Generative AI in Academic Writing

What this handout is about

You've likely heard of AI tools such as ChatGPT, Google Bard, Microsoft Bing, or others by now. These tools fall under a broad, encompassing term called generative AI that describes technology that can create new text, images, sounds, video, etc. based on information and examples drawn from the internet. In this handout, we will focus on potential uses and pitfalls of generative AI tools that generate text.

Before we begin: Stay tuned to your instructor

Instructors' opinions on the use of AI tools may vary dramatically from one class to the next, so don't assume that all of your instructors will think alike on this topic. Consult each syllabus for guidance or requirements related to the use of AI tools. If you have questions about if/how/when it may be appropriate to use generative AI in your coursework, be sure to seek input from your instructor **before** you turn something in for a grade. You are always 100% responsible for whatever writing you chose to turn in to an instructor, so it pays to inquire early.

Note that when your instructors authorize the use of generative AI tools, they will likely assume that these tools may help you think and write—not think or write for you. Keep that principle in mind when you are drafting and revising your assignments. You can maintain your academic integrity and employ the tools with the same high ethical standards and source use practices that you use in any piece of academic writing.

What is generative AI, and how does it work?

Generative AI is an artificial intelligence tool that allows users to ask it questions or make requests and receive quick written responses. It uses Large Language Models (LLMs) to analyze vast amounts of textual data to determine patterns in words and phrases. Detecting patterns allows LLMs to predict what words may follow other words and to transform the content of its corpus (the textual data) into new sentences that respond to the questions or requests. Using complex neural network models, LLMs generate writing that mimics human intelligence and varied writing styles.

The textual data used to train the LLM has been scraped from the internet, though it is unclear exactly which sources have been included in the corpus for each AI tool. As you can imagine, the internet has a vast array of content of variable quality and utility, and generative AI does not distinguish between accurate/inaccurate or biased/unbiased information. It can also recombine accurate source information in ways that generate inaccurate statements, so it's important to be discerning when you use these tools and to carefully digest what's generated for you. That said, the AI tools may spark ideas, save you time, offer models, and help you improve your writing skills. Just plan to bring your critical thinking skills to bear as you begin to experiment with and explore AI tools.

As you explore the world of generative AI tools, note that there are both free and paid versions. Some require you to create an account, while others don't. Whatever tools you experiment with, take the time to read the terms before you proceed, especially the terms about how they will use your personal data and prompt history.

Prompting

In order to generate responses from AI tools, you start by asking a question or making a request, called a "prompt." Prompting is akin to putting words into a browser's search bar, but you can make much more sophisticated requests from AI tools with a little practice. Just as you learned to use Google or other search engines by using keywords or strings, you will need to experiment with how you can extract responses from generative AI tools. You can experiment with brief prompts and with prompts that include as much information as possible, like information about the goal, the context, and the constraints.

You could experiment with some fun requests like "Create an itinerary for a trip to a North Carolina beach." You may then refine your prompt to "Create an itinerary for a relaxing weekend at Topsail Beach and include restaurant recommendations" or "Create an itinerary for a summer weekend at Topsail Beach for teenagers who hate water sports." You can experiment with style by refining the prompt to "Rephrase the itinerary in the style of a sailor shanty." Look carefully at the results for each version of the prompt to see how your changes have shaped the answers.

The more you experiment with generative AI for fun, the more knowledgeable and prepared you will be to use the tool responsibly if you have occasion to use it for your academic work. Here are some ways you might experiment with generative AI tools when drafting or exploring a topic for a paper.

Potential uses

Brainstorming/exploring the instructor's prompt
Generative AI can help spark ideas or categories for brainstorming. You could try taking key words from your topic and asking questions about these ideas or concepts. As you narrow in on a topic, you can ask more specific or in-depth questions.

Based on the answers that you get from the AI tool, you may identify some topics, ideas, or areas you are interested in researching further. At this point, you can start exploring credible academic sources, visit your instructor's office hours to discuss topic directions, meet with a research librarian for search strategies, etc.

Generating outlines
AI tools can generate outlines of writing project timelines, slide presentations, and a variety of writing tasks. You can revise the prompt to generate several versions of the outlines that include, exclude, and prioritize different information. Analyze the output to spark your own thinking about how you'd like to structure the draft you're working on.

Models of genres or types of writing
If you are uncertain how to approach a new format or type of writing, an AI tool may quickly generate an example that may inform how you develop your draft. For example, you may never have written—a literature review, a cover letter for an internship, or an abstract for a research project. With good prompting, an AI tool may show you what type of written product you are aiming to develop, including typical components of that genre and examples. You can analyze the output for the sequence of information to help you get a sense of the structure of that genre, but be cautious about relying on the actual information (see pitfalls below). You can use what you learn about the structures to develop drafts with your own content.

Summarizing longer texts
You can put longer texts into the AI tool and ask for a summary of the key points. You can use the summary as a guide to orient you to the text. After reading the summary, you can read the full text to analyze how the author has shaped the argument, to get the important details, and to capture important points that the tool may have omitted from the summary.

Editing/refining
AI tools can help you improve your text at the sentence level. While sometimes simplistic, AI-generated text is generally free of grammatical errors. You can insert text you have written into an AI tool and ask it to check for grammatical errors or offer sentence level improvements. If this draft will be turned into your instructor, be sure to check your instructor's policies on using AI for coursework.

As an extension of editing and revising, you may be curious about what AI can tell you about your own writing. For example, after asking AI tools to fix grammatical and punctuation errors in your text, compare your original and the AI edited version side-by-side. What do you notice about the changes that were made? Can you identify patterns in these changes? Do you agree with the changes that were made? Did AI make your writing more clear? Did it remove your unique voice? Writing is always a series of choices you make. Just because AI suggests a change, doesn't mean you need to make it, but understanding why it was suggested may help you take a different perspective on your writing.

Translation
You can prompt generative AI tools to translate text or audio into different languages for you. But similar to tools like Google Translate, these translations are not considered completely "fluent." Generative AI can struggle with things like idiomatic phrases, context, and degree of formality.

Transactional communication
Academic writing can often involve transactional communication—messages that move the writing project forward. AI tools can quickly generate drafts of polite emails to professors or classmates, meeting agendas, project timelines, event promotions, etc. Review each of the results and refine them appropriately for your audiences and purposes.

Potential pitfalls

Information may be false
AI tools derive their responses by reassembling language in their data sets, most of which has been culled from the internet. As you learned long ago, not everything you read on the internet is true, so it follows that not everything culled and reassembled from the internet is true either. Beware of clearly written, but factually inaccurate or misleading responses from AI tools. Additionally, while they can appear to be "thinking," they are literally assembling language–without human intelligence. They can produce information that seems plausible, but is in fact partly or entirely fabricated or fictional. The tendency for AI tools to invent information is sometimes referred to as "hallucinating."

Citations and quotes may be invented
AI responses may include citations (especially if you prompt them to do so), but beware. While the citations may seem reasonable and look correctly formatted, they may, in fact, not exist or be incorrect. For example, the tools may invent an author, produce a book title that doesn't exist or incorrectly attribute language to an author who didn't write the quote or wrote something quite different. Your instructors are conversant in the fields you are writing about and may readily identify these errors. Generative AI tools are not authoritative sources.

Responses may contain biases
Again, AI tools are drawing from vast swaths of language from their data sets–and everything and anything has been said there. Accordingly, the tools mimic and repeat distortions in ideas on any topic in which bias easily enters in. Consider and look for biases in responses generated by AI tools.

You risk violating academic integrity standards
When you prompt an AI tool, you may often receive a coherent, well written—and sometimes tempting—response. Unless you

have received explicit, written guidance from an instructor on use of AI generated text, do not assume it is okay to copy and paste or paraphrase that language into your text—maybe at all. See your instructor's syllabus and consult with them about how they authorize the use of AI tools and how they expect you to include citations for any content generated by the tool. The AI tools should help you to think and write, not think or write for you. You may find yourself violating the honor code if you are not thoughtful or careful in your use of any AI generated material.

The tools consume personal or private information (text or images)
Do not input anything you prefer not to have widely shared into an AI generator. The tools take whatever you put in to a prompt and incorporate it into its systems for others to use.

Your ideas may be changed unacceptably
When asked to paraphrase or polish a piece of writing, the tools can change the meaning. Be discerning and thorough in reviewing any generated responses to ensure the meaning captures and aligns with your own understanding.

A final note

Would you like to learn more about using AI in academic writing? Take a look at the modules in Carolina AI Literacy. Acquainting yourself with these tools may be important as your thinking and writing skills grow. While these tools are new and still under development, they may be essential tools for you to understand in your current academic life and in your career after you leave the university. Beginning to experiment with and develop an understanding of the tools at this stage may serve you well along the way.

Note: This tip sheet was created in July 2023. Generative AI technology is evolving quickly. We will update the document as the technology and university landscapes change.

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