GenAI: Friend or Foe?

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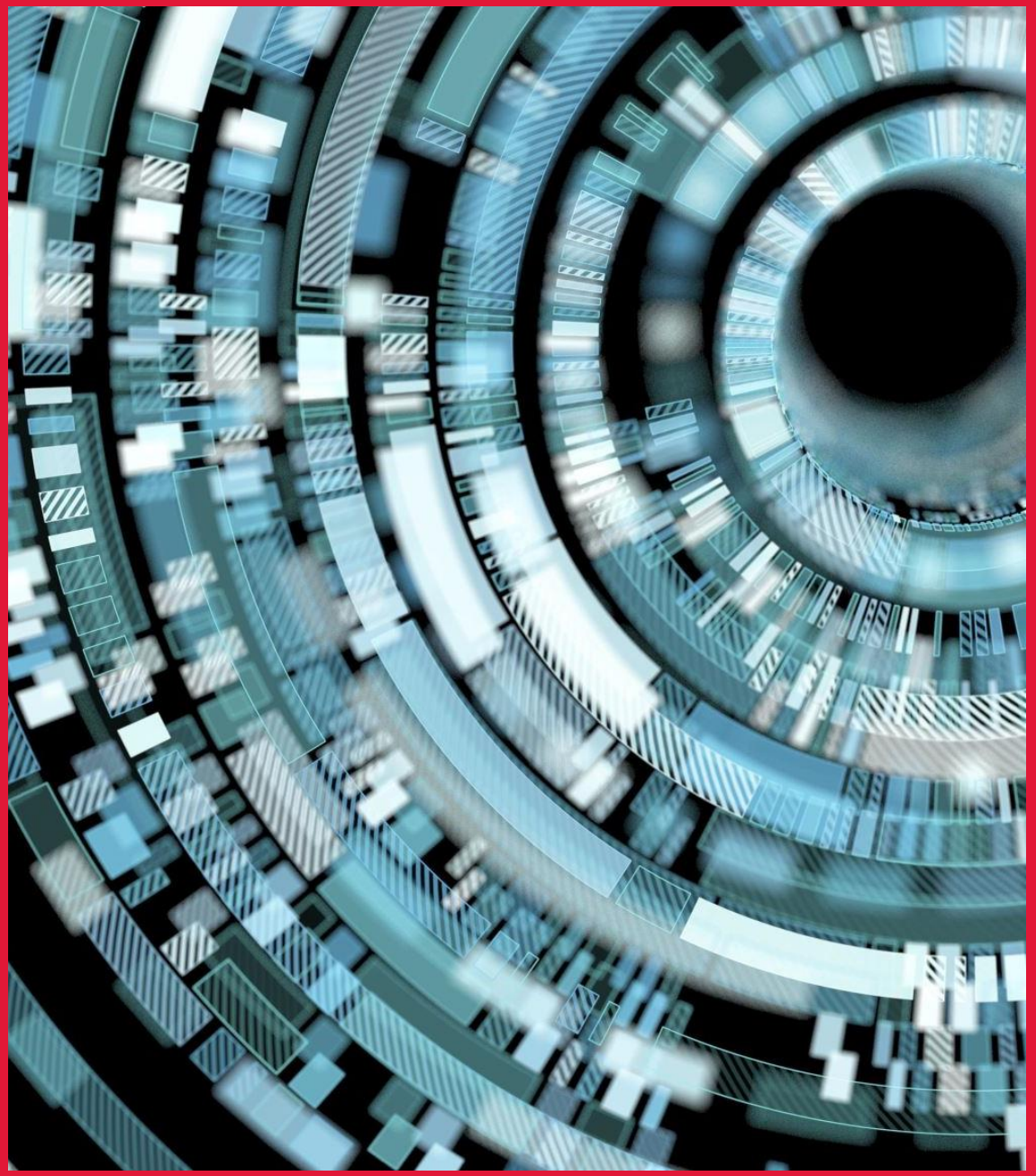

Land Acknowledgement

We recognize that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.

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Session Outcomes

- Identify key changes to GenAI that have occurred over the past year and the related academic integrity challenges.
- Learn about how GenAI is impacting students and faculty at York.
- Determine strategies to prevent academic misconduct and strategies to respond to suspected misconduct.
- Explore teaching and assessment strategies that support academic integrity and help build critical digital literacy.

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Where are you with Generative AI?

https://www.menti.com/alrexvtxrhog

Or visit menti.com and use the code **6339 0126**

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What Is Generative AI And What Can It Do?

About Generative AI

Generative AI is… “Technology that creates content — including text, images, video and computer code — by identifying patterns in large quantities of training data, and then creating original material that has similar characteristics. Examples include ChatGPT for text and DALL-E and Midjourney for images.”

- Pasick, A. (2023, March 27). Artificial Intelligence Glossary: Neural Networks and Other Terms Explained. The New York Times. https://www.nytimes.com/article/ai-artificial-intelligence-glossary.html
- See also: Basgen, B. (2023, 08). A Generative AI Primer. EDUCAUSE Review. https://er.educause.edu/articles/2023/8/a-generative-ai-primer
- And: Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 🦜. Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, 610–623. https://doi.org/10.1145/3442188.3445922

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About Generative AI

Consider cognitive offloading: “the use of physical action [*or a tool*] to alter the information processing requirements of a task so as to reduce cognitive demand.”

- Risko, E. F., & Gilbert, S. J. (2016). Cognitive Offloading. Trends in Cognitive Sciences, 20(9), 676–688. https://doi.org/10.1016/j.tics.2016.07.002
- See also: Grinschgl, S., & Neubauer, A. C. (2022). Supporting Cognition With Modern Technology: Distributed Cognition Today and in an AI-Enhanced Future. Frontiers in Artificial Intelligence, 5, 908261. https://doi.org/10.3389/frai.2022.908261

What can GenAI do today?

A shifting landscape

Language processing and writing

- ChatGPT4.0, MS Copilot, Gemini, Github Copilot
- Creating content, drafting starter texts, brainstorming ideas, answering questions, acting as a tutor, coding, research support, rewriting & paraphrasing…

Visual art & enhancement

- Midjourney, DallE (image) & Sora (video)
- Image & video creation, design tools, slide creation…

Audio generation & speech processing

- Murf.ai, Speechify, Jukebox, Otter.ai, Audiopen
- Voice generation, music creation, text-to-speech

These technologies are working together and are increasingly embedded in our day-to-day tools

And detection remains elusive!

GenAI Demo

- **Copilot**
  - Written work:
    - **Can you write me a lab report for an acid base titration in a first year chem course?**
    - **I need to write a lit review for my advanced organic chem course on isotopes. I don't really know where to start. Can you help?**
      - **What is a good research question to frame this lit review?**
  - Free, increasingly embedded in Microsoft suite, uses GPT4, full access to internet

- **SciSpace**
  - Research: **How does nurse-patient communication impact patient outcomes in critical care settings?**
  - Free basic account, ability to pull from scholarly publishing and link to/explore journal articles

- **ChatGPT4 with Wolfram plugin**
  - Math problem: **Plot the intersection of x^2+y^2<1 and y>x**
  - Subscription based, draws on Wolfram Alpha
  - Compare with Thetawise and original Wolfram Alpha

- **ChatGPT3.5**
  - Coding problem: **Build a machine learning model that predicts whether movie reviews are positive or negative based on their text content. Use the IMDB dataset and scikit-learn**
  - Free, basic capabilities, falls short of GitHub CoPilot, OpenAI Codex, Amazon CodeWhisperer

Academic Integrity: The Use and Misuse of GenAI

How Students Are Using GenAI for Academic Work

Students reporting using it for:

- Tutoring support
- Idea generation
- Research assistance
- Language learning
- Test preparation
- Accessibility support

Overall benefits to students:

- Personalized learning
- Accessible educational resources
- Improved engagement
- Development of 21st-century skills

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education, 20*(43), 1-18. https://doi.org/10.1186/s41239-023-00411-8

How is GenAI helping students learn?

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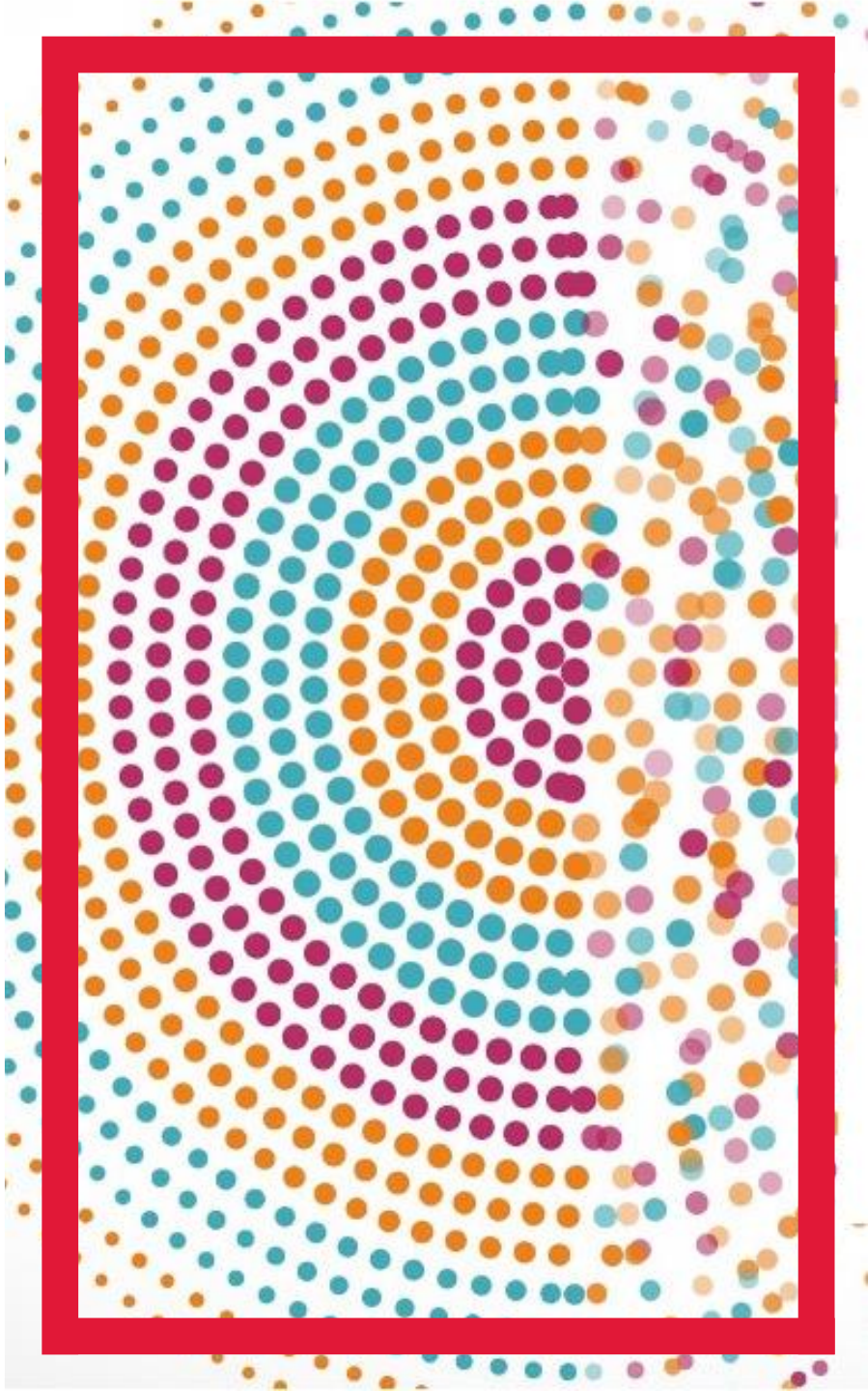
How Students Are Misusing GenAI

- **52%** of Canadian students use GenAI for academic help
  - Students reported using it primarily for: idea generation (**70%**), research (**55%**), writing essays or reports **(39%)**, tests or exams (**14%**)
- **60%** of students who use it believe it constitutes cheating
- Almost **70%** who use it admit **they always or sometimes** claim AI-generated content as their own original work
- Barely **one-third (36%)** of students **tell their educators** they have used GenAI for an assessment
- **63% aren't aware** of school's policies



KPMG LLP (2023-August 30). While popular with Canadian students, six in 10 consider generative AI tools cheating. KPMG. https://www.newswire.ca/news-releases/while-popular-with-canadian-students-six-in-10-consider-generative-ai-tools-cheating-821196002.html

Student Concerns about GenAI (from the literature)

1. Accuracy and transparency
2. Privacy and ethical issues
3. Impact on critical thinking and creativity
4. Career prospects
5. **Uncertain policies; lack of clarity on academic integrity**
6. **Pressure to engage in cheating**

Without clear guidelines on using GenAI, students are caught in an **ethical dilemma**: use it and **potentially cheat** or avoid it even as it gives classmates an **advantage**.

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education, 20*(43), 1-18. https://doi.org/10.1186/s41239-023-00411-8

York Students: Concerns about GenAI

Focus groups, n=81 undergraduate students

Student perspectives on GenAI – two main themes emerging:

- Calling for guidelines on usage rather than bans
- Seeking clarity and consistent application

- Students don't think **blanket restrictions** are useful: They are using/will continue to use GenAI
- Concern about **fairness**: If some students use GenAI regardless of the rules, other students may feel at a **disadvantage**
- Feel rules and consequences are **inconsistent**
- Confused about the **differences** on what is permitted between courses; makes them question **validity** of rules

Breaches Involving GenAI at York

Data from Faculties (n=3)

- There **has not been a surge of breach reporting** involving GenAI. Significant increase during COVID, but now cases are declining.
- Breaches involving GenAI are **not common**.
- When it comes to detection, when students are questioned, they **typically admit** to its use.
- Consequences: categorized as **cheating**, and sanctions correspond to policy/procedure
  (i.e., first breach = lower grade; learning opportunity, etc.)

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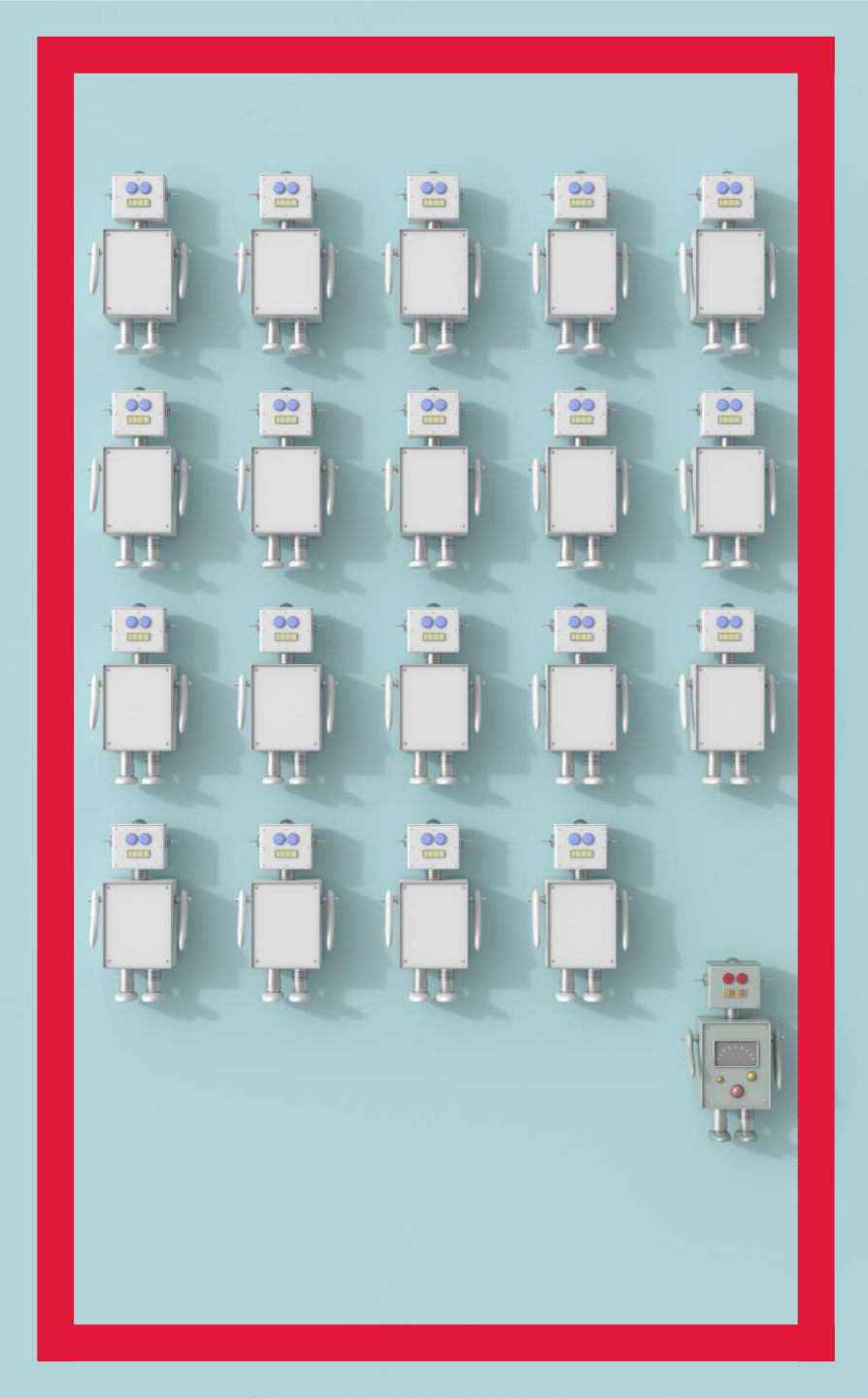
Defining Misuse: Definitions

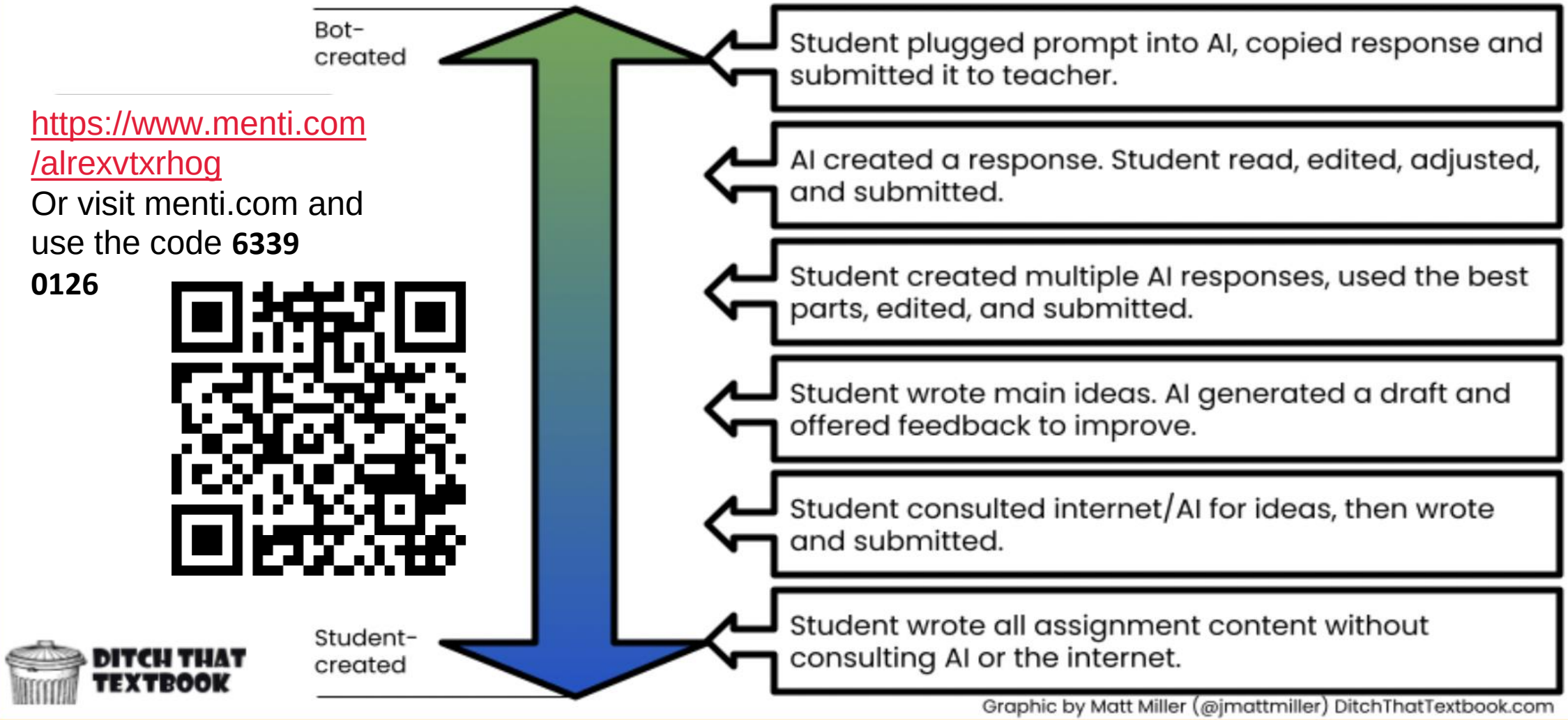
- **Cheating** is defined as “the **attempt to gain an improper advantage in an academic evaluation**” (Senate Policy, section 2.1.1).

- **Plagiarism** is “the misappropriation of the work of another by **representing another person’s ideas, writing or other intellectual property as one’s own**…” (Senate Policy, section 2.1.3).
  - The use or misuse of GenAI does not always fit neatly into our definitions
    - GenAI is **forcing us to adapt** as it brings up questions about what knowledge is, who it belongs to, what tools should and should not do, and what it means to use these tools in a responsible way.

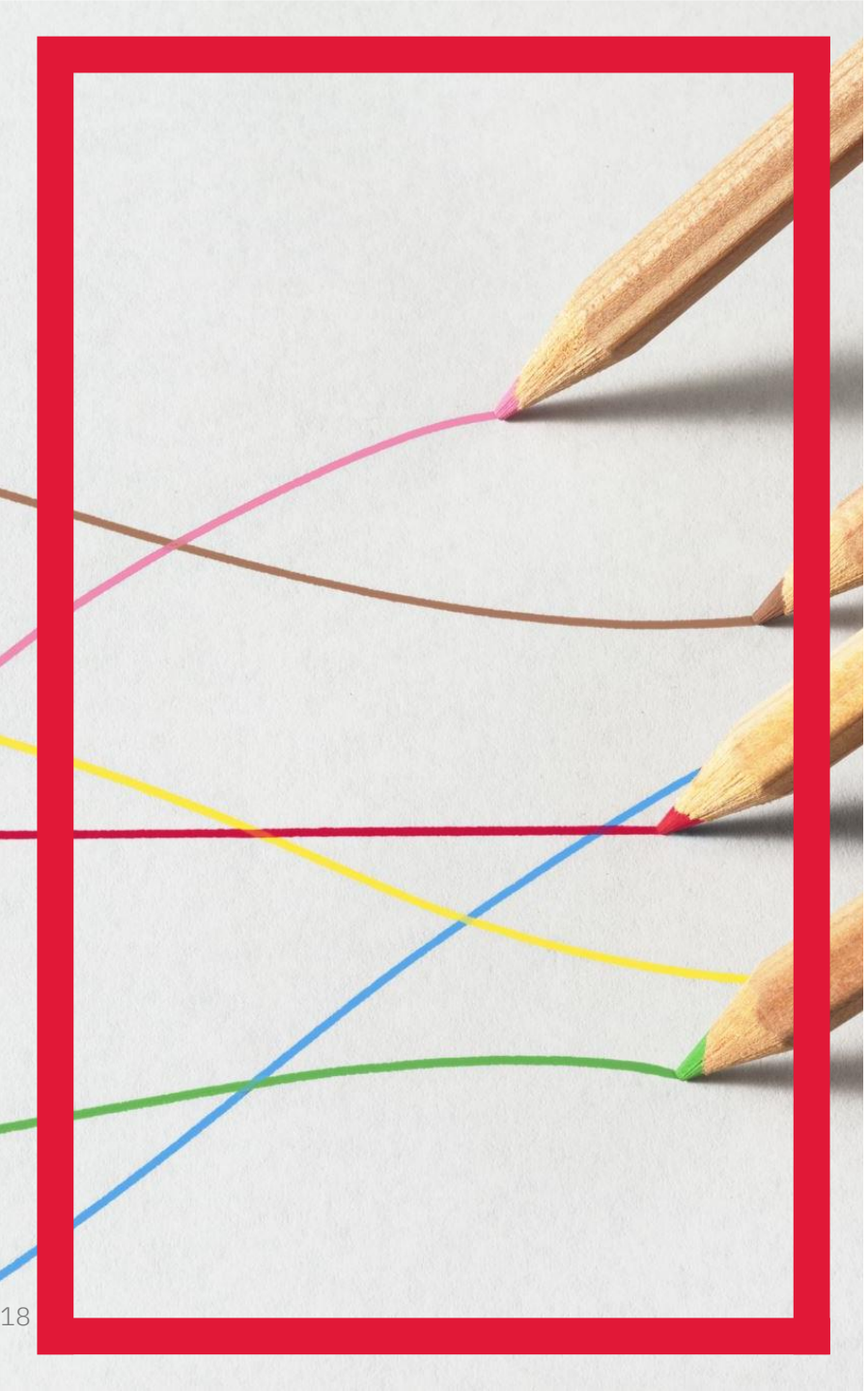


It's time to rethink "plagiarism" and "cheating"

https://www.menti.com/alrexvtxrhog
Or visit menti.com and use the code **6339 0126**



Miller, M. (2022). *It's time to rethink "plagiarism" and "cheating."* https://ditchthattextbook.com/ai/



Where is the line?

Uncertain policies /lack of clarity on can cause confusion

- Although cheating is not new, what is new is the widespread belief that other students are cheating
  - When it comes to engaging in academic misconduct, **peer cheating behaviour** and **perceived instructor attitudes** are significantly more influential than anything else (Bertram Gallant, 2008; Lang, 2013; McCabe et al., 2001)

Where is the line between students using resources appropriately and undermining their learning?

- Academic work requires demonstrating understanding and the ability to analyze and apply knowledge
- Students' own ideas, arguments and judgements form the basis of academic work

Being Proactive

- Be **very clear** with your students about your expectations on the use of GenAI: **what is permitted and what is not**
  - Instructors may have differing expectations
  - Most students want to follow your policy, but if you don't say anything they're going to use it anyway (Bertram Gallant, 2024)

- Expand on assignment instructions and spend time reviewing these with students. Provide info on GenAI: Is it acceptable for any aspect of the assignment? How?

- If its use is permitted, show students how to be transparent about its use (can refer to library's page on citing AI)

Syllabus Statement Options

No Use of Generative AI Permitted

- The use of generative AI tools in the preparation or completion of homework, assignments, tests, exams or any other form of assessment in this course is prohibited. Using such tools for any part of an assessment may be treated as a breach as outlined in York University's *Senate Policy on Academic Honesty*.

- In this course, every element of each assessment must be fully prepared by the student themselves. The use of generative AI is not permitted, and its use may be treated as a breach of academic honesty. For more information, please refer to York University's *Senate Policy on Academic Honesty*.

Use of Generative AI Permitted for Some Assignments

- For some assignments, the use of GenAI tools is permitted in this course. Assignment guidelines will provide information on whether students can use these tools, how these tools may be used, and how to be transparent about their use.

Syllabus Statement Options:

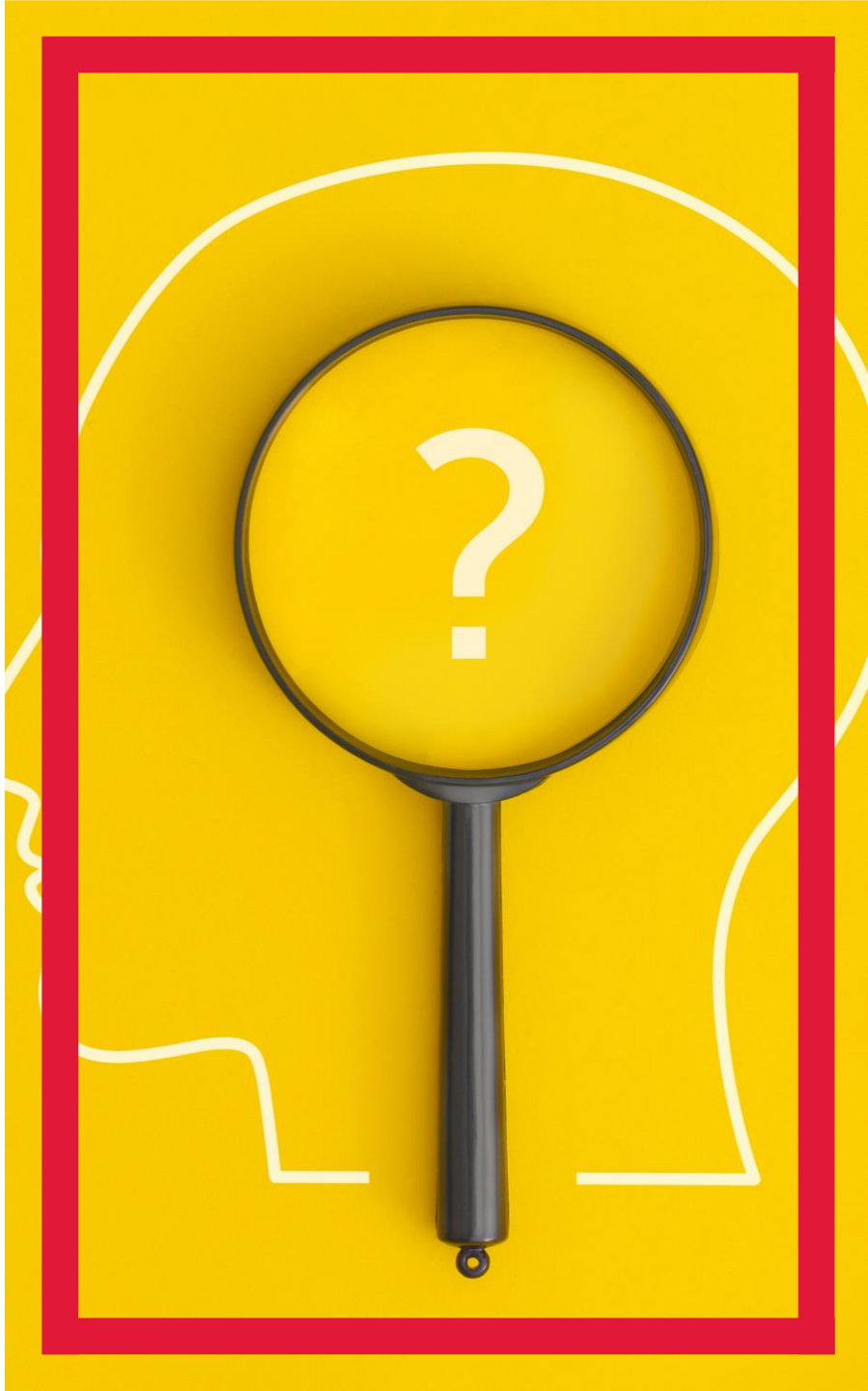
Use of Generative AI Permitted (with Parameters)

- **In this course, GenAI is permitted, however students must:** (choose any/combine options)
  - cite any AI-generated material
  - only use GenAI tools at preliminary stages (e.g., brainstorm ideas) / certain stages
  - fact-check all GenAI output
  - critically evaluate AI-generated content and integrate it with own ideas
  - submit **an appendix** that specifies:
    - which tool was used
    - how this tool was used (e.g., generate ideas, research, explain concepts, summarize)
    - which prompts were used
    - what you thought of its output
    - how you integrated the output into your submitted work
    - what you learned

- Students are permitted to use GenAI, but these tools should be used thoughtfully and ethically. Instead of using these tools as a shortcut, their use should aim to expand your understanding of course material and deepen your learning.

Communicating Expectations: To Consider

- If permitting use, implement an **opt out** option for students
- Remind students that your expectations for GenAI use **differ from expectations in other courses**
- Whether you permit / do not permit, clarify for the students **why** this decision was made
- Ask students to **retain their drafts / process work / study notes** in case academic misconduct is suspected



The 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.**

Furze, L., Perkins, M., Roe, J., & MacVaugh, J. (2024). The AI Assessment Scale (AIAS) in action: A pilot implementation of GenAI supported assessment. *arXiv preprint arXiv:2403.14692*. https://arxiv.org/pdf/2403.14692v2.pdf

Discuss GenAI with Students

- Invite questions from your students and **hold discussions** about what concerns they may have
- Aim to learn what **their expectations** are for the use of GenAI on assignments
- Facilitate discussions on cheating to show **instructor and peer disapproval** (context)
- Let them know that you are aware of how GenAI is used for cheating and that if you do suspect a breach, you are obligated to follow through
    - “This kind of discussion not only alerts students to your intention to confront and deal with academic dishonesty, but that you also care about it as a problem” (Whitley & Keith-Spiegel, 2002, p. 83)

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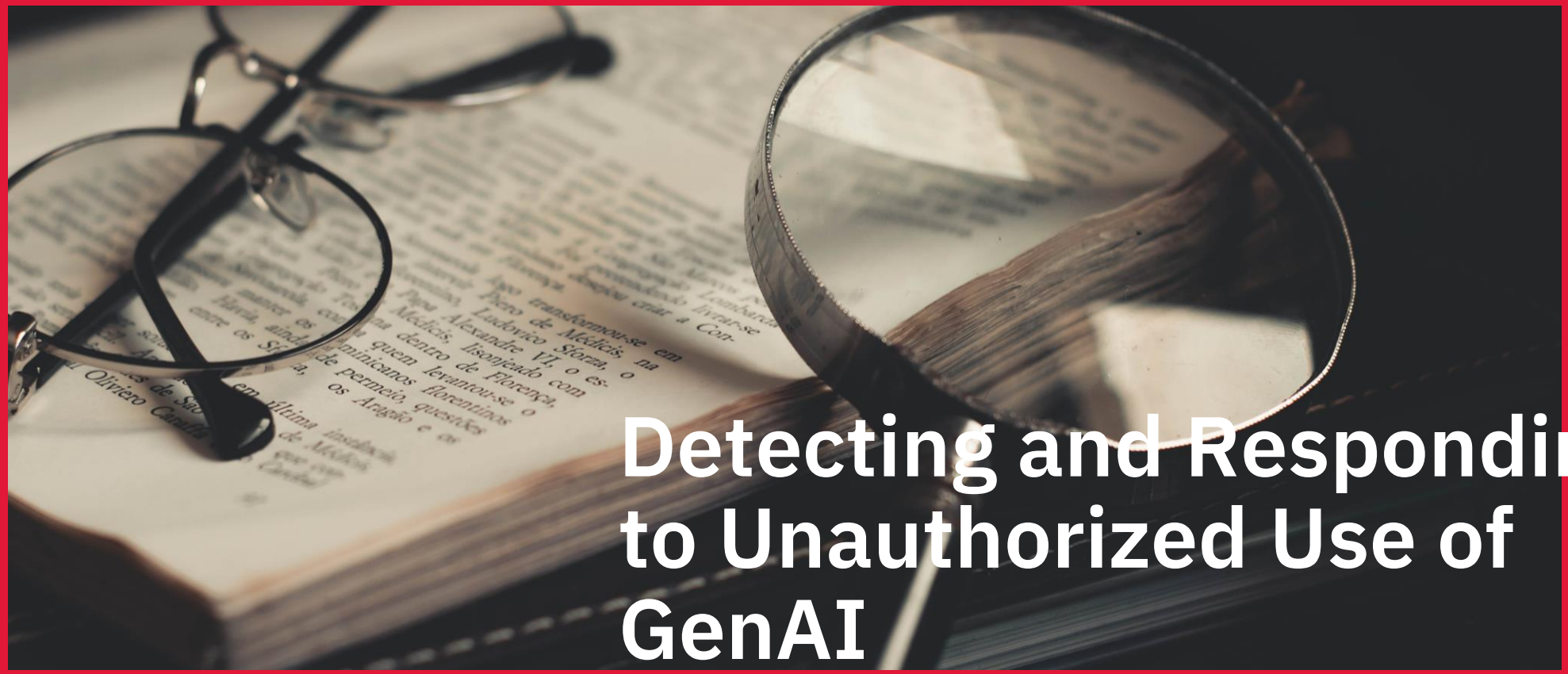
Holding Discussions with Students

- Learn about their perspectives and concerns. Some guiding questions:
  - Are you already using GenAI? In way ways?
  - When do you think it's acceptable to use GenAI for your academic work?
  - When do you think it should be considered cheating?
  - In what ways can you ethically use GenAI to support your learning in this course? In your discipline?
  - What does learning look like in this class? What does learning look like on this assessment?

- Can co-construct GenAI course policies with students
- Can survey your students by using these survey questions; can make it anonymous
- Instead of resorting to GenAI when running out of time, what are some alternatives?
  - Asking for an extension;
  - Doing their best and submitting anyway
  - Taking a lower grade



Detecting and Responding to Unauthorized Use of GenAI

Using Detectors

- There are no detection tools that can reliably and accurately detect AI-produced material
- Tend to have high false positive rates
- AI content generators outpace detectors: detectors may be relying on out-dated datasets
- Students can evade detectors
- Bias and discrimination are a problem: Most detectors are built using limited datasets that do not sufficiently represent diverse populations
    - Consequently, they incorporate societal biases and disproportionately flag text from minority groups and non-native speakers (Ramlochan, 2023)

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Group Discussion: Suspecting AI-Generated Work

You're grading first-year assignments. One catches your attention and sets off alarm bells in your head...

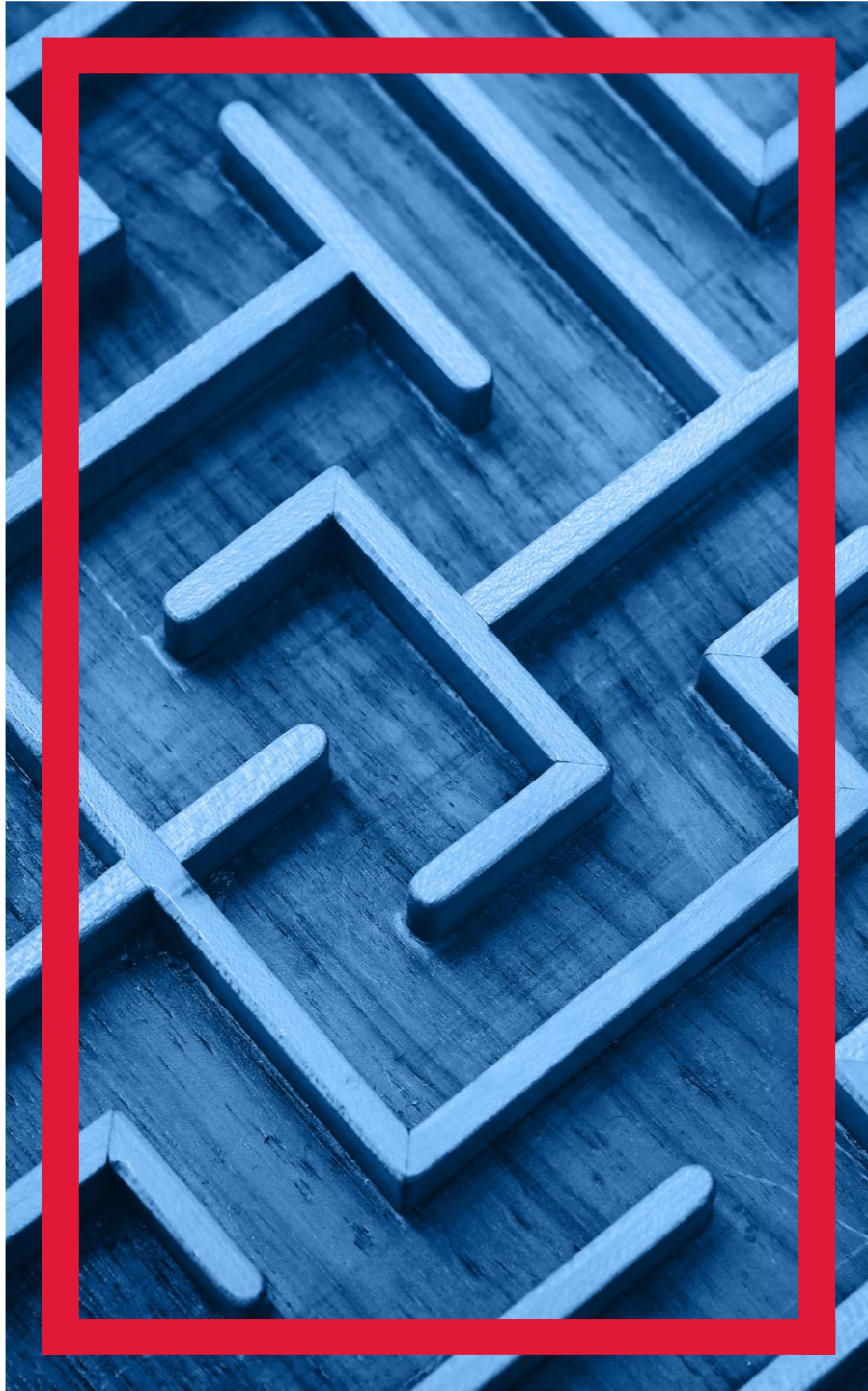
- **Question:** When grading student work, what would make you think that GenAI was used?

You meet with the student to discuss their work...

- **Question:** What would you ask them? What would lead you to conclude they used GenAI?

The student does not appear to understand that they engaged in academic misconduct...

- **Question:** How would you handle this situation?



Handling Suspected Breaches

- If you meet with the student, aim for a conversation that leads to **understanding, rather than confrontation**
  - Start with: “I have some concerns about your recent [assignment / exam] and would like to learn more by having a conversation.”
  - “Can you tell me about your process for studying/ completing this work?”
  - “I'm concerned because the information I have shows that you may have used generative AI. Is that an accurate assessment? Why not?”
- Students need to see that we care about academic integrity and that involves **following through on situations** where you suspect academic misconduct

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Generative AI and Academic Integrity: Resources

https://www.yorku.ca/unit/vpacad/academic-integrity/

- **AI Technology and Academic Integrity for Instructors Webpage** https://www.yorku.ca/unit/vpacad/academic-integrity/ai-technology-and-academic-integrity/

- **Syllabus Statements (GenAI-specific)** https://www.yorku.ca/unit/vpacad/academic-integrity/wp-content/uploads/sites/576/2024/04/GenAI_Syllabus_Statements.pdf

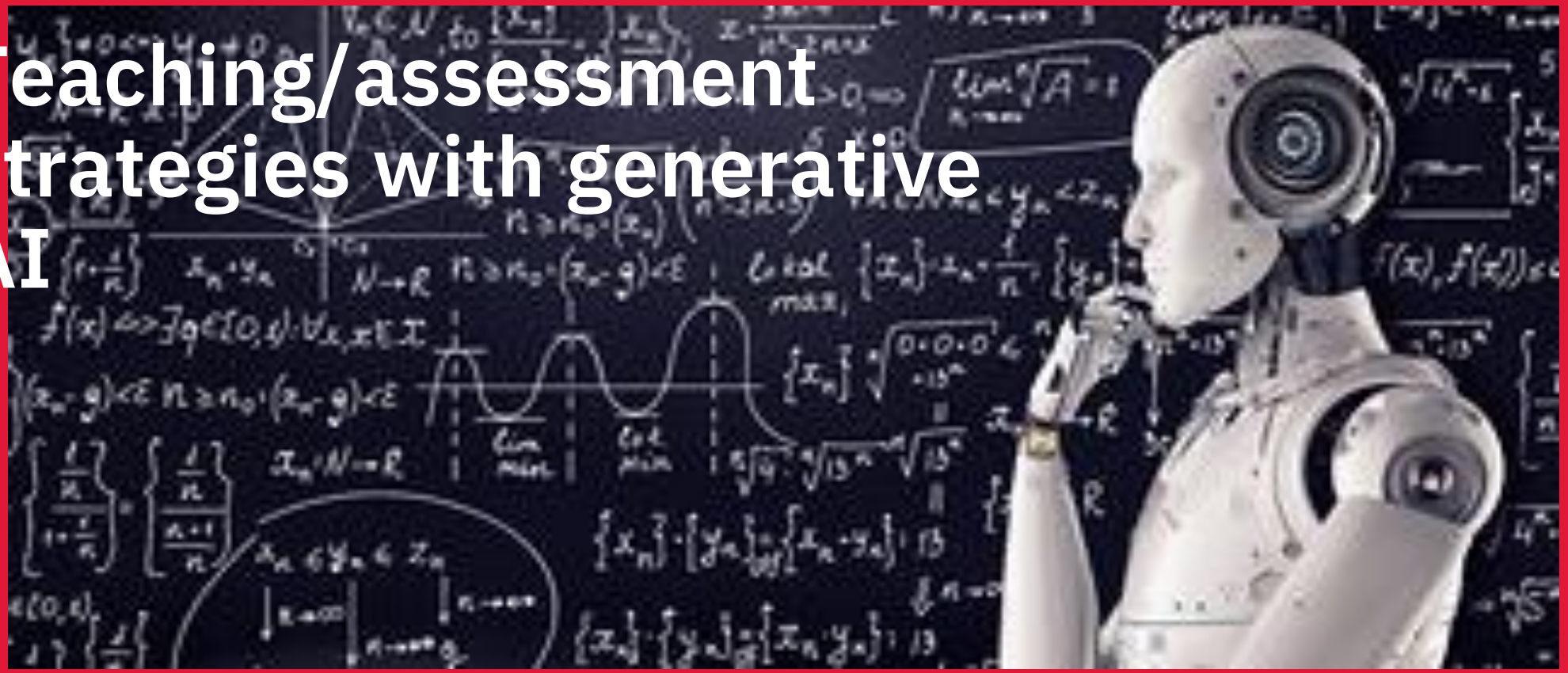
- **AI Assessment Scale (AIAS):** https://www.yorku.ca/unit/vpacad/academic-integrity/wp-content/uploads/sites/576/2024/04/AI-Use-Checklist-1.jpg

- **Student Survey on GenAI:** https://www.yorku.ca/unit/vpacad/academic-integrity/wp-content/uploads/sites/576/2024/04/Questions-to-Survey-Your-Students-about-GenAI.pdf

- **Academic Integrity Workshop for Students:** https://www.yorku.ca/unit/vpacad/academic-integrity/ (All upcoming dates listed under "Latest News")

- **GenAI and Academic Integrity PowerPoint for Instructors:** ***Coming Soon***

Teaching/assessment strategies with generative AI



Teaching and Assessment with Generative AI

A varied landscape – what makes sense for YOU?

- Your goals as an educator
- Course/assessment learning outcomes
- Professional/disciplinary contexts
- Ethical considerations
- Familiarity & comfort with technology

Think back to cognitive offloading. Where can GenAI help? Where might it hinder?

Learning Outcomes and Generative AI

For more , see "Advancing meaningful learning in the age of AI" (Oregon State University).

Oregon State University Ecampus

Bloom's Taxonomy Revisited

Use this table as a reference for evaluating and making changes to aligned course activities and assessments (or, where possible, learning outcomes) that account for generative Artificial Intelligence (AI) tool capabilities and distinctive human skills.

All course activities and assessments will benefit from **review** given the capabilities of AI tools; those at the **Remember** and **Analyze** levels may be more likely to need **amendment**.

	RECOMMENDATION	AI CAPABILITIES	DISTINCTIVE HUMAN SKILLS
CREATE	Review	Suggest a range of alternatives, enumerate potential drawbacks and advantages, describe successful real-world cases	Formulate original solutions incorporating human judgement, collaborate spontaneously
EVALUATE	Review	Identify pros and cons of various courses of action, develop rubrics	Engage in metacognitive reflection, holistically appraise ethical consequences of alternative courses of action
ANALYZE	Amend	Compare and contrast data, infer trends and themes, compute, predict	Critically think and reason within the cognitive and affective domains, interpret and relate to authentic problems, decisions, & choices
APPLY	Review	Make use of a process, model, or method to illustrate how to solve a quantitative inquiry	Operate, implement, conduct, execute, experiment, and test in the real world; apply creativity and imagination to idea & solution development
UNDERSTAND	Review	Describe a concept in different words, recognize a related example, translate	Contextualize answers within emotional, moral, or ethical considerations
REMEMBER	Amend	Recall factual information, list possible answers, define a term, construct a basic chronolgy	Recall information in situations where technology is not readily accessible

Using the PAIR Framework

What is the PAIR Framework?

- Flexible, simple, transferable approach to designing learning with/about GenAI
- Human-centric, skill-centric, responsibility-centric
- Developed by King's College London

Steps in the PAIR Framework:

1. Problem formulation
   - Identify the core problem, its components & constraints (can be done by instructor or students)
2. AI tool selection
   - Explore and identify the most suitable GenAI tools for your problem (can be done by instructor or students)
3. Interaction
   - Experiment with interacting with the tools; critically evaluate outputs and integrate them to tackle the problem (Students)
4. Reflection
   - Evaluate how the GenAI helped or hindered problem solving (Students)

Applying the PAIR Framework

How might you use this in YOUR teaching?

https://padlet.com/robinsh/pair-framework-bnow9o3navr8tp6i

Feel free to continue to use& share this padlet to brainstorm ideas and continue the conversation with colleagues.

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Resources: Teaching and Assessment With/About GenAI

- **Sample Assessment Library from GenAITeach (McMaster University)**
  - https://www.genaiteach.ca/generative-ai-assessments/
- **Crowdsourced Creative Teaching Ideas Using GenAI**
  - Chrissi Nerantzi, Sandra Abegglen, Marianna Karatsiori, & Antonio Martínez-Arboleda (Eds.). (2023). 101 creative ideas to use AI in education, A crowdsourced collection (2023 1.0) [Computer software]. Zenodo. https://doi.org/10.5281/zenodo.8072950
- **Teaching Writing with GenAI (Critical & ethical explorations)**
  - Vee, A., Laquintano, T., & Schnitzler, C. (Eds.) (2023). *TextGenEd: Teaching with Text Generation Technologies*. The WAC Clearinghouse. https://doi.org/10.37514/TWR-J.2023.1.1.02
- **Good Practice Flowchart for Designing for GenAI and Academic Integrity**
  - Good Practice Guide from Flinders University

QUESTIONS?

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