In Spring 2024, with a goal of inspiring other instructors through the sharing of new ideas, methods, and strategies at Cornell, five faculty were recognized for their creative classroom experiences and teaching implementations using – or creatively precluding use of – generative AI. Learn about the projects here: [**Teaching Innovation Case Studies: Creative Responses to Generative AI**](https://teaching.cornell.edu/teaching-spotlight/teaching-innovation-case-studies)

Since the release of new generative artificial intelligence (AI) tools, including ChatGPT, we have all been navigating our way through both the landscape of AI in education and its implications for teaching. As we adapt to these quickly evolving tools and observe how students are using them, many of us are still formulating our own values around what this means for our classes.

Our CTI resources aim to provide support on what these tools are and how they work. We'll address common concerns and considerations in the context of AI, such as [academic integrity](https://teaching.cornell.edu/generative-artificial-intelligence/ai-academic-integrity), [accessibility](https://teaching.cornell.edu/generative-artificial-intelligence/ai-accessibility) and [ethical uses](https://teaching.cornell.edu/generative-artificial-intelligence/ethical-ai-teaching-and-learning) of the technology. We'll also explore practical applications and pedagogical strategies for teaching and [assignment design](https://teaching.cornell.edu/generative-artificial-intelligence/ai-assignment-design) as you determine what approaches and policies regarding AI are the right fit for your classes.

* [Cornell University Committee Report on Generative Artificial Intelligence for Education and Pedagogy](https://teaching.cornell.edu/generative-artificial-intelligence/cu-committee-report-generative-artificial-intelligence-education)
* [What is Generative Artificial Intelligence (AI)?](https://teaching.cornell.edu/generative-artificial-intelligence#GenerativeAI)
* [How Will Generative AI Affect Higher Education?](https://teaching.cornell.edu/generative-artificial-intelligence#HigherEd)
* [The Upside: Possibilities for Generative AI to Benefit Learning Environments](https://teaching.cornell.edu/generative-artificial-intelligence#Upside)
* [Generative AI Literacy](https://teaching.cornell.edu/generative-artificial-intelligence#Literacy)
* [Stay Engaged and Informed](https://teaching.cornell.edu/generative-artificial-intelligence#StayEngaged)

What is Generative Artificial Intelligence (AI)?

Generative artificial intelligence is a subset of AI that utilizes machine learning models to create new, original content, such as images, text, or music, based on patterns and structures learned from existing data. A prominent model type used by generative AI is the large language model (LLM).

An LLM, like ChatGPT, is a type of generative AI system that can produce natural language texts based on a given input, such as a prompt, a keyword, or a query. LLMs typically consist of millions or billions of parameters that are “trained” on massive amounts of text data, such as books, articles, websites, and social media posts, and can perform various tasks, such as answering questions, summarizing texts, writing essays, creating captions, and generating stories. LLMs can also learn from their own outputs and are likely to improve over time.

It’s important to note that while LLMs can answer questions and provide explanations, they are not human and thus do not have knowledge or understanding of the material they generate. Rather, LLMs generate new content based on patterns in existing content, and build text by predicting most likely words.

Because of how LLMs work, it is possible for these tools to generate content, explanations, or answers that are untrue. LLMs may state false facts as true because they do not truly understand the fact and fiction of what they produce. These generated fictions presented as fact are known as “hallucinations."

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How Will Generative AI Affect Higher Education?

Nobody knows the true impact that generative AI will have on higher education. These technologies are rapidly evolving in complexity and type of use. What we do know is that generative AI is opening up a world of possibilities, while also generating significant concerns about academic integrity, ethics, access and bias.  
  
Before we dig too deep into whether and how to incorporate generative AI into your courses, here are a few general steps you can take as you consider what generative AI means for your classroom:

* **Reflect**: How do you feel about generative AI? Concerned? Excited? A little of both? What additional information do you need to feel able to make informed decisions about whether or not to incorporate it into your courses?
* **Try it out**: Experiment with generative AI platforms relevant to your discipline, like ChatGPT, Gemini (formerly known as Bard), or DALL-E 2. Choose a tool, then ask it to complete an assignment you’d give your students. What are the results? Ask it to revise the assignment, and see how it responds. Can you identify possible areas of concern for academic integrity, or opportunities for student learning?
* **Predict and inquire**: How might students use this technology in your course? Can you ask students how they are currently using generative AI tools? What clarity will students need to distinguish between appropriate and inappropriate uses of these tools? Consider how you might adjust assignments to either incorporate generative AI into your course, or to identify areas where students may lean on the technology, and turn those hot spots into opportunities to encourage deeper and more critical thinking. How might you use these tools to assist your teaching? For example, could generative AI help generate practice problems for students?
* **Learn more**: This technology is evolving, and none of us are experts yet. Be open to continuing to learn more and to having ongoing conversations with colleagues, your department, people in your discipline, and even your students about the impact generative AI is having.
* **Set your parameters**: Decide whether and when you want students to use the technology in your courses, and clearly communicate your parameters and expectations with them. Keep in mind that students will likely have instructors with different ideas about how to use, or why or why not to use, generative AI tools. Be transparent and direct about your expectations.

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The Upside: Possibilities for Generative AI to Benefit Learning Environments

We all want to discourage students from using generative AI to complete assignments at the expense of learning critical skills that will impact their success in their majors and careers.

However, we’d also like to take some time to focus on the possibilities that generative AI presents. Here are a few ways it can be useful to students and faculty alike:

**Generative AI can potentially be used by both faculty and students to**:

* Provide instant access to vast amounts of information quickly
* Aid diverse learners with different learning abilities, linguistic backgrounds or accessibility needs
* Accelerate exploration and creativity, spark curiosity, suggest new ideas and ways of thinking

**Students might explore using Generative AI to**:

* Be more efficient with course work and tasks
* Help with studying
* Generate ideas for brainstorming
* Get further explanation of a topic a teacher is covering for class
* Improve their writing
* Get instant feedback
* Practice language skills in a safe environment

**Faculty might explore using Generative AI to**:

* Generate content and course materials including lesson plans, quiz questions, sample problems, or writing scenarios
* Assist in research tasks including analyzing large datasets, identifying patterns, and generating insights and research directions
* Write learning objectives, course descriptions, syllabi statements, or course policies

As you and your students prepare to investigate the use of generative AI tools, we recommend discussing [course policies and expectations](https://teaching.cornell.edu/generative-artificial-intelligence/ai-academic-integrity) around their use, and clearly communicating with your students when and in what ways use of generative AI tools are permitted – or not. We also recommend that you consider the [accessibility of generative AI](https://teaching.cornell.edu/generative-artificial-intelligence/ai-accessibility) tools as you explore their potential uses, especially those that students may be required to interact with. Finally, it’s important to take into account the [ethical considerations](https://teaching.cornell.edu/generative-artificial-intelligence/ethical-ai-teaching-and-learning) of using such tools. These topics are fundamental if considering using AI tools in your assignment design.

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Generative AI Literacy

While ChatGPT and other LLMs can assist learners in various tasks and activities, they cannot replace human creativity, judgment, ethics, or responsibility, all of which are essential for learning. LLMs may help a learner write a paper or a report, but they cannot teach the learner how to conduct original research, synthesize information from multiple sources, formulate arguments, express opinions, or cite sources properly. Thus, the need for AI literacy is essential for students and faculty alike.

We can think of ethical generative AI literacies as the ability to understand, evaluate, and critically engage with generative AI technologies. Generative AI literacy includes skills such as recognizing when and how generative AI is used in various domains; assessing the reliability and validity of AI-generated outputs; identifying the [ethical and social implications of AI](https://teaching.cornell.edu/generative-artificial-intelligence/ethical-ai-teaching-and-learning) applications; and creating and communicating with generative AI systems in ways that are appropriate to your course.

Just as we adapt to the changing media environment, developing AI literacy will be an ongoing process, but one that is vital to helping you and your students become more informed and responsible users and creators of AI technologies.

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Stay Engaged and Informed

The range of AI applications and their abilities continue to develop rapidly, bringing both opportunities and challenges for educators wanting to stay current and informed. As the higher Ed landscape changes with the advent of this new technology, CTI aims to be a dependable partner and resource for faculty working to incorporate generative AI into their courses. Our goal is to support faculty in enhancing their teaching and learning experiences with the latest AI technologies and tools. As such, we look forward to providing various opportunities for professional development and peer learning.

As you further explore, you may be interested in [CTI’s generative AI events](https://teaching.cornell.edu/cti-events-workshops). If you want to explore generative AI beyond our available resources and events, please reach out to [schedule a consultation](https://teaching.cornell.edu/contact-us).