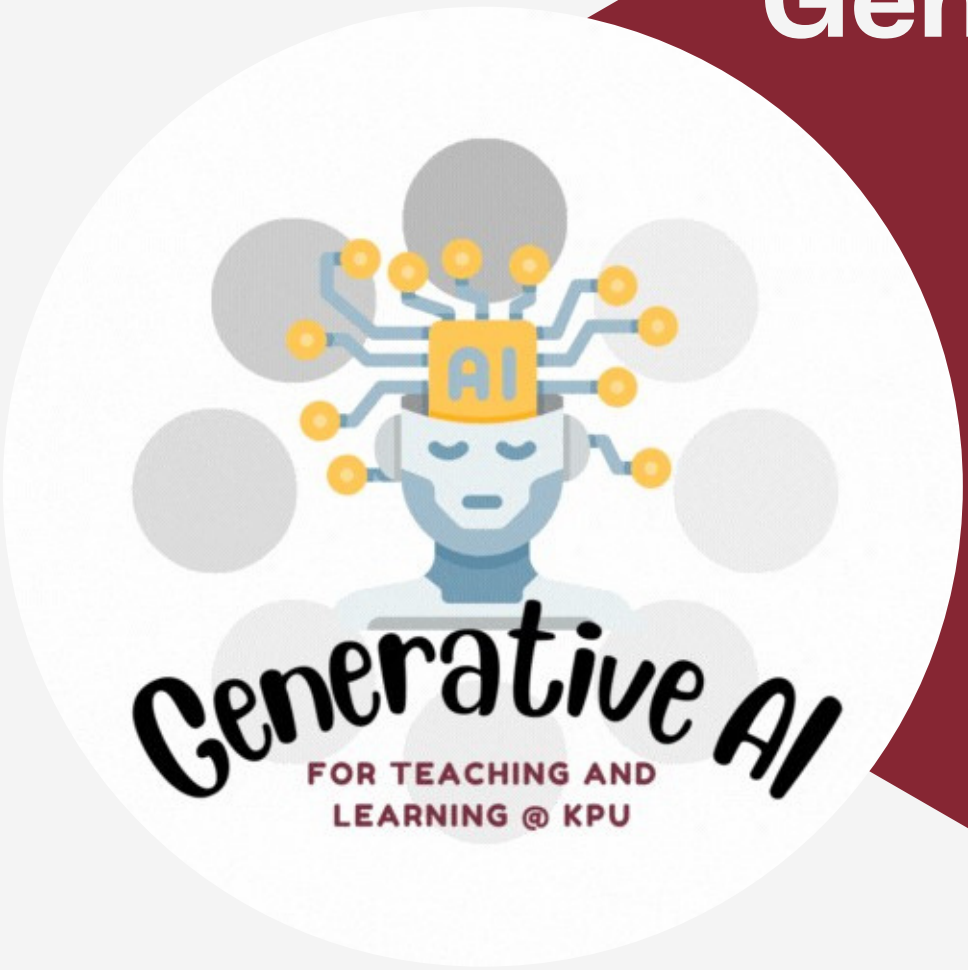
KPU | Teaching & Learning Commons

Generative AI

An Overview for Teaching and Learning



The Teaching and Learning Commons

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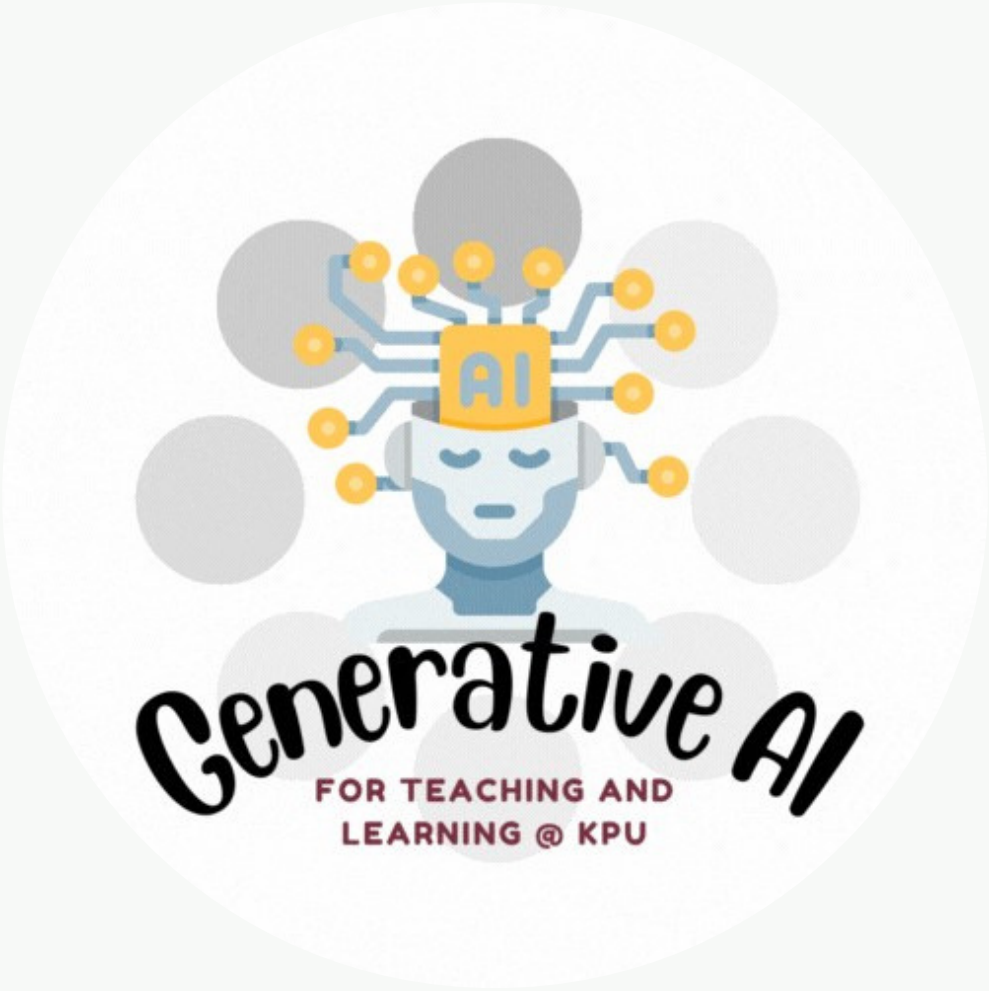
Generative AI

What is it?



Generative AI is a type of artificial intelligence that involves creating machines or computer programs that can generate new content, such as images, text, or music. Unlike traditional AI systems that rely on predefined rules or pre-existing data to make decisions, generative AI models use algorithms and neural networks to learn patterns and relationships in data and generate new outputs based on that learning.

KPU Official Position

In consultation with the Privacy office, The Teaching and Learning Commons and Office of the Provost have been reviewing the use of generative artificial intelligence (AI), specifically ChatGPT for use in KPU learning environments. Its use is currently under review for other business purposes, please await direction before proceeding outside of learning environments.

The decision to use or permit student use of generative AI tools in their course lies with the faculty member provided the use falls within the parameters provided in these guidelines. Please note, **requiring** students to create an account with these tools is not permitted, such use requires a full privacy impact assessment. Given the constantly evolving nature of this technology, we have determined that applying principles to our approach is the best way to move forward. A number of risk areas have been identified where we should be cautious with our use, see the guidance documents here. We recognize for many of you that your concerns relate to the confounding impact generative AI might have on academic integrity, questions related to this should be directed to academic.integrity@kpu.ca as they are nuanced and the enclosed guidelines may not provide the direction you are seeking.

Generative AI companies collect personal information from the time that a user visits the site to their completion of using their services. KPU cannot compel students to consent to their sensitive personal information being stored, accessed or disclosed outside Canada. Instructors have the option of using generative AI to engage with students in a learning environment without requiring students to set up individual accounts and without asking students to input or provide identifiable personal information when using generative AI. Privacy Impact Assessments for generative AI are only required if KPU is intending to require, recommend or encourage the use of generative AI in a manner that requires users to set up individual accounts or input identifiable personal information into the service. If you are unsure, please submit a support request by emailing tlcommons@kpu.ca and the necessary parties will be consulted to provide relevant guidance.

Features

Personalization

Generative AI can be used to create personalized learning experiences for each student. By analyzing data about each student's learning style, interests, and abilities, the AI can generate content that is tailored to their individual needs.

Accessibility

Generative AI can help make education more accessible to students with disabilities. For example, it can generate text-to-speech or sign language translations of written content.

Learning from Data

Generative AI models are trained on large amounts of data, which enables them to learn patterns, structures, and statistical relationships present in the data.

Creativity

Generative AI can produce content that is not based on existing data but rather uses learned patterns to create something new and original.

Adaptability

Generative AI can learn and adapt to new data and generate content that is consistent with the input

Considerations

Controllability

Controlling the output of generative AI models is an active area of research. While some techniques exist for steering the outputs, it remains a challenge to achieve precise control over the generated content

Computational Resources

Training generative AI models can require significant computational resources, especially for large-scale models like ChatGPT, resulting in system downtimes and downgraded performances. This may be a hinderance to business continuity.

Data Collection

Generative AI models need access to large amounts of data in order to generate new content. However, this data could include personal information, such as photos or text messages, which could be used to identify individuals. There is a risk that this data could be compromised or used for nefarious purposes.

Ownership and Control of Generated Content

When generative AI creates new content, it can be difficult to determine who owns the resulting work. This raises questions about intellectual property rights and who has the right to use or distribute the generated content.

Misuse of Generated Content

Generative AI can be used to create fake images or videos, or to impersonate individuals. This raises concerns about the potential for misuse, such as creating false evidence or spreading disinformation.

Bias and Discrimination

Generative AI models can be biased towards certain groups or types of content, which can perpetuate existing inequalities and discrimination. For example, if a generative AI model is trained on a dataset that is biased towards a particular race or gender, it may generate content that is also biased.

Considerations

Privacy Invasion Through Re-Identification

Generative AI models can be used to re-identify individuals in images or videos, even if they have been anonymized. This can lead to privacy invasion, particularly if the generated content is used in a way that the individual did not consent to.

Policies Constantly Changing

The rules, guidelines, and terms of service that generative AI platforms have in place are subject to frequent updates and modifications. These policies can include a wide range of terms and conditions that govern the use of their platform's products or services, such as pricing, privacy, and intellectual property rights.

Lack of Human Interaction

While generative AI can personalize learning, it cannot replace the value of human interaction in education. Over-reliance on AI could lead to a lack of meaningful interactions between students and teachers, which can impact social and emotional learning

Unreliable Content

Generative AI can generate a large amount of content quickly, but the quality and accuracy of that content may be questionable. There is a risk that AI-generated content could contain errors or perpetuate biases, which could mislead students.

Dependence on Technology

Using generative AI requires access to technology and reliable internet connection. This could create a digital divide, where students who lack access to technology and the internet are left behind.

Guidelines for Use

Important Note

- **The decision to use or permit the use of generative AI tools in your course should be explicitly stated and the considerations of these technologies should be discussed openly with students.**
- **The intention of discussing with students is to educate students on the risks and benefits of these tools.**

Possible Uses within KPU

Information, Media, and Digital Literacy

Information literacy is a "set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (ACRL, 2015).

Digital Literacy is the interest, attitude and ability to appropriately use digital technology and communication tools to access, manage, integrate, analyze and evaluate information, construct new knowledge, create and communicate with others. (Digital Literacy – Province of British Columbia)

You could use generative AI to have your students:

- Evaluate the reliability and credibility of information generated by using the SIFT Method (Stop, Investigate, Find trusted coverage, and Trace back to original context)
- Synthesize multiple sources and compare them against a literature review you created using generative AI.
- Examine content disclaimers, for example “may provide incorrect information or produce harmful instructions or biased content.”
- Assume the role of a “Shark Tank” judge and critique a generated piece of literature or business proposal.
- Explore potential biases in generated responses.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Possible Uses within KPU

Coding Skills

Coding assists students in developing problem-solving skills by solving problems rationally and creatively, as well as demystifying the digital world that is a part of our everyday lives.

You could use generative AI to have your students:

- Identify potential ways to revise generated code to reduce errors and improve output.
- Learn about machine learning and how AI works.
- Examine the role of humans in programming AI and the resulting bias.
- Try to bypass information guardrails (e.g. by asking the AI to provide an answer in an imaginary setting) and engage in discussions on ethics in coding.
- Create a chatbot that answers questions about ethics or bias in coding.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Possible Uses within KPU

Debating Skills

Debate can be an effective pedagogical strategy for enhancing class participation, oral communication, research, and critical thinking skills.

You could use generative AI to have your students:

- Debate the bot (students take one side and give the bot another).
- Respond to counterarguments you generate.
- Debate moral implications of generative AI technologies.
- Assume the role of a “Shark Tank” judge and debate a generated product’s value and relevancy.
- Explore how AI uses inductive learning to generate statements of fact.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Possible Uses within KPU

Math Skills

While learning the language and processes of math, at a higher-level students are training their brains to think logically, accurately and carefully.

You could use generative AI to have your students:

- Engage in problem solving by you generating “problems” or challenge statements/scenarios for students.
- As a group, summarize what they know about a topic, ask the AI generator about the topic, then have students to analyze the information generated, identify gaps in their knowledge, and reinforce what is known.
- Focus on reasoning and sense-making in AI-generated statements, procedures, or instructions.
- Analyze how AI uses inductive learning to generate statements of fact.
- Examine the math behind the algorithms.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Possible Uses within KPU

Writing and Language Skills

Writing is a key component of higher education. Written communication includes critical thinking and analytical reasoning skills, the ability to analyze and solve complex problems and the ability to locate, organize, and evaluate information from multiple sources. (Why Write? | College Writing by Susan Oaks, CC-BY-NC 4.0)

You could use generative AI to have your students:

- Discuss the importance of citing materials generated by AI generated (APA, MLA etc.), or discuss the copyright issues with AI generated content.
- In groups or individually, respond to a variety of writing prompts, case studies, or roleplays which you generate for them. These can be personalized and/or cover many different aspects of writing (e.g. error analysis, collocation).
- Remix an existing piece of writing – change the lens of the story.
- Emulate the writing style of an author whose work you are reading for class
- Guess the meaning of words generated in sentences using words that students may not be familiar with based on the context.
- Analyze generative AI output from the lens of different audiences by asking for concept explanations targeted to different age groups or audiences. For example, request output using language suitable for a 5-year-old, college student, and expert. Analyze the difference in the way information is presented.
- Analyze how ai uses inductive learning to generate statements of fact.

Be prepared to talk to your students about how to cite generative AI websites.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Possible Uses within KPU

Synthesis and Analysis

Synthesis and Analysis are higher orders in Bloom's taxonomy that many courses require their students to learn. Synthesis and analysis include making connections and threading learning over time (aka metacognition)

You could use generative AI to have your students:

- Critically summarize AI-generated information.
- Analyze generative AI output from the lens of different audiences by asking for concept explanations targeted to different age groups or audiences. For example, request output using language suitable for a 5-year-old, college student, and expert. Analyze the difference in the way information is presented.
- Synthesize multiple sources and compare against AI generated literature review to vet AI accuracy.
- Engage in problem solving with AI generated "problems" or challenge statements/scenarios.
- Analyze and discuss the bias, where it comes from, what is missing etc. In a generated short historical article that contains bias.
- As a group, summarize what they know about a topic, ask the AI generator about the topic, then have students to analyze the information generated, identify gaps in their knowledge, and reinforce what is known.
- Analyze how AI uses inductive learning to generate statements of fact.

Work inside the box by facilitating these interactions yourself instead of asking students to directly input into the AI.

Guidelines for Use

Potential Risks & Mitigation

Privacy in the Context of Teaching and Learning

What does this mean?

Generative AI companies collect personal information from the time that a user visits the site to their completion of using their services. At minimum, account data includes enough information to associate the individual with their account to login (this is usually name and email address). Sometimes setting up accounts includes providing additional demographic data that is either optional or mandatory. For services that require payment, the payment information directly associates the individual based on how they pay with the account and associated content making it harder to anonymize or alias the individual.

Additionally, generative AI companies will collect personal information from the use of their services. The types of personal information collected when an individual uses generative AI usually includes:

- Log data: Browser type, IP address, browser settings, date and time of using the service, how the user interacted with the functionality of the service.
- Usage data: The types of content requested, the types of content produced, features used, actions taken, time zone, country, dates and times of each request and response produced, user operating system version, user browser version, type of device used (computer, phone, tablet by brand and model), internet provider, IP address.
- Device data: As indicated above but without the details of how each feature was used with a device, but only the individual device information saved as a separate entry.
- Session Data: Information about previous sites visited (ie. cookies), the individual sites visited on the generative AI company's network, information about next sites visited, quality assurance data collected during site visits.

All personal information ends up being associated with each individual's account, and generated third party personal information is also associated with each individual's account and linked to the use of services by that individual. The result is that an individual's use of generative AI services associates identifiable individuals with requests for products, and may associate identifiable third parties within that identifiable user's resulting products.

Guidelines for Use

Potential Risks & Mitigation

Given the types of user information that are collected, and the third-party personal information that may be accurately input into generative AI, there are potential risks with using generative AI in learning environments. Foremost, the management of personal information needs to be minimal to what is necessary for the student to complete their studies in an academic program.

Concerns

When the University requires, recommends, or encourages the use of generative AI (such as ChatGPT), the processing of the personal information involved may be governed by FIPPA if the resulting product is assessed for grades, or reviewed for providing feedback associated with an identifiable individual. The most common reason to collect personal information under FIPPA, either directly from individuals, or through a third-party organization, to participate in an activity of a public body, is because that personal information is necessary and directly related to the operations of the public body. In the university context we would collect personal information from students through assignments or ask them to sign up for services to complete assignments, because those assignments are necessary and directly related to the student acquiring the intended learning outcomes of the course as presented in KPU's Academic Calendar.

- A Privacy Impact Assessment ("PIA") is required before instructors can require, recommend, or suggest that students sign up for the use of generative AI accounts. Using generative AI as strictly an instructional tool to generate teaching materials and avoiding the input of any personal information into the tool removes the need for a PIA.
- KPU cannot compel students to consent to their sensitive personal information being stored, accessed or disclosed outside Canada. When the use of generative AI technology and accompanying practices stores, accesses, or discloses open ended and potentially sensitive personal information outside Canada, and that use of technology is considered required, recommended, or encouraged (rather than purely optional) by instructors, academic departments or faculties, an alternative assignment may be useful for students who object to the storage, access or disclosure of their personal information outside Canada.

Guidelines for Use

Potential Risks & Mitigation

- Alternatives are recommended if the assignments or activities that use generative AI are required for a KPU student to complete a course, and that student did not receive notice that consenting to the management of personal information outside of Canada was a condition of being able to complete the course objectives and get a passing grade.
- KPU cannot compromise a student's ability to complete assignments if a student does not consent to the disclosure of potentially sensitive personal information for storage outside of Canada. Students must have a reasonable opportunity to be notified in advance of the any activities that require them to have an account or input personal information into open-ended fields in the use of generative AI in learning environments and make a meaningful choice to consent.

What can I do?

At minimum the use of generative AI in the classroom needs to involve a meaningful discussion with students about risks that extend farther than academic integrity considerations. The students need to acquire a reasonable understanding about how the benefits of the use of generative AI counter the risk that making an account and using generative AI may have on their privacy. The use of generative AI makes a distinct and identifiable digital footprint that reflects how individuals seek to use generative AI which may impact individual and third-party integrity, reputation, and security if that information is compromised.

If a student is required, recommended, or encouraged to make an account with a generative AI service such as ChatGPT, the student would need to sign a consent form that summarizes the risk presented by the instructor in the learning environment. The requirements for consent management processes will vary greatly by the design of the assignment and the sensitivity of the personal information that may be required to complete the assignment.

The Privacy Office will be available to answer questions about privacy management using generative AI technology in the classroom including:

- Drafting informed consent notices

Guidelines for Use

Potential Risks & Mitigation

- Record keeping requirements for informed consent documents when it is necessary to collect personal information about students during activities in a learning environment that use generative AI,
- Support talking to students and instructors about privacy and FIPPA requirements when using generative AI in a learning environment.

The records retention requirements for documented informed consent will vary between two (2) years after course completion, up to fifteen (15) years after course completion depending on the following factors:

- How transparent the collection, use, storage, access, disclosure, disposal, and protection of personal information is between the student, the generative AI service, and any included third parties,
- The sensitivity of the personal information collected from students using the generative AI service. Sensitivity is determined by whether the information could compromise the integrity, reputation or security of the student or third parties,
- Whether vulnerable or disenfranchised groups are participating,
- Whether the technology being used collects invasive personal information and how that technology manages the personal information it collects.
- Retaining consent notices will assist in managing complaints students and third parties may have in the future about how the student has chosen to manage their personal information during generative AI assignments.

Ensuring adequate data security measures are in place is an important part of ensuring that KPU can protect personal information from inappropriate intentional or unintentional disclosure. The individual or department at KPU seeking to use generative AI in the classroom needs to contact InfoSec@kpu.ca to ensure the use of new generative AI services do not cause any security vulnerabilities in KPU's IT infrastructure?

While other risks will not be illustrated in this guideline to the extent that privacy has been above, it is important to consider these other risks and how they may contribute to the calculation of benefit against potential harm of students using generative AI in learning environments.

Guidelines for Use

Potential Risks & Mitigation

Intellectual Property (AI) and Copyright

If you have any questions related to copyright and intellectual property, please contact: deepak.gupta@kpu.ca

Guidelines for Use

Potential Risks & Mitigation

Bias

Concerns

- Generative AI can combine information with damaging misinformation to create believable narratives that can go on to perpetuate bias and bigotry.
- The material that generative AI draws on reflects the bias and bigotry found on the internet as a whole, which is then re-produced in the content it generates.
- Most generative AI's have been developed in the western world therefore they are culturally biased.

What can I do?

- Carefully consider the prompts you are inputting into the AI to attempt to reduce biased perspectives and perpetuate existing biases.
- Vetting the output before sharing with students to assess for accuracy and presence of bias.
- Be aware of your biases by attending workshops, events, and engaging in reflective practices.

Guidelines for Use

Potential Risks & Mitigation

Ethics

Concerns

- Data and information are taken from user inputs and usage, browser logs, and device information. In some cases, users are being used as unpaid focus group members, researchers and troubleshooters.
- Generative AI is not an individual that can be held accountable for the content it generates.
- Because AI draws its information from the internet, there is no source of truth. AI algorithms may promote certain perspectives as truth over other ideas and perspectives.

What can I do?

- Inform your students that AI websites gather data from their inputs, browser history and bookmarks.
- Be a subject matter expert and ensure AI-generated content is credible and reliable before distributing to students (unless inaccuracy is part of the assignment) or asking students to follow AI-generated procedures.
- Take accountability for the prompts that you input into the AI and the generated content that you choose to share with your students.
- Incorporate information and digital literacy training into your course.
- Inform students that the content generated by AI may be biased and inaccurate.

Guidelines for Use

Potential Risks & Mitigation

Accuracy of Information

Concerns

- Generative AI will provide a response whether it has the information or not. If it does not have any information it will generate believable inaccurate information to satisfy the prompt. Or, it will attempt to give you the “best” answer, not necessarily the most accurate.
- Generative AI tends to frame its responses to questions as absolutes; as though every question has a single correct answer.

What can I do?

- Recognize that generative AI's represent a starting point that requires research, reflection and thoughtful input. The response given may help focus the direction of research, but must not be taken as accurate or as research itself.
- Draft well worded and well thought out prompts to receive more nuanced responses.
- Be a subject matter expert and ensure AI-generated content is credible and reliable before distributing to students (unless inaccuracy is part of the assignment) or asking students to follow AI-generated procedures.
- Incorporate information and digital literacy training into your course.
- Inform students that the content generated by AI may be biased and inaccurate

Guidelines for Use

Potential Risks & Mitigation

Safety

Concerns

- Generative AI will not make accurate calculations, but will predict calculations based on what is most commonly provided from its reference repository.
- Generative AI will not confirm best practices for the care of a person, but will predict the most common approaches to providing care for a person.
- Miscalculating scientific formulas may result in dangerous chemical reactions may be harmful to students and the instructor combining materials as instructed.
- Using interventions or care-based practices recommended by generative AI may not be safe for a person based on their individual context.

What can I do?

- Recognize that Generative AI is more interested in making answers that appear correct than answers that are precise in their calculation or recommendation based on context.
- Take appropriate safety precautions before completing activities that have the risk of causing unintended physical, emotional, or other forms of harm.