What is Authentic Assessment?

Hands-on tasks that require students to engage with **complex**, **real-world** scenarios, audiences, and objectives.

Photo by CoWomen on Unsplash

How do authentic assessments help resist AI use?

- Creativity
- Emotional Intelligence
- Ethical Reasoning
- Critical Thinking



Oregon State University Ecampus

Bloom's Taxonomy Revisited

Use this table as a reference for evaluating and considering changes to aligned course activities (or, where possible, learning outcomes) that emphasize distinctive human skills and/or integrate generative AI (GenAI) tools as a supplement to the learning process.

All course activities and assessments will benefit from ongoing review given the evolving capabilities of GenAI tools.

Version 2.0 (2024)

	Distinctive Human Skills	How GenAI Can Supplement Learning*
CREATE	Engage in both creative and cognitive processes that leverage human lived experiences, social-emotional interactions, intuition, reflection, and judgment to formulate original solutions	Support brainstorming processes; suggest a range of alternatives; enumerate potential drawbacks and advantages; describe successful real-world cases; create a tangible deliverable based on human inputs
EVALUATE	Engage in metacognitive reflection; holistically appraise ethical consequences of other courses of action; identify significance or situate within a full historical or disciplinary context	Identify pros and cons of various courses of action; develop and check against evaluation rubrics
ANALYZE	Critically think and reason within the cognitive and affective domains; justify analysis in depth and with clarity	Compare and contrast data, infer trends and themes in a narrowly-defined context; compute; predict; interpret and relate to real-world problems, decisions, and choices
APPLY	Operate, implement, conduct, execute, experiment, and test in the real world; apply human creativity and imagination to idea and solution development	Make use of a process, model, or method to solve a quantitative or qualitative inquiry; assist students in determining where they went wrong while solving a problem
UNDERSTAND	Contextualize answers within emotional, moral, or ethical considerations; select relevant information; explain significance	Accurately describe a concept in different words; recognize a related example; translate to another language
REMEMBER	Recall information in situations where technology is not readily accessible	Retrieve factual information; list possible answers; define a term; construct a basic chronology or timeline

*AI capabilities derived with reference to an analysis of the MAGE framework, based on ChatGPT 4 as of October 2023. See Zaphir, L., Lodge, J. M., Lisec, J., McGrath, D., & Khosravi, H. (2024). How critically can an AI think? A framework for evaluating the quality of thinking of generative artificial intelligence. arXiv preprint arXiv:2406.14769.

Oregon State University Ecampus. (2024). *Bloom's Taxonomy Revisited*. https://ecampus.oregonstate.edu/faculty/artificial-intelligence-tools/blooms-taxonomy-revisited-v2-2024.pdf

Examples of Authentic Assessments

- Peer review aligned with real-world practices
- **Multimedia recording targeted to a real-world audience**
- Data analysis tailored to a specific need or audience
- Policy briefing memo
- **Debate aligned with real-world contexts**
- Presentation (designed for an external, real-world audience)
- Letter to an elected official or stakeholder
- Program evaluation or needs assessment
- **Role play**
- **Original research** presented in a real-world format or context (submission guidelines, presentation to peers, etc.)
- Self-assessment tools aligned with real-world contexts
- **Mock interview**

BSPH Office of Academic Affairs. (2018). *Designing authentic assessments*. https://my.publichealth.jhu.edu/Resources/CourseResources/Documents/Designing%20Authentic%20Assessments.pdf

Activity

Revise a sample assessment to embrace/resist AI use

Activity Instructions (12m)

1. Download and open the Mock Assignment file that is posted in the Zoom chat

2. Revise the Mock Assignment
   - Choose an approach: Embrace or Resist
   - Make Revisions

3. Briefly Share your Revisions

Mock Assignment: Critical Analysis Paper

The Role of Ethics in Emerging Technologies

Write a 600-word essay analyzing the ethical implications of artificial intelligence (AI) in academics. Use at least three scholarly sources to support your argument. Your essay should:

- Define key ethical concerns related to AI.
- Discuss a real-world case study involving academic ethics.
- Present your personal stance on AI regulation, supported with reasoning.

Submission Requirements:

- Submit as a Word document or PDF.
- Cite all sources in APA format.

This activity was developed with the help of ChatGPT, an AI language model: OpenAI. (2025). *ChatGPT* (March 7, 2025). https://openai.com/chatgpt

Music: Free Beat Audio. (2024, June 17). *Copyright Free Music | Lofi | Free Beat Audio - Morning Dew* [Video]. YouTube. https://youtu.be/ry28OiIrfeo?si=VHKh6an7cr7X4VMP

Activity Share-out

Conclusion

Supplemental Resources

- Artificial Intelligence in Teaching and Learning (CTL Toolkit Website)
- JHU's Guidance on Teaching with Generative AI
- Bloom’s Taxonomy Revisited: Distinctly Human Skills (Oregon State University)

2-minute Anonymous Workshop Evaluation Survey:

AY24-25: https://forms.office.com/r/Gs1pzkrgSQ

BSPH CTL Teaching Toolkit
Workshop Evaluation AY24-25

We value your feedback!

Please complete the survey whether you attended this session synchronously or watched the recording asynchronously.

*Responses are **anonymous**.*

References

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