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ChatGPT Assignments to Use in Your Classroom Today

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60+ Ideas

CHATGPT ASSIGNMENTS

to use in your classroom today

created by educators, for educators

Kevin Yee * Kirby Whittington * Erin Doggette * Laurie Uttich

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To our families.

We are indebted to many people for help with research, ideation, and gathering examples for this book. The list of individuals includes our colleague in the UCF Faculty Center for Teaching & Learning **Eric Main**, and several colleagues in the UCF Division of Digital Learning, including **Wendy Howard**, **Rebecca McNulty**, **Rohan Jowallah**, and **Rocco Fazzalari**. Over at UCF Libraries, **Lily Dubach** lent her expertise in organizing and storing the many articles about AI that have been generated in recent months.

There has been a great deal of activity on the UCF campus about AI, as is surely true of many campuses in 2023, and much of this activity proved helpful in our effort to craft a useful definition of AI fluency. We thank the many UCF faculty members and staff who have joined working groups, task forces, and committees simply out of interest in AI and higher education.

Finally, we are grateful to the members of our leadership team at UCF who supported this journey, including Provost **Michael Johnson**, Vice Provost **Jana Jasinski**, Vice Provost **Thomas Cavanagh**, and CIO **Matt Hall**.

Introduction

By now, almost everyone has heard of ChatGPT. Its website (and later app) crushed records in terms of the briefest length of time needed to amass 100 million users. As a word generator, it's simply astonishing! ChatGPT uses a type of generative Artificial Intelligence (AI) that not only burst onto the scene with amazing speed from relative obscurity (at least for those not already working in the field), but also has continued to evolve rapidly—and by some indications, its development may even be speeding up. Certainly, there are hundreds of new AI products released to the public each week. We are already seeing AI in Microsoft Office and online coursework Learning Management Systems (LMSs) such as Instructure's Canvas, and the presence of AI in these systems and others will only increase in the future. Those of us on the layperson and user side of the process are being told to prepare for constant AI evolution, a future of AI in almost everything we do, regardless of field or discipline, and a need to develop skills that make us ready to adapt and *keep* adapting to the ever-changing mosaic of AI that awaits us.

How Large Language Models (LLMs) Like ChatGPT Work

It's worthwhile to pause for a brief explanation of how ChatGPT works. There are many different types of AI, and several of them have been part of our everyday lives for years. Smartphone apps that provide driving directions are powered by AI, as of course are home assistants (Alexa, etc.) and machine translation apps that effortlessly convert English into another language, even signs and printed text as seen through the phone's camera, and vice versa. And there are many other such examples in modern life.

ChatGPT and several of its competitors are part of a branch of AI called "generative" AI, which is a category of software that generates an output after having learned common patterns and structures. The category includes not only text but also images and even video. Those that focus on text are called Large Language Models (LLMs). LLMs can generate text because they have absorbed billions or even trillions of pages of text, often described as having been "trained on" the material. This could include parts of the Internet, published books, academic articles, and almost any printed and digital material deemed relevant for a broad audience. Ultimately, exactly what an LLM has been trained on remains a black box mystery, as few of the companies have been forthcoming with details. ChatGPT is so named because it's optimized to provide a conversation ("chat") that optimizes its generative pre-trained transformer ("GPT") training.

LLMs like ChatGPT are essentially word-predictors. Based on all those prior examples of recorded text, they have a good idea of the next logical word in any given sentence. Thus, these systems don't actually think. They don't even comprehend the meaning of their words, leading some scholars to compare LLMs to parrots—they can mimic speech, but don't understand what they are saying. Therefore, everyone from teachers to students needs to remember that these word predictors are not answer-generators.

Or to put it more accurately, ChatGPT CAN generate answers, but it is not always an accurate answer-generator. It will almost always generate an answer. In the rare cases it refuses, it will claim to not know about the most recent events or what's current on the Internet, or perhaps offer a rationale why it should not generate an answer for your particular query. Moreover, it will deliver its answer with verisimilitude and

with absolute certainty. It's understandable why users might accept ChatGPT's explanations and arguments since they are delivered without the slightest hedging or trace of hesitation. Yet its answers are not trustworthy. Since it's not accessing a database of information known to be true, but merely generating "plausible next words," it is inclined to invent (often called "hallucinate") facts and details wholesale, and baldly assert them as if they were true. Fans of the board game Balderdash will recognize a similarity—like players in Balderdash, ChatGPT tries to convince its audience that it has provided true definitions. At the same time, while ChatGPT should be distrusted when it comes to factual information, academic citations, and specific quotes, it's actually quite good at brainstorming and ideation—in particular when creating lists of sub-topics or bullets that relate to a given prompt.

Challenges and Opportunities for Education

Amid this landscape, it's easy for an educator to become lost. There are no rules to follow during such a disruption. ChatGPT makes it easy for students to copy/paste multiple-choice questions from online tests and obtain answers. It makes it equally simple to get essay ideas, essay outlines, and even entire essays, giving rise to a temptation to cheat and submit ChatGPT's output as one's own work. Instructors everywhere are left asking themselves how they should react. Should we try to block access to ChatGPT? Should we adjust assignments so ChatGPT can't help students complete them? Is it even POSSIBLE to continue with traditional assignments in the era of AI?

Given the omnipresence of AI even in the present day—let alone in the workplaces of the future—it seems foolhardy to delay the inevitable. As with the invention of the inexpensive

calculator in the 1970s, the genie of AI cannot be stuffed back into its lamp, and educators must learn how to adjust. We need to learn what skillsets are helpful for students as they prepare for careers that include AI. We need to develop new mindsets, both for us and our students, that help them thrive now and in the future. And most of all, we need concrete ideas about how to implement these lofty goals. It may sound great in theory to embrace the new world of AI in our classrooms, but what exactly does that look like? What kinds of assignments can we design that meet our intended learning goals yet aren't prone to students cheating using AI tools? Answers to these questions have been in short supply in books published until now (although in fairness, less than a year has gone by since ChatGPT went viral, so it's hardly reasonable to expect a flood of books). Even in blogs, discussion boards, and published articles, concrete examples of action to take in the AI era only appear in fits and dribbles. This volume aims to bridge that gap by suggesting practical assignments and in-class activities that create AI fluency in students.

A New AI Mindset for Students and Instructors

Teachers and faculty everywhere first need to adopt a mindset that acknowledges the availability of AI and the likelihood that students will use it. As a result, we need to adjust our expectations of students. With online tests, maybe we should stop assessing for their recall of basic information. Or, if this is necessary, as it surely is at some educational levels and in some disciplines, perhaps we only conduct this kind of assessment in controlled, authentic environments where the use of AI is both prohibited and functionally impossible, such as in-person testing. In the case of out-of-class writing, we might need to concede that the centuries-old skills of idea-generation and essay-generation from scratch might now and forevermore be

the realm of artificial intelligence… or at least assisted by AI. It's unreasonable to expect students to resist a tool that can do the exact assignment for them, especially when it's free, easily accessible, and difficult for teachers to detect. Thus, we need to teach students different skills related to *using* artificial intelligence, rather than avoiding it.

Students have long had access to assistance. Calculators assist in math functions. Current websites will create graphs of complex formulas, while others can assist with finding areas of irregular shapes. The assistance continuum extends to writing as well. Brainstorming a writing topic with a peer is a version of assistance, as is performing peer editing—two activities universally endorsed by educators. Spellcheck is now an accepted norm, and increasingly so are virtual grammar checkers. Both latter examples lead us along the continuum of human-to-machine generation. Perhaps the time has come for us to progress further along that continuum and accept that machine assistance is not just possible but even desirable in the ideation and initial drafting phases of writing.

AI Fluency

Clearly, students will need new skill sets in the future to meet the challenges of future workplaces. Much has been accomplished toward career readiness through the efforts of the National Association of Colleges and Employers (NACE), particularly through the definition of eight core competencies: career and self-development, communication, critical thinking, equity and inclusion, leadership, professionalism, teamwork, and technology. While one might conceivably place AI familiarity within technology, we suspect the AI revolution might be significant enough to warrant the eventual creation of another core competency.

We view AI fluency as consisting of seven components:

1. Understanding how AI works
2. Deciding when to use AI (and when not to)
3. Valuing AI
4. Applying effective prompt engineering methods
5. Evaluating AI output
6. Adding human value
7. Displaying digital adaptability

These components are, in our view, broad enough to capture AI fluency for not only ChatGPT and all LLMs, but also extend beyond generative AI to other types of AI as well.

The first component, understanding AI, is important because there are different branches of AI—each with its own strengths and weaknesses—and one must understand the AI currently being employed to fully grasp its capabilities. LLMs like ChatGPT, for example, may be prone to hallucinations, but this is not true of every type of AI. Artificial intelligence tools of the future may not construct output in the same fashion, so it's important to have a minimal understanding of how the AI tool at hand creates its output.

Deciding when to use AI and when not to is the second component. An experienced AI user must exercise sound judgment about the output of a particular AI. With ChatGPT, we know that it's neither safe nor ethical to copy its output wholesale and represent this text as something created by an individual. There are also ethical issues of ownership and copyright, including the works of deceased creators. On the other hand, some uses of AI may be warranted, or even desired. In some circumstances, instructors may want students to use

ChatGPT to brainstorm ideas, or to assist in creating an assignment.

Valuing AI, our third component, is borrowed more or less wholesale from Bloom's taxonomy in the affective domain. This domain is concerned with learners' attitudes and their appreciation. "Valuing" is the middle section of the affective hierarchy, with "responding" and "receiving" above it, and "organization" and "characterization" below it. We include this component in our own list of necessary components for AI fluency because the technology represents such a tectonic shift in our relationship to knowledge and information, and not everyone initially responds to AI with the same enthusiasm. Yet to be fluent in AI, one must appreciate its usage.

Because AI doesn't have the lifetime of experiences a human does, it is extremely poor at reading between the lines, or knowing what an imprecisely worded question is actually asking. Therefore, our fourth component to AI fluency is creating effective prompts that elicit useful or desirable output. As the common phrase goes, if you put garbage in, you'll get garbage out. We need to think about prompts (the question posed to the AI) in ways that are systematic, intentional, and deliberately plotted. While some disciplines already train students to think with these methods, especially about the architecture of programming or arguments, many do not. Prompt engineering is in many ways a discipline unto itself, and we all need to become better at it.

A truly critical skill, especially with ChatGPT and its hallucinations, is the ability to analyze and evaluate AI output, which is our fifth component of AI fluency. We are increasingly seeing deepfakes in images and videos concerning public figures and celebrities, such that one truly should not trust one's eyes

viewing digital images. We know that ChatGPT invents facts, names, and publications, and it does so with such confidence as to border on chutzpah. Users need to remember to approach AI output of *all* types with appropriate skepticism, a skill we likely need to develop further.

The sixth component is perhaps the most important of all when pondering how our students will attain jobs in the future: adding human value to the AI output. Because AI can already automate so many tasks—and because future artificial intelligences will continue removing human agency from additional processes—the only employees needed in the workplace of the future are ones who can add additional value to what the AI creates. This might look like correcting the AI output or applying/integrating it into other systems and processes that the AI cannot perform.

Finally, the seventh component is digital adaptability. We recognize that artificial intelligence will continue to evolve; in fact, many believe its evolution and advancement will accelerate over time. As a result, people will not stay fluent with AI if they are habituated only to the one artificial intelligence system they know. There will assuredly be future AI products, and these need to be approached with an attitude of curiosity and optimism, or at least not with reluctance, irritation, or resignation that yet another new system needs to be learned. We will all need the kind of disposition that welcomes lifelong AI learning and the flexibility to keep our attitudes positive as we embrace ongoing AI change.

Practical Assignments

If we adopt the idea that the mindsets of instructors and students alike must change and accept that some form of AI fluency is a necessary desirable component of the curriculum, then their greatest need is assistance with the implementation of these concepts. Thus, we provide extensive examples of assignments that can be used in class or as homework. These ideas for assignments, and the principles that underlie the need for them, form the heart of this volume, and indeed make up the vast majority of its contents. Each example starts with the actual assignment to give to students before also offering explanations for why the assignment is worthwhile and how to implement it.

Many of our assignments are designed to show off what ChatGPT can do, while others are intended to imbue various features of AI fluency in students. A third group suggests ways to leverage ChatGPT in writing assignments, recognizing that we might need to revisit our original reasons for assignment writing and re-examine the student learning outcomes we are attempting to achieve. In the future, will "writing" really mean "editing" rather than "drafting/composing"? Will future careers involve editing and refining AI output instead of starting writing, even analysis, from scratch?

Scope, Reach, and Organization of This Book

The tips and assignment ideas provided in this volume are specifically customized for ChatGPT, owned by the company OpenAI (which also owns the popular image generator DALL-E). Yet many of the tips and ideas contained here can also be employed in other instances of LLM-type AI, such as Bing Chat, Google Bard, and Meta's BlenderBot. For that matter, we recognize that today's leaders in LLMs technology may not be the leaders of tomorrow, or LLMs might not even be the AI that matters mere years from now.

All of the sample prompts provided in this book were vetted with ChatGPT 3.5 (the public and free version) in mid-2023 to verify that they would provide interesting and relevant output that might be profitably utilized across disciplines. Future searches of ChatGPT, or of other LLMs, might not yield productive results. That said, it is our hope and strong suspicion that many, if not all, of the sample prompts provided here could apply to other LLMs beyond ChatGPT as well. We expect that most of these strategies, in other words, could be used by almost any related AI.

As for AI-generated text within this volume: there isn't any. We wrote this book in early and mid-2023 without using AI, except in limited ways to test sample AI prompts for each of the assignments. While we recognize that future book-length works may opt to follow our advice about using AI to help outline and chart writing projects, our own process only did so as verification and after-the-fact analyses instead of as first steps. We find it to be natural that current pedagogy experts and holders of terminal degrees may continue with their established composition practices that do not use AI in the initial stages, while the opposite may become more common for

undergraduates in the next few years. Eventually, of course, these undergraduates will become our institutional colleagues, and yet another shift in mindset and practices may become advisable and necessary.

While the book is organized by a contiguous set of numbers, it is subtly divided into sections without being overly labeled so. The first several assignments explore prompt engineering and provide explanations for why we need it as well as how to teach it through assignments. Then comes a few assignments about using ChatGPT for searching, since it can do things search engines cannot. Up next are assignments that train students on evaluating AI output, as well as a section of suggested assignments that show how ChatGPT can be used to analyze text or data. The largest section concerns assignments related to writing, as might be expected. The penultimate section provides ideas for using ChatGPT to generate useful output, and the final section has assignments designed to help students recognize that ChatGPT can be used to improve their study habits and practices.

We hope this book will provide you with support during these exciting—and daunting—times and inspire you to explore the possibilities of engaging ChatGPT and other AI tools into your curriculum.

Kevin Yee
Director, UCF Faculty Center for Teaching and Learning

1

Prompt Engineering: Conversation

Create an assignment that forces students to engage ChatGPT in a conversation.

Unlike search engines, ChatGPT will remember previous prompts and requests from the same session (until the user clicks on the "new chat" button). Knowing this, students can both refine search results and save time by intentionally interacting with the software in a conversational manner. This involves "talking to" ChatGPT the way you would talk to any human. We wouldn't restate the original question if we were speaking with a human adult and wanted to clarify with a second sentence; we would just provide the second set of specifics. For example, if we first asked ChatGPT to identify the TV show that was a popular thriller/horror show, the software is likely to identify several possibilities. But the second prompt doesn't need to restate the information already digested and could skip straight to the clarification "I mean the one that has the Upside Down." This technique, known as prompt chaining, can also be part of an intentional strategy to withhold part of your ultimate ask until the second or third prompt—such a plan can be especially useful if you are seeking first a summary of a text, and then an analysis of its strengths and weaknesses. Asking everything all at once could be confusing for both

humans and software, and often it's better to pull the questions apart.

While it seems simple enough and ostensibly thorough enough to just inform students of the possibility of an extended conversation with ChatGPT, not requiring them to do it explicitly on an assignment creates the risk that they will forget to attempt it later. Practice makes perfect, as the expression goes, so it seems pedagogically sound to actually force students to practice. One way to do this is to give them the first prompt for ChatGPT, and then ask them to read the AI output carefully and ask at least two follow-up questions for clarification.

Sample ChatGPT prompts:

1. "Explain string theory using everyday words." / "What do you mean the strings vibrate?" / "What's another metaphor to help explain how string theory works at both large and small scales?"
2. "Define intersectionality and its origins as a theory." / "How have modern theorists gone in directions different from Crenshaw?"
3. "What are some of the better-known theories of justice in philosophy?" / "Say more about John Rawls's theory." / "Explain the Original Position using a different metaphor or simile."

2

Prompt Engineering: Regenerate a Response

Ask students to generate multiple responses from a single prompt.

When asked to run a search in search engines, the engine will reproduce the same search nearly every time. This is a good thing when you are looking to remember what came up for that search you had previously conducted, but after a few times, you've browsed many of the possibilities. On the other hand, ChatGPT allows you to regenerate a response based on the same prompt for a different result.

After the AI tool has completed a response to a prompt, the "pause response" button will change to a "regenerate response" button. This button will allow you to ask ChatGPT to write a different response to the prompt you already entered. This regenerated response will use the same information to rewrite the sentences in a different pattern, order, or tone. This is one of the features that makes AI detection difficult since a unique output will be given even if the prompts are identical. In ChatGPT a regenerated response will appear where the first response was posted. You can toggle between the two generated posts by clicking the number next to the top of the AI-generated response.

Regenerating a response can prove useful in conjunction with several other tips in this guide. For example, you might have students ask ChatGPT the same response multiple times and compare the different results. You might ask students which response is most accurate or persuasive. You might also ask for students to regenerate a response to see if it pulls from the same or different sources. You can then have students compare the different sources for the regenerated responses to see which are more reliable.

Similarly, you can ask the AI software to regenerate a response after a given amount of time. While ChatGPT 3.5 is not able to gather new information from the internet, users can provide feedback as to whether the information provided was accurate. For this reason, waiting before asking the AI to regenerate a response can provide different information than it did previously. Depending on how others have been "training" the AI, the information could be more accurate or less accurate. It might be interesting to try this both with prompts that the AI answered incorrectly or correctly to see if there is a change.

By asking students to consider the different responses provided by the same prompt, you can begin a discussion about the strengths, limits, and ethics of using AI. Questions can arise as to whether the outputs are comparable in terms of their substance, accuracy, tone, bias, etc.

Sample ChatGPT prompts:

1. "Explain the way to find the area under a curve on a graph."
2. "Compare and contrast the work of Claude Monet and Berthe Morisot."

3

Prompt Engineering: Rephrase Prompts

Require students to ask ChatGPT a detailed question in more than one way to refine the results.

Much like you might ask a person to rephrase a question or a sentence if you do not initially understand, you can do the same with AI. Generative AIs look for the most likely answer to your prompts. Therefore, it will look at the likelihood of what should come next and select what has the highest probability. But we are not always asking about the most likely response to our question.

As previously discussed, ChatGPT will provide a different response every time it is asked a prompt. This is the nature of the generative aspect of AI. While you are able to get a multitude of different responses to the same prompt by asking ChatGPT to regenerate a response, you can also rephrase your prompt to get more tailored responses. Regenerating the response allows the user to see the same information represented in a different way. Rephrasing will cause ChatGPT to potentially generate a different answer or a more nuanced answer, because it does recognize that this is the same prompt asked in a different way.

Prompt rephrasing is a form of having a conversation with the AI, except instead of altering the question to get new information you alter the prompt to get information more relevant to what you were searching for in the first place.

Sample ChatGPT prompts:

1. “Describe the mechanisms through which muscles contract.” / “How do muscles contract?” / “What makes our muscles contract?”
2. “What is forecasting?” / “What are the different methods used for forecasting?” / “What are the benefits of different forecasting methods?”
3. “What are the major points in history that led to Guatemala’s independence?” / “How did Guatemala win its independence?” / “Who were the important figures that helped Guatemala win its independence?”

4

Prompt Engineering: Context and Specific Requests

Teach students via "graduated" prompts how to be specific and detailed to maximize ChatGPT output.

Search engines will look for keywords in websites or articles to match the search criteria you prompted. For this reason, the search engine may or may not provide new information based on the level of detail you put into the search engine. ChatGPT will tailor responses based on the level of detail you provide in the prompt. The more detail provided, the more nuanced the response will be. Much like a conversation with ChatGPT, providing increasingly more detailed prompts will allow students to get an answer that is more accurate or useful for their purposes.

Given the massive amounts of data that the AI model was trained on, there may be several similarly named or overlapping concepts. We can see this with general search engines when we put in our own name. You are able to see how many different people have the same name. Giving more information such as a state, city, or job title, can narrow down the number of returns to ones that would be more relevant. This same logic occurs when using ChatGPT.

Students should be provided with an understanding of how the prompt they put in will impact the response given by ChatGPT. The broader the prompt the more broad—and possibly inaccurate—the response will be. Begin by having students input a very general inquiry. This could be just the name of a famous person or a piece of machinery used in the industry. Question students about the output from the AI. Is it useful? What type of information does it give? Afterward, ask students to add more details to their prompt, such as a specific date, accomplishment, or event, and see what the AI generates. You can then have students compare and contrast the two responses.

Students might also use the information they find in the broader prompt to provide more details in their subsequent prompts. This could be useful when students are just introduced to a topic or do not have a lot of background information to create a detailed first prompt.

Sample ChatGPT prompts:

1. "What is the difference between APR and APY? / When would you use APY vs. APR?"
2. "What are the different types of joints that can be used when constructing a boat?" / "What types of joints can be made with just pieces of wood?" / "What is the difference between a tongue and groove joint vs. a rabbet joint?"
3. "Why is shutter speed important?" / "What happens when you have a higher shutter speed?" / "When would you want to use a slower shutter speed?"

5

Prompt Engineering: Tone

Make an assignment for students to obtain ChatGPT results that match a certain tone.

If not given specific instructions on HOW to write, ChatGPT will return results in a neutral tone that suggests impartiality and conveys quiet assuredness. Its default tone seems definitive, worldly, and devoid of doubt. However, the output's tone can be changed upon request. You can ask ChatGPT to answer in a playful tone or a sarcastic one. Challenge it to answer a specific prompt with the passive-aggressiveness of a petulant teenager, for example, or to adopt a particularly strict tone of unamused authority. By exposing students to the breadth of possible styles in ChatGPT's answers, we allow them to better see the possibilities for their own ongoing prompts of ChatGPT. Plus, the very novelty of an artificial tone on a serious subject may cause students to pay closer attention than would otherwise and maximize their learning in the process.

One assignment idea might be to ask students to generate the same response three or more times while specifying that the output should be delivered in a different tone each time. You might try creating a list of possible tones, from which the students can make their individual selections.

Sample ChatGPT prompts:

1. “Write a summary of the voyage of Odysseus in an epic tone.”
2. “Describe the process of photosynthesis in cacti in a whimsical tone.”
3. “Describe the work of Stephen King in an ominous tone.”

6

Prompt Engineering: Specified Style

Ask students to exercise their creativity by asking ChatGPT for explanations or summaries delivered "in the style" of someone famous.

Since ChatGPT was trained on a large number of books, articles, blogs, poems, lyrics, and many other forms of writing, it can not only recognize but even replicate the style of many known authors and artists. Asking students to generate an explanation of a scientific principle is one thing, but it's an entirely new level of fun—and thus permanence in their memory—if the message is delivered with a layer of pop culture they might recognize.

Rather than require students to adhere to a strict set of prompts, authors, and artists you have pre-selected (at least some of whom they may not know), it may be more effective to let students brainstorm their own authors and artists to use as inspiration. This has the added benefit that their personalized contribution generates, by its very nature, more investment and thus ownership in the eventual answer, as well as basically guaranteeing the chance that they will recognize the author/artist and be tickled by the unexpected juxtaposition.

Learning that incorporates fun has the best chance of becoming internalized and therefore permanent.

Sample ChatGPT prompts:

1. “Write a sonnet in the style of Shakespeare that explains the third law of thermodynamics.”
2. “Rewrite Rihanna’s song “Umbrella” using language from Tolkien, but make the song about tort reform efforts over the years.”
3. “Using words and rhymes like Dr. Seuss, explain the Missouri Compromise in five paragraphs or less.”

7

Prompt Engineering: Sophistication

Encourage students to include in their prompts how sophisticated of an answer they want.

When not given any specific instructions on how to respond, ChatGPT will provide output at a high school level, a decision made to maximize its utility to audiences of various educational backgrounds and provide a default voice that is, hopefully, accessible to the widest possible audience. However, this is a feature that can be changed upon request. ChatGPT can increase its level of sophistication and presumed background knowledge of the user when asked to answer like a grad student or professor in that field. Alternately, it can answer with the diction and sophistication of a grade-schooler, if desired.

College-aged students may well desire a professor-like answer to a question they are tackling for school since they'll be expected to provide details and explanations on par with that level of sophistication. At the other extreme, however, college students may find value in asking ChatGPT to provide answers optimized for someone younger, particularly for theories and ideas that are conceptually very difficult.

One suggestion to encourage students to try this out on their own is to require a low-stakes assignment (such as a discussion

board post) where they post their experiment. Ask them to prompt ChatGPT to explain a concept from your class by invoking a certain level of sophistication, then post both their prompt and ChatGPT's response in the discussion board.

Sample ChatGPT prompts:

1. "Explain red shifting to me like I'm in second grade."
2. "Summarize Judith Butler's argument about performativity with the sophistication of a professor in the humanities."
3. "Define the principle of Mutually Assured Destruction using examples from playground interactions among grade schoolers."

8

Prompt Engineering: Length

Ask students to alter the prompt to provide the same information in different lengths.

With the massive amount of data that ChatGPT pulls from, there is no standard length to a ChatGPT response. AI will attempt to provide a comprehensive output to answer the prompt. This is usually in the form of several paragraphs, typically around the five-paragraph essay format. While this can be very useful, it can be time-consuming to read, provide extra information that is not necessary to the prompt, or simply not be relevant for your needs. For example, many of the responses will start with an introduction to the prompt and end with a conclusion paragraph that summarizes the previous points. If this type of output is not what you are looking for, specifying the length of the response (one paragraph, five-paragraph essay, etc.) or the format of the response (bullets, steps, etc.) can assist.

When users first start using ChatGPT, the idea of providing more information is useful. It allows students to get more information than they would by simply typing their query into a search engine. But in certain situations, it is helpful to get a clearer, paired-down, or concise answer. Varying the length allows ChatGPT to provide you with more or less information based on your prompt specifications. These specifications provide varying amounts of detail. Shorter lengths will require

ChatGPT to summarize or leave out certain details. Asking for longer lengths is more likely to provide erroneous details.

There are several ways to let ChatGPT know how long you want your response to be. The first is writing it as part of the prompt you put in. For example, “summarize cellular respiration in five bullet points” or “In one paragraph discuss the role of mitochondria”. You can also use parenthesis to denote the length at the end of the prompt. Each of these will be considered when ChatGPT generates its response. Students can use the various links to fit the purpose of different assignments or compare the outputs based on their accuracy, detail, or generalization.

Sample ChatGPT prompts:

1. “Give me a two-sentence summary of the importance of superconductors.” / “Provide a two-paragraph summary of why superconductors are important.”
2. “Write a short story about a cat in a coffee shop.” / “Write a four-sentence story about a cat in a coffee shop.”
3. “In a five-paragraph essay format, write the difference between constructivism and behaviorism.” / “In three bullet points, write the difference between constructivism and behaviorism.”

9

Prompt Engineering: New Chat

Create an assignment where students see the value in restarting chat.

ChatGPT remembers previous prompts and its own subsequent outputs, essentially having a conversation with the user over the course of several prompts. When this connection to the prior conversation is desired, it creates a useful output. Sometimes, however, the user is actually asking a new question. Unfortunately, unless ChatGPT is told this is a new, unrelated direction, the output is often colored by the earlier prompts in an unwelcome fashion. To obtain a "pure" output to a new question, it's advisable to press the "new chat" button before any change of topic.

The interface makes it easy and intuitive to continue asking new questions without thinking to reset the chat history. As a result, students need assignments that allow them to experience this functionality. One suggestion is to require them to first ask a series of prompts without re-setting the chat and then end with a prompt that is related to the first one yet colored by the conversation. They should paste this to a discussion board post, then return to ChatGPT, click the "new chat" button, and input the final prompt again. This second output should be pasted below the first one in the discussion board, and then they can analyze the differences.

Conversely, students should be encouraged to save relevant conversations with ChatGPT and other AI tools. When a prompt is first typed into the box, ChatGPT starts a thread from which ChatGPT can pull or reuse previous information or questions asked. By default, ChatGPT saves these chats in the column on the left. Students can rename the chats by clicking on the pencil icon. ShareGPT, a Chrome extension, captures the full conversation with ChatGPT and generates a URL, allowing students to share the conversation.

10

Search: Narrowing Search Results

Teach students how to purposefully narrow the responses ChatGPT generates.

At times we know exactly what we are looking for when we begin our search. In these instances, the use of quotation marks and Boolean operators can assist AI tools in returning exactly what we would like. Quotation marks signify phrases that must be presented in the results exactly as they are written. Boolean operators such as AND, OR, and NOT indicate which words, phrases, or topics that should or should not be included in the results. Using these in the original prompt can reduce the amount of back and forth often needed when using ChatGPT.

Other times, we may not know exactly what we are looking for when we begin our conversation. For these instances, the conversation with ChatGPT may point us to what we want to know more about, and we can then add Boolean operators or quotation marks to our original prompts and ask ChatGPT to generate a response again.

Additionally, we can show students how to prompt ChatGPT to elaborate on a given point that it has raised by using the language and acronyms ChatGPT created in its first response.

Since the ChatGPT will "remember" the thread, it will answer the prompt as if it is a continuation of the conversation.

Sample ChatGPT prompts:

1. "What are career opportunities for computer science OR software engineering OR computer engineering (and NOT programming) AND salaries?" / "Why do software architects earn more?" / "What do I need to do to get a job in that field?" / "Name 10 places that hire."
2. "What is the role of metrology in the optics and photonics field?" / "Explain these 'stringent performance standards.'" / "Which tools measure 'colorimetry?'"/ "Name fields that use 'spectroradiometers' (NOT 'metrology' OR 'photonics' OR 'optics.'

11

Search: Explanations for Wrong Answers

Direct students to look up answers they got wrong on an assignment or assessment.

Prior to the advent of AI tools, the onus of describing why certain answers were incorrect fell on the instructor. With the use of Internet searches, students could sift through web pages to see if something matched what they were looking for and then evaluate it for accuracy. Because the students answered the problem incorrectly the first time, it was unlikely they would be able to easily determine why their answer was wrong without the instructor's guidance.

If unresolved, students may retain their misconceptions, impeding their ability to acquire further knowledge on it later and hindering their future learning. ChatGPT offers a means through which either teachers or students can ask questions and search for answers to common sticking points. For students, they can also use several of the prompt engineering techniques to help them better understand what ChatGPT generates.

As part of their assignments or to earn lost points on an assessment, instructors can have students look up the correct answers to problems using ChatGPT.

Sample ChatGPT prompts:

1. "I was asked, 'If the wage rate decreases by 8% and the quantity of labor demanded increases by 4%, what is the labor elasticity?' I responded, '.5.' Why is that wrong?" / "Can you provide more details on a step-by-step basis?" / "Generate 10 similar questions so I can practice." / "Show answers and provide detailed explanations."
2. "I said, 'The American Revolution and the French Revolution were similar because they were both influenced by Enlightenment ideals, social inequality, and taxation.' Why is that wrong?" / "Are you saying the French Revolution was *more* violent?" / "When you say, 'The American Revolution maintained a degree of respect for legal processes and the rule of law' while the French Revolution did not, it sounds as if this is an 'American' argument and perspective. Is it? Why or why not?"

12

Search: Seminal Scholars, Studies, and Other Materials

Have students report what the AI generates as seminal scholars, articles, or books within a given field or topic.

Learning a new topic can be daunting. There are many dates, people, topics, theories, laws, equations, etc. to be remembered, and perhaps retrieved at a later time for other purposes. For many of us, it may be difficult to remember things we just heard about, or it could be challenging to remember things we learned previously. Often, we might be left with only a vague idea of what we want to remember. Search engines have allowed us to search for queries of which we only have a partial recollection. For example, we could type in "What is the book with the caterpillar that was still hungry"? The search engine would pull several websites that could help us answer this question. On the other hand, generative AIs such as ChatGPT will pull up the most likely answer to respond to the question.

ChatGPT will also provide lists of seminal authors, studies, and experiments done within a certain field. This is in contrast to the search engine which will pull up websites or documents with lists that others have made. The search engine will not consolidate results. In addition to getting one consolidation of

results, ChatGPT will also provide a one-sentence summary of what it pulled as a result.

ChatGPT's response may have a perceived authority that could be harmful. Search engines used to offer multiple sources for a response, which sometimes revealed other sources, people, experiments, or work that were not in most lists. This often unintentionally broadened our original thinking beyond our initial search. Since ChatGPT gives answers and not sources to explore, it often does not automatically point us in new directions without being prompted to do so.

Sample ChatGPT prompts:

1. "Jean Piaget developed the theory of cognitive development. What are some seminal scholars, studies, articles, and books that address this field?" / "How did Lev Vygotsky add to Piaget's work?" / "Why do you think Vygotsky focused on the sociocultural impact on cognitive development and Piaget did not?" / "Describe contemporary perspectives on cognitive development and how they connect with Piaget and Vygotsky's work. Who is conducting this research now?"
2. "How did *Silent Spring* by Rachel Carson influence today's environmental movement?" / "Provide an example of another seminal book or study in environmental science and activism that was impacted by Carson's work." / "How do current environmentalists view the work done by Carson and Ehrlich?" / "Provide a list of studies that further explore this topic."

13

Evaluate: Correctness

Assign students to generate a specific output, then explain whether ChatGPT's output is factually correct.

Because ChatGPT is a large language model of generative AI, it relies on language prediction, rather than analysis of facts, to create sentences. In other words, it generates each next word as the "most likely" to fit into the sentence thus far, based on all the other language it's ingested in the past. As a result, the system doesn't actually think and certainly doesn't understand what it's producing. As defined in the Introduction, LLMs are parrots of sorts in that they mimic speech without truly understanding it. Because each word is essentially a guess, wrong words can easily sneak into any sentence. The system can generate details and facts that are essentially invented, and even present conclusions that are flat-out wrong. Students need to be educated on the weaknesses of the software and trained *not* to rely on it unquestioningly.

To many students, ChatGPT's output looks convincing. Indeed, the system is designed to provide answers with absolute authority and, as a result, has every appearance of being true. Its verisimilitude (or, as some might say, its "truthiness") is a deception, however. Students are better advised to regard ChatGPT output with suspicion, as if potentially every line was

a lie—almost as though the software was playing a version of the game Balderdash, where the point is to create realistically sounding words and definitions of things that might be completely invented.

Assignments could be as simple as giving students the parameters of a ChatGPT prompt, and then asking them to evaluate how true each part of the output is. Such a task is made even richer if students are required to provide external corroboration of the correct answer, such as from other assigned readings or videos. One variation might be where the student asks ChatGPT to role play as an interviewee and rates the correctness of the responses.

Sample ChatGPT prompts:

1. "You are now a nuclear physicist at a press conference. The first question is how magnetic resonance imaging functions."
2. "Cite the Florida statute that prohibits the harassment of manatees."
3. "What are your legal obligations as a social worker if a client discloses elder abuse to you?"
4. "Is it a violation of FERPA to discuss grades with a parent over the phone?"

14

Evaluate: Hallucinated Sources

Require students to verify the existence of quoted sources via the institution's library website.

ChatGPT will readily provide sources, including academic or refereed ones, upon request, and can also provide a bibliography in any citation style requested, such as APA, MLA, or Chicago. However, as an LLM, it is vulnerable to "hallucinating" (inventing) facts in general, which can include sources, citations, and direct quotations. It's built to string plausible words together, not to isolate real quotes. One common result of a request for citations or sources is the acknowledgment of a real scholar, perhaps even the exact ideal scholar an expert might quote, but with publication titles or journals listed that sound realistic, yet do not exist. Sometimes real publications are listed, but with some incorrect details, such as missing authors or the wrong year of publication.

As part of their broader education in AI fluency, students need to be reminded that AI-generated sources might not exist. One idea to accomplish this is to assign students the task of obtaining an AI-generated bibliography for a targeted essay topic, then have them upload a screenshot from the website of your institution's library database where they have verified whether the listed source exists or not, repeating as necessary for all the sources in the bibliography. A related assignment could challenge students to dive deeper still by evaluating the

scholar's credibility and activity in this field, and, if valid, then summarizing (perhaps with ChatGPT's help) a relevant publication by that scholar, or possibly even their entire related body of work. Or students could be asked to generate a bibliography of real sources—after generating the AI-created one—as a way to underscore the skills of library-based research and proper style formatting.

In terms of evaluating ChatGPT-provided quotations, students could be asked to paste the AI-provided quotation into a search engine (using quotation marks at the beginning and end to guarantee an exact match), in order to see whether the quote is genuine. Additionally, students might also be asked to locate a real quotation to replace the hallucinated one provided by ChatGPT.

Sample ChatGPT prompts:

1. "Write a bibliography about the rate of rainforest depletion."
2. "Create a bibliography of the five most important publications on rainforest depletion. Write it in APA style."
3. "Summarize the work of W.F. Laurence on rainforest depletion."
4. "Provide the top five quotations by academics about rainforest depletion."

15

Evaluate: Soundness of the Argument

Create a student task to evaluate ChatGPT's argument for its flow and logic.

To be considered well-formulated, an argument must include both elements that are true and connective logic that is valid. While individual facts generated by ChatGPT may be untrue, this assignment instead assumes that the facts are true but requires students to examine how those facts are assembled into an argument. Does the argument's structure contain any flaws or overly hasty assumptions?

Examples could include asking students to use ChatGPT to generate a syllogism (two premises and a conclusion) and then evaluate whether the conclusion correctly follows these premises. Or, students might evaluate whether the evidence presented in an argument is both necessary and sufficient to prove the argument correct. One additional idea might be to instruct students to evaluate an argument's warrant (the usually unstated assumption about WHY a given statement is assumed to be true).

Sample ChatGPT prompts:

1. “Present a 250-word argument that no-fault insurance laws unfairly impact lower-income drivers.”
2. “Write a three-paragraph persuasive essay that science argues for the existence of God.”
3. “Create a syllogism that claims turkeys would have been a better national bird for the United States than the bald eagle.”

16

Evaluate: ChatGPT's Predictions and Extrapolations

Instruct students to generate a ChatGPT prediction and then assess the output.

One of ChatGPT's strengths is its ability to extrapolate, even in hypothetical situations, and present what appears to be realistic prognostications. Yet all the caveats about ChatGPT's output with regard to factual accuracy and logical argumentation continue to apply, since its method of generating output is just as suspect when creating predictions. Students should be trained to regard these predictions with the same level of guardedness as they do the output by ChatGPT which is supposedly more factual. However, because predictions cannot be fact-checked with a simple Web search, a more analytical approach is called for, where students apply reason and previous learning to the problem as they attempt to diagnose the prediction.

The process begins with students being asked to generate a prediction via ChatGPT, ideally one the instructor has specified in detail and has previously vetted. The students should then be instructed to apply both previous knowledge and critical thinking to evaluate the output. Possible areas of evaluation include completeness, likelihood, and veracity.

Sample ChatGPT prompts:

1. “Imagine a world where every human baby was implanted with a microchip to enhance cognition and recall. How would this affect the job market?"
2. “What would be the human toll on worldwide ocean levels rising by five meters?”
3. “What will be the impact on Americans with low incomes if Social Security can no longer pay full benefits in the future?”

17

Evaluate: Logical Fallacies

Direct students to create an argument in ChatGPT, then identify any logical fallacies.

Since ChatGPT isn't creating arguments built around logic (or even rules), it's possible for the software to create arguments that replicate logical fallacies in text it's been previously trained on. As the expression goes, "garbage in, garbage out." The system is only as good, or as foolproof in logic, as the material it was trained on. Since ChatGPT was trained on a very wide variety of inputs, some of the material may have contained logical fallacies from the start.

If the course material already includes learning about logical fallacies, using a large language model in an assignment makes perfect sense. Students could be asked to scan for the presence of straw man, post hoc, slippery slope, hasty generalization, or false dichotomy logical fallacies in the AI-generated output, ideally with a detailed explanation of how the fallacy occurred, and what could be done to prevent it.

Sample ChatGPT prompts:

1. “What are the most common arguments for and against the use of fracking?”
2. “What are the arguments for and against gender-neutral bathrooms in high schools?”
3. “Some people claim the singularity is near, promising immortal human consciousness. What are their central claims?”

18

Evaluate: Write a Rebuttal

Tell students to first obtain an argument from ChatGPT, then craft a rebuttal.

Since ChatGPT creates its arguments based on the material it's been trained on, it very much constructs the elements of its arguments on ideas previously laid down by humans. As such, its logic is neither impervious nor sacrosanct. Incomplete, incoherent, or even patently false claims and conclusions can become part of ChatGPT's output, though sometimes they are disguised as lesser points or optional perspectives.

Consider instructing students to upload the complete prompt and output of their query to ChatGPT, followed by a detailed rebuttal. A suggested best practice is to scaffold the rebuttal for students into discrete parts, so they are not confronted with a task too large initially. They could be asked, for instance, to first address the scope of the output—does it leave out critical areas, or focus inappropriately on others? Then, they could be asked to weigh in on the conclusions rendered. Do they seem appropriate, or out of scale? Would alternate conclusions have been better? What evidence is missing from the argument presented?

Sample ChatGPT prompts:

1. “Explain in 3 to 4 paragraphs why paying your own way on a first date is the best choice.”
2. “If a modern-day time traveler were to journey to the Middle Ages, what should they do to improve the quality of life around them since they have the benefit of future knowledge?”
3. “Advance the argument that although electric vehicles do not consume gasoline, their carbon footprint is still significant, even when compared to gasoline-powered cars.”

19

Evaluate: Bias

Assign students to prompt ChatGPT to provide a detailed output (ideally on a topic you pre-select), then require them to evaluate to what extent the software's answer might contain bias.

As a product of being trained on human-generated content, databases, and raw data, ChatGPT will naturally reproduce the biases, assumptions, or stereotypes that humans who created that content held, or otherwise appear in the data. Examples might include systemic racism or unconscious bias. Recognizing the potential for harm in simply reproducing bias, ChatGPT's creators continually make tweaks to the algorithm, and some of its "natural" answers are prevented. This laudable effort can, however, have perverse unintended consequences when mitigation efforts are applied partially rather than universally. For instance, in the same session, ChatGPT once refused to "tell me a joke about women," but offered no objection when prompted to "tell me a joke about men." This mixed and complicated backdrop means AI output could contain biases of various types. Knowing how to assess and evaluate AI content for bias is a core component of AI fluency. Indeed, the ability to ferret out bias in AI-generated content is likely to be a seminal workplace skill for decades to come.

ChatGPT can alternately be used to address the inverse problem; namely, that bias present in human-created text could be found by using the software. This can be accomplished by inputting one's own writing in the system along with a prompt to identify any biases or ways the content could rub readers the wrong way, even if unintentional.

Sample ChatGPT prompts:

1. "What is the history of critical race theory?"
2. "Who discovered the DNA double helix?"
3. "Give an example of a model minority."
4. "Analyze my writing for bias or poor optics—anything that could be received the wrong way."

20

Analyze: Summarize Longer Texts

Encourage students to use ChatGPT to create summaries of longer texts.

While it may seem counterintuitive to the aims of higher education to encourage students to seek summaries rather than read longer primary texts, the general drift in recent years and recent generations has been away from reading longer texts, and the arrival of generative AI likely signals the final switch away from longer readings and toward AI-powered summaries. As such, it seems wise to embrace the change as it begins, rather than asking students to cling to traditional methods of education even as the tools around them change dramatically.

This task represents asking ChatGPT (rather than the students) to provide analysis. Though this phrase may sound innocuous, it represents a major shift in education-related tools. Until the advent of generative AI, it was customary for tools to provide shortcuts in mathematics or even linguistic expression, but the task of analysis was largely left to the student directly. With ChatGPT, it becomes possible and likely even desirable to leave the initial analysis to the AI. Among other things, such a shift heralds the beginning of a new era in efficiency. With human agency not needed as immediately in the initial steps of analysis, this frees people to focus more on executive function, higher-

order thinking, and deeper levels of analysis than ever before, all while achieving the same level of analysis faster than ever before. Students need training on this kind of AI analysis, as it's still very new in their educational experience.

The permanent addition of artificial intelligence to our set of tools for accessing information and sense-making very likely changes the rules. Strategies for active reading such as the SQ3R method (survey, question, read, recite, review) might well look different when students can ask ChatGPT to summarize longer texts for them. While educators want to be careful not to cede all information-holding to external sources (we want our future engineers and doctors to have memorized critical things, after all!), we might need to change the quantities and proportions of what does get memorized. This sort of shift is always underway in society. Most modern drivers of cars would not know how to fix a roadside breakdown, but such skills were more common decades ago when motors were simpler and more mechanical.

Sample ChatGPT prompts:

1. "Isolate the top 3-4 ideas from this article and list them as bullets." [Paste text below].
2. "Provide a summary of the following story/chapter." [Paste text below].
3. "tl;dr of the Magna Carta" (tl;dr is slang for "too long; didn't read," which is a shorthand request for a summary)
4. "Create ten possible headlines for social media posts that will entice readers to click to view my article."

21

Analyze: Find the Needle in the Haystack

Show students how to ask for a specific piece of information in a much longer text.

One of the most promising features of AI is its ability to automate tasks, and in the process save a lot of time. Students who know that a particular piece of information is explained somewhere in a larger text, but do not know how to find it, could save a great deal of time by pasting the full text to ChatGPT and asking ChatGPT to locate, quote, or otherwise summarize the needed information.

There is a pedagogical consideration here that may complicate the utility of AI as an advanced search agent. When students engage a lengthy text with their eyes and scan it for information, there are several important acts of cognition taking place—and many of them are responsible for forging connections, making meaning in context, and even forming long-term memories that can later be retrieved. When reading becomes more passive, the details are likely to be less retrievable from long-term memory. Educators should consider carefully whether summarization—or information shortcuts—fit their pedagogical aims for that assignment.

Sample ChatGPT prompts:

1. “Who has the right to vote, according to this text?” [Paste text below].
2. “Who kills Rosenkranz and Guildenstern?”
3. “What does the Declaration of the Rights of Woman say about property?”

22

Analyze: Critique and Interpret

Encourage students to use ChatGPT to provide an interpretation of a text.

One of the primary skills desired by many disciplines is critical thinking, especially in interaction with a text. For students without extensive training in text-based critical thinking, the desired thought process can be elusive. ChatGPT offers a way for students to quickly see examples of interpretation, which may provide models they can more readily emulate. As with summarization, however, there are pedagogical dangers here, especially if students become over-reliant on the software. Instructors may want to include assignments that replicate these learning outcomes without the use of ChatGPT, after the AI-fueled scaffolding is accomplished. To prevent the use of ChatGPT on these additional assignments, they might be best accomplished in an in-person setting.

Students might be asked to examine a text for its persuasive argument. When engaging ChatGPT for assistance, they could consider seeking an analysis of the structure, soundness, plausibility, or originality of the argument. These same skills could be employed for literary texts and figurative speech like poetry. In those cases, ChatGPT could be used to help isolate important themes and messages of the work.

Sample ChatGPT prompts:

1. “What does this poem mean?” [Paste text below].
2. “Identify the major themes of this chapter.” [Paste text below].
3. “What are four common interpretations of Camus’s Stranger?”

23

Analyze: Poetry and Figurative Language

Allow students to use ChatGPT to begin the process of interpreting a poem's meaning while building their understanding of figurative language and its uses.

According to the National Endowment of the Arts' Survey of Public Participation in the Arts (SPPA), only 12 percent of U.S. adults read poetry (or listened to it through recordings, broadcasts, or web streaming) in 2022. And while Instapoets have boosted the popularity of poetry, some book retailers estimate poetry collections still only account for one percent of book sales.

There are countless reasons why many dislike poetry, including negative school experiences where poetry was dissected and a student's understanding of its meaning was assessed, a general preference for literal texts, and a dislike for work that's considered pretentious. But the process of analyzing a poem (and other mediums that use figurative language) can lead to many benefits, including improved literacy and reading comprehension, higher levels of emotional intelligence, and stronger critical thinking skills.

ChatGPT can summarize the literal meaning of a poem (stanza by stanza) and offer historical and cultural context that provides students with comprehension clues on a poem's theme or deeper intentions. Students can also ask ChatGPT to evaluate their own analyses, check for biases or shifts in tone they may have missed, and provide background on unfamiliar terms or references.

Sample ChatGPT Prompts:

1. "Summarize the literal meaning of each stanza of this poem while identifying key poetic devices. [Paste text below]. Then, highlight repeated words, themes, or sounds, connect themes to cultural or historical events or contexts, and find poems with similar themes."
2. "Analyze my analysis of this poem. [Paste text below]. Do you agree with my interpretation? Are there any gaps in my argument? Can you play devil's advocate and provide an alternative interpretation?"
3. "Create a game that uses figurative language to teach the concept of intermolecular force fields. Use alliteration, hyperbole, idioms, metaphor, and simile."

24

Analyze: Convert to Conversational Language

Encourage students to use ChatGPT to simplify language when reading complex texts or learning difficult concepts.

When learning new, challenging concepts or reading dense texts, students often struggle with comprehension due to academic language and discipline-specific styles, especially when those materials assume prior foundational knowledge students may lack. For years, students have been turning to YouTube and other platforms to fill these gaps, but this can also lead them to inaccurate or misleading information.

Using ChatGPT to convert these readings or concepts into text that uses conversational or "lay" language can act as an accessible starting point for more thorough comprehension. It can also reinforce learning, validate their own understanding, and make concepts relatable to their own experiences.

Students can also use ChatGPT to practice their ability to explain their own research or projects in ways that those outside their discipline can easily understand. By inputting their work into ChatGPT, students can check the effectiveness of their communication and writing skills. They can also ask ChatGPT

to list the techniques it used to simplify the text, furthering their ability to rhetorically analyze the conversion while learning more about their discipline's conventions (i.e., jargon, sentence length, passive or active language, etc.).

Sample ChatGPT prompts:

1. "Convert this text on the differences between differential and integration in calculus in a way that someone who has not studied this level of math can easily understand." [Paste text below]. / "Can you provide examples of how these concepts show up in everyday life?" / "Provide a more thorough description of how calculus is used for GPS navigation."
2. "Analyze this text I wrote about the hippocampus and neurogenesis by creating bullets of key points." [Paste text below]. / "Convert those bullets into a few paragraphs that a layperson could easily understand and provide examples of how this could impact a person directly." / "List the techniques you used to convert the text to be more understandable to a layperson."

25

Analyze: Qualitative Analysis

Require students to use ChatGPT to perform qualitative analysis, then evaluate the output.

ChatGPT excels at identifying and summarizing patterns of words, phrases, and even conceptually related words that otherwise seem disparate. As such, it performs qualitative analysis quite well. It can be asked to identify repetitions, themes, and broad categories, as well as identify individual words or topics that stand out. This is true even when the writing being analyzed is careful with its diction to avoid repetition, because ChatGPT can identify synonyms and group them into logical categories. Specifically, it can apply topic modeling techniques like Latent Dirichlet Allocation to discover latent topics within a text, or extract names of people, organizations, locations, etc.

In addition to categorizing texts and understanding prevalent topics within the content, ChatGPT can work more holistically to provide analysis of the overall sentiment of a piece of text or identify opinions present in the writing. Students could be asked to provide their own judgment about ChatGPT's analysis, weighing the output on the basis of accuracy and veracity.

Sample ChatGPT prompts:

1. “Analyze the tone and sentiment of this letter.” [Paste text below].
2. “Create a semantic analysis of this article and generate an editable comparison table.” [Paste text below].
3. “Inspect the phrasing of this text and identify conceptually related words that repeat.” [Paste text below].

26

Analyze: Quantitative Analysis

Direct students to perform certain quantitative analyses at ChatGPT.

While ChatGPT is currently limited to processing only text-based input, and cannot directly access databases or perform complex computations, it can assist with basic statistical analyses such as mean, median, mode, standard deviation, and variance. Additionally, it can perform simple calculations like arithmetic, percentages, currency conversions, and time calculations.

However, some caution is called for here. ChatGPT itself cautions that its output could include inaccuracies or errors, which in practice include mathematical errors. In fact, its ability to calculate might be better used as a vetting exercise, where students double-check ChatGPT's math. If it does make mistakes, students demonstrate their mathematical comprehension by finding it, explaining why it's wrong, and correcting it.

Some calculations can be performed in multiple ways; students might also be asked to suggest variations to the calculations that might also work, or even work better. These types of exercises enforce student learning without relying on automated help or risking students automatically accepting hallucinated calculations.

Sample ChatGPT prompts:

1. “Provide the mean, mode, and standard deviation for this dataset.” [Paste text below].
2. “What percent of 178 is 12?”
3. “What is the correct order of operations, and the correct answer, for 5 + 8 * 6 - 7 / 4?”

27

Writing: Brainstorming a Topic

Encourage students to brainstorm ideas about their essay topic using ChatGPT.

One of ChatGPT's greatest strengths is its ability to create lists and bullets related to almost any topic. This is particularly useful when asking ChatGPT to break down a complex topic with many moving parts into constituent fragments. These sub-components of the main topic can be useful for generating a thesis or conceptualizing the flow of the argument across paragraphs.

In many cases, the list will function as a double-check rather than providing direct inspiration for all elements, but it is not a rare occurrence for one of the brainstormed ideas to be something the writer had not thought of previously. One trick is to also ask ChatGPT to create a list of phrases, which could cause different creative sparks in the writer.

Sample ChatGPT prompts:

1. “List words and phrases associated with the da Vinci surgical system.”
2. “How do I employ Edward de Bono’s ‘six thinking hats’ about Amazon basin deforestation?”
3. “What are the major factors contributing to the rise of mental health issues in college students?”

28

Writing: Overcoming Writer's Block

Tell students to draft an opening paragraph with ChatGPT to avoid the paralysis that accompanies a blank page.

Because writer's block can be crippling, students are sometimes told to start writing informally, even freewriting that is more stream-of-consciousness than complex prose, because additional writing becomes easier after they've eased into a writing mindset. However, ChatGPT can provide a different starting point. If the software creates an early draft, students can focus their efforts on revising rather than composing, which is generally an easier onramp to the writing mindset than drafting from scratch would be.

However, students need to be instructed very clearly that such AI-generated assistance should serve only to inspire and properly calibrate the writing mindset. The output itself is not to be used, as this represents plagiarism. Even revising the sentence with all new words would likely still qualify as plagiarism, since plagiarism includes stealing ideas and the ordering of arguments, not just the ordering of words. It's a fine line. ChatGPT can suggest ideas and even bullet points of entire

arguments, but the final argument itself must flow from the student's pen.

Sample ChatGPT prompts:

1. "Write the opening paragraph of a persuasive essay about the disadvantages of no-fault car insurance."
2. "Compose the conclusion to a lab report about the redox reaction of iron and copper sulfate."
3. "Provide the first half page of a short story about discovering a lost pyramid in the jungle."

29

Writing: Request Definitions, Synonyms, and Antonyms

Instruct students to use ChatGPT as a thesaurus.

Due to its nature as a large language model, ChatGPT is excellent at manipulating words. Even though it assembles sentences by guessing rather than truly understanding the meaning of words, the final result is always fluent and usually completely comprehensible. It's just as impressive at the individual word level. Asking ChatGPT to define a term will deliver a satisfying output that is rich enough without needing to be re-prompted for a longer answer (though of course, it will comply if asked to expand). The same is true for generating synonyms and antonyms.

Asking students to generate definitions, synonyms, and antonyms doesn't initially seem like a worthwhile assignment to give to students, unless your class happens to focus on words or linguistics. Primarily, this ChatGPT skill becomes useful in the act of writing, such as composing an essay. At times during the composition process, writers may face momentary mental blocks. They sense there is a perfect word to fit the sentence they are looking for, but cannot seem to summon it on their own. Treating ChatGPT like a thesaurus could provide the means to overcome the mental block. Simply informing students of this option could work, but it might also be

worthwhile to assign a small amount of points simply for performing the task, perhaps as a discussion board post. In this fashion, students gain firsthand experience of ChatGPT's usefulness while composing, making them more likely to use it on their own. The actual output of the assignment in this case is less important than imparting the lesson of ChatGPT as a thesaurus.

Sample ChatGPT prompts:

1. "Define misanthrope."
2. "Give me five sophisticated synonyms for foul-smelling."
3. "What is the opposite of altruistic? Provide six examples."

30

Writing: Generate a Thesis

Require students to paste the essay assignment prompt into ChatGPT and request a thesis.

Creating a thesis with ChatGPT accomplishes several things. First, students obtain a firsthand glimpse into the system's capabilities (and limitations), which will prove useful for their future searches. Second, students might find helpful ideas for the paper they are assigned to write, though they should be cautioned against simply copy-pasting the ChatGPT output into their essay and representing it, untouched, as their own work. Third, students should be given the freedom to attempt multiple prompts to learn what works best. Slight variations on the topic(s) requested can have outsized effects on the output, as can including parameters such as "original," "ambitious," or "non-obvious." In this fashion, students log incremental gains in their fluency with writing AI prompts.

Another useful activity regarding software-generated theses is to require students to include the output with their own work and critique it. This is a form of human-machine peer editing that provides some of the same benefits as human-human peer editing; namely, that in analyzing the work of another entity, each student gains a deeper appreciation about what is (and what isn't) working in their own writing. It also provides needed reflection time for students to consider the strengths and

weaknesses of ChatGPT's output, making them less likely to use it for inappropriate cheating in other contexts.

Sample ChatGPT prompts:

1. "Generate a thesis for a five-page essay combining a feminist interpretation and a Utilitarian analysis of Marvel's movie *Avengers: Infinity War*."
2. "Generate a thesis for a five-page essay combining a feminist interpretation and a Utilitarian analysis of Marvel's movie *Avengers: Infinity War*. Ensure the thesis offers a bold and ambitious argument."
3. "Generate a thesis for a five-page essay combining a feminist interpretation and a Utilitarian analysis of Marvel's movie *Avengers: Infinity War*. The argument needs to be bold and ambitious, and also needs to advance ideas far beyond the obvious."

31

Writing: Further Develop the Thesis

Allow students to practice writing thesis statements by using ChatGPT as a sounding board.

Like the stages of most projects, the initial construction of a thesis statement will not be the final attempt. As we discussed previously, creating a thesis statement can range from being a simple tentative thesis and evolve into one that is more complex.

After students have critiqued the theses ChatGPT generated, it may seem tempting to simply offer them instructions to "Use ChatGPT to create a variety of additional thesis statements," but those instructions lack guidance and clarity. Provide students with specific, pointed statements and probing questions to use with ChatGPT. For example, tell students to instruct ChatGPT to create a thesis statement that expresses the point they want to make by making a promise to an audience. Another example is to tell ChatGPT to create a thesis statement in two parts where the first states the topic, and the second makes a claim about the topic. An additional option is to have students write what they think is a good thesis; submit it to ChatGPT, and ask questions such as, "Will this thesis statement engage my target audience? Is this thesis statement debatable? Is this statement a fact or claim?" Your students will be pleasantly surprised when

ChatGPT informs them that their statements are either good thesis statements or that they are not thesis statements at all. If they are, indeed, not true thesis statements, encourage the student to ask ChatGPT to help them develop their attempted thesis statements into actual thesis statements. It may take them a couple of tries to practice getting it right. Kudos to them. They are learning!

Sample ChatGPT prompts:

1. "Create a thesis statement that makes a promise to an audience by listing reasons I will limit social media use." / "Use an 'I will' statement." / Don't list the reasons.
2. "Is this thesis statement debatable? 'Grass is green.'" / "Help me develop this into a thesis statement." / "Help me develop this into a one-sentence thesis statement."
3. "In one sentence, create a two-part thesis statement where the first part of the statement states the topic 'limiting social media use', and the second part of the thesis statement makes a three-point claim about social media use."

32

Writing: Generate an Outline

Require students to use ChatGPT to scaffold their ability to create and develop outlines for their writing.

A baker would not bake a pie, dulce de leche, or bahn bao chi without a list of ingredients and a recipe. A complete list of ingredients and precise measurements are imperative in baking. The same holds true for writing. The elements of an outline are akin to a list of ingredients and precise measurements. Outlining is one step in the writing process that should not be skipped, but students often miss the value in this step. ChatGPT offers a noteworthy outlining companion. While the outline ChatGPT produces may seem a bit generic, it is actually a great starting point for students who are still learning how to write.

Students can use ChatGPT to assist them in organizing their information and seeing connections with their ideas. Let's say students have chosen four key points they think relate to their topic. They can now use ChatGPT as a companion to aid them in outlining those four key points. For example, students can tell ChatGPT to list the key points in an order that makes sense. ChatGPT will offer them a skeleton that now needs a bit more substance. ChatGPT will likely define all four elements for the student and then provide a generic definition of each key point. In doing this exercise, students have used a topic to brainstorm,

define, and outline key points. They have even acquired definitions and background information. Require students to submit ChatGPT's output as part of their brainstorming/notes. If students already have their key points organized, they can simply ask ChatGPT to outline their key points. Their final step should be to enhance the outline—using ChatGPT as a starting point—by adding supporting details under each key point. Instruct them not to use ChatGPT for this final step.

Sample ChatGPT prompts:

1. "Tell me how wind mitigation, electrical, plumbing, and HVAC relate to real estate." / "Now create an outline about wind mitigation, electrical, plumbing, and HVAC." / "What elements are important for a home inspection in a real estate transaction?"
2. "Create a problem-solving outline for a mathematical equation." / "Create a mnemonic device to help me remember this." / "Outline the steps I would need to complete problem X."
3. "Some of the major disadvantages of a startup company include difficulty in accessing the market, team composition, limited resources, and inefficient processes. Create an outline using these key points."

33

Writing: Create Counterarguments

Introduce counterarguments by engaging in a debate with ChatGPT.

It goes without saying that ChatGPT can be used in a variety of ways. As it relates to writing, perhaps, one of the hidden gems of using ChatGPT is in forming a partnership with it. Used as a co-pilot, it can prove to be an adroit debater. With this knowledge in hand, students can use ChatGPT to learn how to familiarize themselves with counterarguments while developing their own perspectives. As a writer, it is paramount to remember that other perspectives exist, and they actually matter. It is important to teach students to recognize and seek counterarguments early in their writing journey. While writers may not necessarily agree with the counterargument of another, it is still important to acknowledge other arguments. By considering others' positions on an argument, writers offer more validity to their own position by showing they have done their due diligence in listening before joining a conversation.

What better way to join a conversation than to have prior knowledge that demonstrates the student's understanding of the current discussion surrounding the topic and the legitimacy of the student's own well-rounded and well-thought-out position. For example, assign students debatable topics in the form of

advertisements, well-known cinematic debates, or even rights on college campuses. Argumentative topics can be input into ChatGPT with specific intentionality or as general posed questions.

Sample ChatGPT prompts:

1. "Argue against the 1946 Camel cigarettes ad that implies, 'More doctors smoke Camels than any other cigarette.'" / "Present an argument in support of the 1946 Camel cigarettes ad that implies, 'More doctors smoke Camels than any other cigarette.'"
2. "Which offers a better movie-going experience: Marvel Studios or the DC Extended Universe (DCEU)?" / "Present an argument on the position of Marvel Movies being lighter and more interconnected than DC movies." / "Are DC movies darker and more standalone than Marvel movies?"
3. "Should free speech be protected on college campuses?" / "Should college professors be afforded intellectual freedom in their research and teaching?"

34

Writing: First Draft

Encourage students to use previously practiced ChatGPT writing steps to develop their rough draft.

Writing a first draft can be daunting for students, as many of them do not believe they like writing to begin with. If they've made it to this stage, they are likely exhausted if the instructor hasn't used the previous helpful tips this book offers for using ChatGPT to teach the writing process. Encourage students to create an outline in ChatGPT first (see Tip 32 for instructions). This outline has already prepared them to write their first draft. Inform students they are writing an essay of your preferred length or word count requirement. Remind them of the key elements needed for this first draft: an introduction, body, and conclusion, and instruct them on the way you want them to construct the essay.

This step is where using ChatGPT offers a bit of amusement. Begin by instructing your students to create an attention-grabbing introductory sentence (hook) and ask ChatGPT if it thinks the sentence will truly reel in a reader. They can even ask ChatGPT to enhance their sentence. Is this any different than using the provided synonyms option in a Word document or asking a friend to proofread work?

Next, some of the key terms and definitions they were provided by ChatGPT in their outlining stage can now be used in their introduction. You probably already see where this is going. They can even use the thesis statement they created in ChatGPT! You just scored a big win for the team by using ChatGPT to assist them in all those steps. Next, they will develop the body of their essay using whichever mode of writing you've required, their outline, and ChatGPT. Finally, encourage students to pull their topic sentences together and write a hearty conclusion using, you guessed it, ChatGPT.

Sample ChatGPT prompts:

1. "Do you think this is a catchy introductory sentence? 'It was the best of times; it was the worst of times.'" / "Give me a better one then."
2. "How can I use these key terms to enhance my introduction?"
3. "Now that I've written my introduction, help me develop this paragraph into a more refined chain of thoughts about Key Point A."
4. "Here are my topic sentences. Help me pull them together to create a captivating conclusion."

35

Writing: Improve Topic Sentences

Demonstrate how ChatGPT can assist in elevating your topic sentences by signaling what's ahead.

Accessible content ahead! This is exactly what topic sentences offer. Like style and section headings and alt text for images, topic sentences guide the reader to understand what each section of a piece of writing is about. They also offer ease in locating various sections within a written work. This makes writing so much more accessible and easier to follow. Often, students forget to add topic sentences to their writing, but ChatGPT can assist with this. Students can take the key points from their thesis statement and enter those into ChatGPT. A series of commands could be used to prompt ChatGPT to generate refined topic sentences.

It is likely that students either have topic sentences that still need a bit of work, or they do not have any at all. A couple of scenarios using ChatGPT could easily resolve this issue. For example, encourage students to use the topic sentences ChatGPT generated for them using their key points and add those to their essays. You could also have students input their entire thesis statement into ChatGPT and ask it to create a specific number of topic sentences from the thesis statement. Have students then enter their topic sentences into ChatGPT

one by one and ask ChatGPT to rephrase them. They can even ask ChatGPT to reword the sentence in two or three sentences and ask for regenerated options if they are not satisfied with the ones ChatGPT produces. This is also an opportunity for you to encourage students to enhance whatever ChatGPT produces using their own creativity and knowledge. These combined sentences offer enough information for students to write a hearty conclusion.

Sample ChatGPT prompts:

1. "Create topic sentences using my 3 key points." [Paste text below with individualized key points].
2. "Make my topic sentences better." / "Give me one more topic sentence about _____."
3. "Here is my thesis statement. Help me create four topic sentences from this thesis statement." [Paste text below with specific thesis statement].

36

Writing: Improve Transitions

Create a game using ChatGPT that teaches students how to mark logical relationships between ideas.

The purpose of this chapter is to force you to step away from teaching and learning mode and transition (pun intended) into a gaming and learning mode. Your students will still learn, and you will still technically teach, but the fun is in the preparation and the students reaping the benefits of your game.

As most instructors do not know how to create a video game using coding and advanced technology, there is a companion that can assist you in creating something almost equally as fun. Use ChatGPT to help you create a game or several games that teach students how to effectively use transitions. These games could be developed for a mobile app or a web-based platform. Not only will ChatGPT create an exciting game for you, but it will also offer valuable learning objectives that likely align with your curriculum. ChatGPT might also suggest a target audience, so you can tweak your prompt to align with your level of teaching. One game ChatGPT created was called *Transition Trek: Journey of Logical Relationships.* This title was derived from the first prompt below, and the game is beyond cool if you're into "embarking on a virtual journey through various landscapes, encountering writing challenges along the way."

You could easily adjust the target audience through the wording of the prompt or use prompt chaining to solicit a more refined response from ChatGPT. After using prompt chaining, ChatGPT created a new game titled, *Transitions Mastermind: Unlocking Coherence in Writing* and an additional game titled, *The Transition Carnival*, that embraced a fun and lighthearted vibe. All three games included an overview, gameplay mechanics, educational objectives, and target audience information.

A final option is to assign your students the task of creating a game individually or as a group. By way of a vote or randomly drawn numbers, students' created games could be selected to be played in class. Engage with us online by sharing your games and target audience.

Sample ChatGPT prompt:

1. "Create a game that teaches students how to use transitions in writing to mark logical relationships between ideas." / "For a college audience" / "Make it humorous" / "Make it a mystery."
2. "Create a game set in a land populated by students who speak in such a manner that they abruptly change the subject and everyone remains confused. Have the game teach students how to use transitions to connect their ideas so their conversations make sense."

37

Writing: Improve Connections between Claims and Evidence

Create an assignment where students must state a claim, provide support, and ask ChatGPT to analyze the validity of their claim with respect to how universal their assumptions are.

Undoubtedly one of the most important aspects of writing is offering an explicit claim and supporting it with sufficient evidence. The claim is clearly stated via a thesis statement and the evidence is laid out in the body of the essay. Often, the connection between claim and evidence relies upon assumptions, and this is where there may be a disconnect between writer and reader. If the writer has one assumption but the reader has another, the text won't come across as logical to the reader. Since assumptions are often blind spots for authors who might assume everyone thinks the way they do, this connection between claims and evidence represents a potential weak point in argumentation that ChatGPT can assist with.

Students should prompt ChatGPT to analyze their arguments for hidden assumptions that may not be universally held. While this seems obvious in politically charged topics, many fields outside politics contain political minefields.

ChatGPT can easily analyze students' claims to determine whether they are in alignment with experts already engaged in the topic's dialogue. For example, direct students to enter a claim into ChatGPT along with their proposed evidence and ask ChatGPT to analyze it. Reviewing the output by ChatGPT is also a good activity for leading a discussion on the need to analyze its assertions for biases and to research its validity.

Sample ChatGPT prompts:

1. "Analyze my argument about climate change for assumptions that may not be universal."
2. "Cost of Living Adjustments (COLA) seems to offer minute incremental increases in salaries and wages that don't allow individuals to truly keep up with inflation, but the government continues to offer them as some sort of noteworthy contribution. Many citizens are still living below the poverty level, while the rich seem to keep getting richer. Analyze this claim for assumptions that not everyone may share."

38

Writing: Teach Parts of Speech through Sentence Diagramming

Utilize ChatGPT as a study aid to assist students in identifying parts of speech.

One of the best ways to teach students parts of speech is through visual representations. This activity can be daunting for the instructor as well as the student. Why not make it competitive? Use ChatGPT to help you create a variety of sentences that your students can diagram. Furthermore, you can use ChatGPT as a way to assign students to create their own sentences, to offer assistance in producing sentences when you try your hand at asking it to output whimsical or funny sentences, to create a game that teaches parts of speech through sentence diagramming, and to set the parameters of the game.

It goes without saying, that most of this chapter is fairly self-explanatory, but it is important that you don't lose the real meaning behind this lesson. Many English Language Learner (ELL) or English for Academic Purposes (EAP) classes do teach parts of speech to English language learners. For some, this will be the foundational learning activity that assists them in crossing this bridge. Learning parts of speech is the link for many of the other things they will learn as it relates to learning the English language. If they can master this activity, they are well on their way to identifying sentence parts, recognizing the

importance of using measured voice inflection, writing paragraphs, and even more advanced techniques. For those who are not ELL or EAP students, parts of speech and sentence diagrams are foundational elements in their educational journey as well. Whether you create sentences on paper, whiteboards, SMARTBoards, or anything else, make it fun; make it competitive; and offer incentives. Students will remember the day they diagrammed sentences because they had so much fun.

Sample ChatGPT prompts:

1. "Create a game that teaches students parts of speech via sentence diagramming. Create it for two teams. Make the sample sentences funny. Suggest some prizes each team can win."/ "Where are my sentences?" / "List the sentences." / "Give me more prize options."
2. "Create a lesson plan for a college class that teaches parts of speech by diagramming sentences."
3. "What is the best way to teach parts of speech using sentence diagramming?"

39

Writing: Perplexity

Encourage students to use ChatGPT as a fill-in for writer's block and failure to finish thoughts.

Even the most skilled writer experiences writer's block. While it may not last for an extended period for all, writer's block is common, nonetheless. "Perplexity" is analogous to what a ghostwriter can do for an author who experiences writer's block. Perplexity is a measure of how well a language model can predict the next word in a sequence of words and measures how well a system can understand natural language. As these chapters were being typed, perplexity reared its "pretty" head (pun intended) and offered sentence completion and word completion. Perplexity has been used for quite some time in texting, emailing, document creation, and numerous other ways.

Ironically enough, some people say they do not use AI and are not interested in learning anything about it, but they allow autocorrect on their cellphones, use F7 when checking Word documents for errors, and check Waze to avoid traffic on their way home. There is no reason to fear perplexity. As long as your language model has a low perplexity score, your reader can better understand your writing. Think about it like this: to be perplexed is to be baffled or confused. The less perplexing something is, the more intelligible it is.

At an even more advanced level, ChatGPT offers a solution that provides intercession for writer's block. OpenAI's GPT-3.5 and a large language model (LLM) is an AI system that uses natural language processing (NLP) and machine learning to provide a conversational search engine based on AI chat. It can help students find an array of topics. This is useful because it is like Google and OpenAI had a baby. Students can enter their questions into Perplexity AI's chatbot-like interface and watch it generate natural language responses.

Instruct students to offer their incomplete thoughts to ChatGPT and watch perplexity bring life to their writing. It might prove valuable to have students show their previous work before they solicited help from ChatGPT. This could help you gauge how much is their own work versus ChatGPT's output.

Sample ChatGPT prompts:

1. "How can perplexity be used to enhance my writer's block?"
2. "Help me finish this thought about how this would be an ideal story to add to Chaucer's *Canterbury Tales*."
3. "I am attempting to write a cookbook, and the other section I want to add is on the tip of my tongue. Help me figure out an additional section to add." / "Make it specific to soul food cooking." / "Make it specific to Mediterranean cooking." / "Sous vide."

40

Writing: Burstiness

Utilize ChatGPT to enhance writing techniques.

If your students are submitting work that seems to be lacking in variability and creativity, and all sentences look like they were written by a robot, it is likely your students have not worked out all the kinks of burstiness. Burstiness relates to the variability of word choice (diction) and sentence structure (syntax) in a given section of text. In writing we caution students about varying their syntax and using words that more closely represent their own voice in their writing. But this kind of advanced writing takes a lot of practice, so students often cannot imagine what varied diction looks like without seeing examples.

Here is where ChatGPT can help. The large language model is built on rules such as burstiness, as well as a similar sentence-level element called perplexity (that also measures sophistication and variance). As a result, ChatGPT can respond to explicit calls to increase burstiness and perplexity and will offer more advanced prose as a result.

Assign students writing prompts on various topics and tell them to have ChatGPT respond to the prompt. In its true form and fashion, ChatGPT will produce essays that exhibit low levels of burstiness. Students should print out their results and bring them to class, so they can practice enhancing the essay according to whichever point of emphasis the lecture focuses on that day. The goal is for students to learn to write as more experienced writers do by using sentences that are more complex and parallel to sentences that vary in sentence complexity and length.

Sample ChatGPT prompts:

1. "Raise the level of perplexity in this pasted text."
2. "Using a very high level of burstiness and perplexity, explain the process of cloning."
3. "Repeat that explanation, but with a much higher level of burstiness and perplexity."

41

Writing: Grammar and Syntax Check

Treat ChatGPT as a spellchecker and syntax companion.

Checking for grammatical errors and sentence structure are integral elements that must be included in teaching students how to write. Many originality checkers and plagiarism detectors offer a variety of advanced options that will scan a student's work for originality, grammar, sentence structure, subject/verb agreement, etc. ChatGPT, unsurprisingly, rivals the best of the best when it comes to proofreading a piece of writing. It checks for everything with a simple click on the submit button, and it produces all results in one output. There is no need for multiple clicks to navigate to different pieces of information. It also offers numerous options for revising the style of writing.

Students could easily ask ChatGPT to vary the syntax of their written work, but how much more fun would it be to have students compete with ChatGPT? With a little help from their individual (or group) devices, have students ask ChatGPT to revise a piece of their written work, a well-known work, or one of their favorite songs using different styles of writing. You would need to have this planned out in advance. Maybe start with the more far-removed options such as other people's works

and transition into having them submit their own work. Sometimes it is easier to see the errors of another's ways than one's own. Lastly, remember ChatGPT may not offer the same output as one of the premium originality checkers. It simply corrects the mistakes for you and completes the job. As a final assignment, ask your students to compare their rough draft to ChatGPT's output and track their own changes.

Sample ChatGPT prompts:

1. "Rewrite Emily Dickinson's poem, *Because I Could Not Stop for Death,* using Shakespearean syntax." / "Now make it sound scientific." / "Rewrite her poem using text speak."
2. "Proofread my essay." / "Proofread my essay and track changes." / "Check my essay for grammar, spelling, punctuation, syntax, and originality."

42

Writing: Analyze Readability and Tone

Encourage students to triangle peer review using ChatGPT to cross-check for clarity and tone.

You have likely heard of peer-to-peer work, but triangle peer reviewing offers ChatGPT as one member of the triad. Sometimes students may get stuck on how to accurately peer review certain essential elements of the peer reviewing process. Surprisingly, students can read a partner's bad essay and provide feedback that states it was the best essay they've ever read. How they reach these conclusions is a mystery to most, but including ChatGPT in the reviewing process can help tremendously.

Prompt students to ask ChatGPT to check their essays for things such as readability, clarity, tone, etc. Using direct commands will produce fairly straightforward results. A little bit of prompt engineering is involved, though. This is where you, the educator, must guide your student on how to construct a strong prompt. Consider this, if a student asks ChatGPT if it can understand their essay, this is not necessarily assisting in assessing the readability of the essay. You also want to discourage them from asking questions like, "Is my essay good?" ChatGPT does not offer personal opinions. It does, however, offer factual responses that would benefit the students. By using more structured prompt engineering, like the first example

below, students will likely receive a more unbiased, transparent, and even beneficial response.

Sample ChatGPT prompts:

1. “Check my essay for readability.” / “Check my essay for tone.” / “What is the tone of my essay?”
2. “Does this song that I wrote clearly convey my intended message?” / “Why do you think it’s about that?” / “Tell me more.”
3. “In what tone do you think this piece of writing is written?” / “I meant for it to sound different.” / “Help me write it in a more ____ tone.”

43

Writing: Improve Prose

Require students to use ChatGPT to revise their final drafts using standard academic English (or the language you require for your course).

Writing styles vary across genres, and the expected outcomes for a piece of writing vary along with the styles. First things first, ensure students know what your expectations are for their writing at the beginning of the term. A fun way to offer students examples that meet your expectations is by allowing ChatGPT to assist in creating some sample essays. For your prep, ask ChatGPT to create three sample essays—one poorly written, one good essay, and one excellent essay. Make annotations on each essay explaining what makes each poor, good, or excellent. You will be able to use these for your introduction to your writing expectations for students.

Print out the sample essays or upload them to your LMS (whatever method works best for you). As a class, ask students to identify which essay is poor, good, and excellent. Require them to offer support for their stance. Then, share annotations that have not already been stated during the discussion. Next, explain to students that at a later point, you will allow them to use ChatGPT to improve their writing according to the academic level requirement for your course. You can encourage them to offer multiple attempts to ChatGPT to see which sound

poor, good, or excellent. You can also simply have them use ChatGPT for guidance on how they can improve their prose in general by asking a pointed question.

Sample ChatGPT prompts:

1. “Create a poorly written essay on why poor eating habits are detrimental to your health.” / “Now a good one” / “Now an excellent one.”
2. “Read my essay and help me improve it.” / “What else will improve it?”
3. “How can I improve my prose?”

44

Writing: Holistic Editing

Teach students to edit using a well-rounded approach with the help of ChatGPT.

Editing in the world of academia usually involves students who do not generally care to fully invest themselves in ensuring the work they are reviewing is given the best possible review. They simply desire to meet the minimal requirement and be finished with the task. As educators, it would behoove us to offer students a better and more inviting way to edit work.

Rather than spot-editing, instruct your students to generate specific prompts that ask ChatGPT to check for specific elements, but all elements must be checked in order to edit using a holistic approach.

Sample ChatGPT prompts:

1. "Proofread my writing and check it for grammatical errors."
2. "Rephrase my sentences to refine the tone and style."
3. "Check my work for consistency."
4. "Please offer suggestions for how I can improve the flow and structure of my work."
5. "Vary the syntax of my sentences." / "Offer synonyms and alternative word choices."

6. “Identify sentences in my writing that are unclear and difficult to understand.”
7. “Help me create a catchy title and an engaging introduction.”
8. “Check my paper for originality and help me with my APA citations.”
9. “Help me brainstorm ideas for character development, plot twists, and story arcs.”

45

Generate: Elaboration

Instruct students to elaborate on their work by asking ChatGPT to use a step-by-step process, offer pros and cons, or compare and contrast.

Using ChatGPT to generate general responses is common, but students can receive an added benefit by allowing ChatGPT to elaborate on a wide range of topics. Teach students how to incrementally adjust the temperature of ChatGPT, use max tokens, and finally review and refine on their own using their own brains. Different approaches can be used for this elaboration. Students can ask ChatGPT to expound on topics by offering a step-by-step approach, expand on an idea or decision by offering pros and cons for that decision, and help them organize by using compare and contrast scenarios.

Start by offering students a list of topics—that you previously generated using ChatGPT—and instruct them to choose one topic. Tell them to ask ChatGPT to elaborate on that topic. Then teach them to adjust the temperature of ChatGPT with a lower temperature being more focused elaboration and higher temperatures demonstrating more creative elaboration. Next, demonstrate how students can shorten and lengthen the response output of ChatGPT through max tokens. Instruct them to enter the same response after each adjustment. They will likely be pleasantly surprised by the varied outputs. Finally,

instruct students to review and refine the work on their own to their satisfaction and liking.

Sample ChatGPT prompts:

1. “Please elaborate on the causes for macular degeneration.”/ “Elaborate again.” / Elaborate again.”
2. “Expand on the idea of offering free health care in the United States by offering pros and cons.” / “What are the pros and cons of offering free health care in the U.S.” / “Expand more.”
3. “Which is better, organizing my closet by color-coding or grouping my clothes by type? Use compare and contrast to answer.” / “Offer a different scenario via compare/contrast.”

46

Generate: Role Play

Ask students to create personas and then engage in interview-based conversations that simulate real-world scenarios.

Role-playing activities can create a more interactive learning experience by providing students with the ability to "converse" with their course content. With ChatGPT's ability to gather information from various sources, it can create realistic role-playing personas based on all sorts of user prompts, including occupations, communication styles, belief systems, expertise, motivations, and even empathy.

When students are asked to generate conversations based on a specific topic, they're required to evaluate the information ChatGPT needs to successfully respond. This requires them to apply content and contextualize it for a specific time period, purpose, and audience. For example, conversations about unidentified aerial phenomena (UAPs) sightings are occurring all over the world. But how scientists, Congress members, intelligence officials, conspiracy theorists, and UFO bloggers discuss UAPs varies greatly. Asking students to determine a topic of conversation and its purpose and audience—while also creating a persona of "who" is communicating and why they're qualified to do so—provides students with the opportunity to practice scenarios they may experience in their fields.

Sample ChatGPT Prompts:

1. “Engage in an ongoing interview with me. You are a social worker, and I am an elderly man who lives independently. My doctor has asked you to conduct a biopsychosocial assessment to evaluate my safety living alone.”
2. “I am a civil engineer who is proposing a cable-stayed bridge to span over the river. You are a city planner who needs to approve this project. Applying the principles of structural, geotechnical, and transport engineering—and considering the environmental, economic, and social impacts—justify my design decision.”
3. “Assume the persona of Simone de Beauvoir, embodying her beliefs and experiences, and engage in a conversation with me, a student in 2023, regarding the role of feminism today.”

47

Generate: Business Ideas

Empower students to brainstorm new business ideas for products or services related to their areas of interest.

According to various surveys, up to 75 percent of Gen Z'ers claim they ultimately want to become entrepreneurs. As digital natives who grew up influenced by the internet and social media, they've seen success stories of young entrepreneurs and they value flexibility and autonomy. Two-thirds of this generation are also committed to social change and claim a desire to find—or create—jobs that will positively impact the world.

When students are able to visualize how they'll apply the content they're learning, they're more engaged. By empowering them to combine their creativity and personal interests with course content, they'll invest more fully in the material and connect what they're learning to potential business opportunities.

Begin by discussing problems, challenges, and opportunities that exist within the discipline. Ask students to select a topic, combine it in ChatGPT with a list of their own skills and interests, and prompt it to brainstorm ideas for products or services that fulfill a need while maximizing the student's

attributes. Students can evaluate those ideas, add to them, determine target audiences, and create final projects that turn ideas into business plans.

Sample ChatGPT prompts:

1. "I'm a student in nonprofit management with graphic design skills who wants to start a business that would serve those with the greatest need in my community. What are some pressing social issues in [location]? Which products or services would assist those most affected by those issues?"
2. "A group of nurses plan to offer health coaching with assessment, goal setting, nutrition counseling, stress management, fitness training, and chronic disease management. Brainstorm a list of 10 possible business names."
3. "Generate a list of platformer game ideas targeted to middle school students. Include animal characters with superhero skills, a fantasy setting, and a theme of diversity and inclusion."

48

Generate: Slogans

Encourage students to further their entrepreneurship goals by using ChatGPT to brainstorm ideas for slogans, mottos, and other catchphrases that build brands.

While only some might remember the origin of Nike's *Just Do It* slogan that began in 1988, almost everyone is now familiar with the widely successful phrase which has become a cultural icon and a source of motivation. Creating a slogan that truly communicates the heart of a brand—while being creative and memorable—is no easy task, but essential for marketing a successful business.

Whether you're teaching a capstone course or tying industry goals into your content, asking students to use ChatGPT to build on their entrepreneurship goals by generating key branding elements can help them crystallize their mission statements and more clearly visualize their proposed product or service. Instruct students to create prompts that include specifics about their proposed businesses and couple it with market research on the community, population, and industry to assist ChatGPT in generating ideas. Students can evaluate ideas; test them in class, discussion posts, or small "focus" groups; and refine them accordingly.

Some students may wish to extend this assignment beyond slogans and experiment with using text-to-image AI tools to create graphic materials. By assigning this step, you'll encourage students to familiarize themselves with a variety of these types of programs, including Dall-E, Fotor, Jasper Art, Midjourney, Nightcafe, and Photosonic. Many of them are free or have free trials.

Sample ChatGPT Prompts:

1. "Using a hip-hop style, generate a slogan for a Study Buddy app that matches students based on their learning styles, goals, and habits."
2. "Create personas of 5 different kinds of customers for your proposed product or service and put them together as a focus group. Test a series of brand-related materials that you generated and ask for individualized analysis based on customer demographics and other factors."

49

Generate: Poetry as Application

Show students how to apply key concepts by generating content-related poems.

Language arts educators have long used poetry to build literacy skills in children. With its musicality, phonemic awareness, and sense of play, young readers engage in a poem's narrative and grow their vocabulary while improving their reading fluency. But many educators also incorporate poetry into other subjects to encourage creativity, enhance contextual analysis, and boost critical thinking skills.

Many STEM subjects, for example, explain the natural phenomena of the physical world by using abstract, complex concepts. Instructors often begin teaching these concepts by relating them to metaphors, a key poetic device, that takes a word, phrase, or concept and applies it to an object or action in a way that isn't literally true. One familiar, broad metaphor is "the greenhouse effect" which describes how the Earth's atmosphere traps heat in the same way glass panes in a greenhouse do.

Asking students to apply poetic devices to concepts they're learning can clarify content and enhance engagement. ChatGPT can be used to create metaphors, provide prompts for poems, generate poems that seek to distill complex ideas or theories, and evaluate students' poems for accuracy.

Sample ChatGPT prompts:

1. “Using the voice of Albert Einstein, write a poem that employs metaphor and sound devices to describe quantum mechanics. Communicate how he once felt and how he might feel today, if he returned to Earth.”
2. “Consider the poem ‘Triple Moments of Light and Industry’ by Brenda Hillman that depicts the oil refineries in California. Summarize her argument and generate a list of all the scientific hypotheses, theories, and laws her poem alludes to.”
3. “Using iambic pentameter, write a persona poem in which the speaker is the concept of Prescriptivism who is making an argument against the personification of Naturalism.”

50

Generate: Social Media Posts

Instruct students to generate audience-specific social media posts.

According to the Pew Research Center, approximately seven out of 10 Americans use social media. While young people may have started this trend, adults of all ages are now connected through a variety of sites… and advertisers are well aware of resulting marketing opportunities. In a study conducted in 2023 by Forbes, 77 percent of small businesses—and 97 percent of Fortune 500 companies—market with social media.

Advertisers aren't the only ones tapping into these mediums. Government agencies and nonprofit organizations also use social media to inform users. When tragedies occur, more than half of us learn about it first from a social media post.

Instructing students how to evaluate and communicate through social media can teach them how to better understand concepts while making that content relevant to specific audiences, in their field and outside of it. ChatGPT takes content and uses it to generate targeted social media posts that match the tone and style of various platforms. Students can evaluate stylistic differences and analyze how content is shaped and its effectiveness. When students engage in this process, they learn how course content is relevant to everyday life and the importance of shaping it for various audiences.

Sample ChatGPT prompts:

1. “Using a paleoanthropology lens while making it culturally relevant to this time period, write a series of social media posts for this content: [insert]. Write a post for Facebook, LinkedIn, Instagram, Twitter, TikTok, and YouTube.”
2. “Make a list of subjects I could post about on social media if I wanted people to be more aware of somatic science in dance and how it’s relevant to everyday life.”
3. “Actuarial science could help governments use data to better address challenges, like climate change, healthcare, and agriculture. Write 10 clickbait headlines to motivate constituents to contact their elected officials.”

51

Generate: Creative Writing as Application

Combine creative writing activities with AI tools to bring students' ideas to life.

Since the conception of language, people have used the art of storytelling for educational purposes. Stories activate the sensory, emotional, and cognitive regions of our brains and create stronger associations and connections with the content. Today, numerous pedagogical studies show this practice engages learners, invites curiosity, and makes content more relevant, memorable, retrievable, and transferable.

Subjects and courses in the arts and humanities discipline, like history and literature, may be natural fits for creative writing activities, but any type of course can use storytelling to engage and teach students. When students are asked to create their own stories related to course content, engagement and retention improve even more.

There's no limit to the ways you can incorporate creative writing activities into your course… and you may find it's beneficial to establish objectives and parameters and then require students to come up with their own ideas. A biomedical student may decide to reimagine Mary Shelley's *Frankenstein* using today's knowledge of genetic engineering. A health

professions student may write a journal from the point of view of a person suffering from chronic illness. Virtually any discipline could ask students to create characters in a specific setting and time, build in backstory and a conflict, and engage the characters in a scene where it's critical that one of the characters understands the concept or theory the other is attempting to explain.

AI tools can assist students in brainstorming or transforming their story ideas into more compelling forms. Jasper is an AI writing tool that helps write long-form content and has over 50 storytelling tools, including a plot generator, character builder, and scene creator. Students can also input their written dialogue into ChatGPT and ask it to evaluate it through a series of lenses (i.e., accuracy, entertainment value) and provide ideas for more scenes or conflicts. Additionally, there are many AI programs that generate images, allowing students to add visual elements to their creative writing.

Sample ChatGPT prompts:

1. "Create a contemporary scene where Edward Jenner, the inventor of the first vaccine (1796), returns to Earth and attempts to explain how vaccines work to Andrew Tate, a social influencer and anti-vaxxer. Generate dialogue that incorporates the individual style and tone of both Jenner and Tate."
2. "Tom Hanks and Deadpool are running for Mayor and campaigning on how they'll reduce violent crimes. Using a fast rap style, write a campaign speech for both."
3. "Write a film treatment for a comedy about a nutritionist who is hired by a famous Hollywood star to help him get fit for his next role."

52

Generate: Software Coding

Provide students with the opportunity to transform concepts and ideas into products and solutions by using AI tools to generate software codes.

People write software codes to create websites, apps, games, and other programs that solve problems, automate tasks, manage data, increase productivity, and entertain. When students are instructed to turn course concepts into applicable, real-world solutions using software coding, they engage more fully with the content and see firsthand how their knowledge, ideas, and creativity can positively impact themselves and others.

Traditionally, software coding was left to the engineers who spent years studying its various programming languages, tools, algorithms, and methodologies. Today, AI programs offer advanced coding assistance, allowing students without programming experience to experiment and engage in the process.

Students can begin by clearly defining their app idea, its main features, and how it solves a problem or otherwise benefits users. They then choose a beginner-friendly programming language like JavaScript and Python and ask ChatGPT to lead them through the process. The free version of ChatGPT can

answer questions, explain concepts, brainstorm solutions, translate different coding languages, and generate snippets of coding that students can use to test their ideas on a smaller scale. (The upgraded Plus version, GPT-4, can offer much more advanced assistance in coding, if students want to continue to pursue their project.)

Sample ChatGPT Prompts:

1. "Using this dataset, generate a software code that allows me to analyze the relationship between income and health in the United States." [Paste text below].
2. "Show me how to write a software code for an app that allows me to combine my digital art into a 3D collage."

53

Study: Summarize Long Articles

Encourage students to use ChatGPT to absorb complex readings more fully.

As educators, we often worry that students will use AI tools unethically, but ChatGPT also provides students with tools that help them excel while doing their own work. One way is by its ability to absorb large amounts of text, distill it into easily comprehended language, and summarize its key points.

None of the ChatGPT versions have the ability to access or browse external web content and are only "trained" on information prior to 2021, but all versions will allow you to cut and paste text into its "message" and request a summary of key points. Currently, ChatGPT has a word limit of around 3,000 words while the paid version, GPT-4, has approximately a 6,000-word limit. Bing Chat—another AI tool that's free for personal use for Microsoft users—is integrated with other applications and can search the internet with its engine. This allows students to provide Bing Chat with a URL and direct it to "read" and summarize the materials there. For PDFs that aren't online, students can upload them to a Google Drive to generate a usable URL.

When prompting an AI tool to summarize, students can ask it to lower its readability level, translate concepts into layperson's terms, or change the intended audience. They can also ask for

summaries with different word counts and compare differences. If you assign this task, you may ask students to evaluate the AI-generated summaries based on their interpretation of the article's key points.

Sample ChatGPT Prompts:

1. "Summarize this article as if you oppose its solutions. Create 10 tweets with hashtags that include content while making an argument."
2. "Summarize the article, 'Scientists propose a method that imparts elastic recovery to ferroelectric materials' into 20 bullet points. Write 10 bullets as if the reader is a middle schooler and 10 bullets as if I'm a leader in this industry."
3. "Summarize this text as if it were a fairytale."
4. "Summarize the causes and effects of climate change in a table with two columns and 10 rows."
5. "Annotate this article using APA formatting."

54

Study: Create Study Plans

Demonstrate how ChatGPT can help students create study plans that include key course content.

Numerous studies have shown that many students don't study nearly as much as they should to fully learn a course's content. While college instructors typically recommend 25 hours a week of study time, most students put in less than half of that time.

One way to encourage students to study more is to demonstrate how to use AI tools to create study plans. ChatGPT has the ability to summarize text, create outlines of terms and concepts, and present information in other formats to meet students' individual learning needs.

For example, a student studying an e-chapter on foundations of early literacy, may cut and paste the material into ChatGPT and ask it to create an outline of key points and real-life examples for each key point.

Another student who's struggling to retain topics or concepts can ask ChatGPT to generate mnemonics, acronyms, rhymes, stories, jokes, images, and analogies using different themes, such as animals, colors, foods, TV shows, music, books, celebrities, etc. to make the information more memorable.

Sample ChatGPT Prompts:

1. “Using ‘Friends’ references, create a mnemonic to explain Newton’s Second Law of Motion.”
2. “Write three jokes that will help me remember the Henderson-Hasselbalch Equation.”
3. “Summarize all of the key components of this chapter in the form of a rap song.”

55

Study: Question Creation

Encourage students to use AI tools to generate questions for self-quizzing on course context.

Many students have grown up using Quizlet and similar apps that host a large collection of flashcards and other study tools created by students and educators. Students search that site for study materials that have been uploaded by others.

ChatGPT can generate all types of quiz questions on any topic, even if there are no existing materials, and it allows students to customize the difficulty and style of the quiz questions. Students can ask ChatGPT to create questions in a variety of forms, including true/false, multiple choice, fill-in-the-blank, short answers, and even multiple-step, real- and abstract-word problems.

When students respond to ChatGPT questions, the program can also provide instant feedback. Students can then ask follow-up questions on the content and receive suggestions for further reading.

Sample ChatGPT Prompts:

1. “Generate a 10-question quiz on this content. Include all types of question formats, limit my time on the quiz, and withhold the answers until I respond. Then, evaluate my responses and offer suggestions for further reading on questions I missed.”
2. “Generate a 10-point probability and statistics question involving binomial distribution and standard deviation.”
3. “Create a matching question that tests the stages of cognitive development based on Jean Piaget.”

56

Study: Multiple-Choice Question Generation

Communicate the effectiveness of using ChatGPT to generate multiple-choice questions for self-quizzes.

One of the most commonly used assessment tools is the multiple-choice question. While they can be time-consuming to create—especially when we're focused on generating plausible "wrong" answers—and are often limited to testing material found on the lower levels of Bloom's Taxonomy, they're frequently used for their ease of grading and ability to test large amounts of content.

ChatGPT can assist students in generating all sorts of multiple-choice questions that allow them to consider content in a variety of ways. For more effective study tools, students may find asking ChatGPT to provide more choices—up to six or eight options—will better prepare them for assessments by reducing their ability to determine the correct answer by using elimination techniques. Having more choices can also encourage students to think more critically.

For students who want to create a pretest, ChatGPT and other tools can create quizzes that withhold answers until the

completion of the quiz and then provide feedback for missed questions. Students can also prompt ChatGPT to create a multitude of tests, varying the level of difficulty each time.

Sample ChatGPT prompts:

1. "Create an interactive quiz about the Central Limit Theorem for a second-year college student with 5 questions. Start the quiz." After the quiz, students can follow up with this prompt: "Explain the content on questions I answered incorrectly."
2. "Generate a series of multiple-choice questions that address influences and contexts of postmodern literature. Provide 8 possible responses to each question. Withhold answers until I respond."

57

Study: Find Elusive Terms

Demonstrate how ChatGPT can help students find those terms they once knew, but temporarily forgot.

All of us have experienced that moment of frustration when a word, name, or term is just on the edge of our memory, but we can't quite retrieve it. This phenomenon is termed "tip-of-the-tongue (TOT)" (or lethologica) and it defines that state when we're able to recall some features of the term—like the first letter, the number of syllables, or a similar sound, word, or meaning—but the rest of it remains elusive.

One of the first studies that looked at the TOT phenomenon was conducted in 1966 by Roger Brown and David McNeill who found this phenomenon occurred about once in every 50 questions and often the elusive term was one that was foreign, long, or used infrequently.

Compared to most search engines, ChatGPT is a much more effective tool for helping with this kind of recall and provides a much more thorough response. By demonstrating to students how to input an explanation for the term or concept they're attempting to retrieve, you'll show them how to lessen that frustration and find answers quickly.

Sample ChatGPT Prompts:

1. “Evolution is not a smooth curve. When graphed, the curve takes turns plateauing and accelerating. What’s this called?”
2. “What is the term for relapsing into criminal behavior?”
3. “What’s the fancy term for throwing someone out a window?”

58

Study: Personal Teaching Assistant

Show students techniques they can use to double-check course content with ChatGPT.

One of ChatGPT's exceptional abilities is its ability to provide explanations and definitions in a variety of ways. It shines at this task like few others and provides vastly more useful results than search engines.

Students can also request how they'd like to receive the content. Depending on how they learn best, students can ask for charts and graphs, images, parallax and 3D effects, audio recordings or videos, text summaries in bullet forms, games or simulations, and a variety of other modes.

Another ChatGPT feature that students may benefit from is its ability to tailor content to accommodate different styles and reading levels. Often, when learning an advanced concept, it's helpful to receive a series of descriptions that begin with simplified explanations and progress in complexity.

Sample ChatGPT prompts:

1. “What is the function of classes in object-oriented programming? Please provide a text-based explanation and a parallax of the concept.”
2. “Define ‘economic equilibrium’ using a simile or metaphor. Write one for each of these reading levels: first grade, middle school, and college level.”

59

Study: Flashcard Generation

Communicate the effectiveness of creating customized flashcards with ChatGPT.

Flashcards are a popular and effective way of studying because they promote active recall and help students move a concept or definition from short-term to long-term memory. In one study, researchers found that almost 70 percent of college students in a psychology course used flashcards to study for exams. Students who used flashcards for all of their exams scored significantly higher than those who didn't (Golding, Wasarhaly, & Fletcher, 2012).

ChatGPT can also assist students in creating flashcards by taking the course content and using it to generate distilled explanations, definitions, examples, and illustrations of key concepts. Students can also use AI tools to turn content into a question-and-answer format and create interactive quizzes. For students whose second language is English, ChatGPT can also translate content into a student's native language, often resulting in improved retention.

Some AI tools, like Bing Chat, can also take images (graphs, diagrams, illustrations, etc.) and translate the content into text, allowing students to better understand concepts described visually. And most AI tools can provide real-world applications to content which also boosts learning and retention.

Sample ChatGPT prompts:

1. “Using this content, provide step-by-step instructions for creating an interactive quiz that utilizes flashcards.”
2. “Create visual flashcards for college-level, introduction to biology course that is reviewing the structure and function of cells.”
3. “Apply the theory of plate tectonics to real-world scenarios in a series of 5 flashcards.”

60

Study: Time Management

Help students boost productivity with time management tools.

Numerous studies have shown that many college students suffer from poor time management skills, resulting in lower grades and an increased risk of dropping out. Even those who manage to complete tasks after procrastinating experience higher levels of stress and reduced sleep… two other factors that contribute to poor student performance.

ChatGPT and other AI tools can become a student's lifestyle coach by creating schedules and other tools that help students balance their academic, personal, and work lives. One way to start is by encouraging students to ask ChatGPT to create a quiz that assesses their time management skills. This first step is often a wake-up call to students who aren't always aware of how much they're juggling or that they lack these skills.

Once students determine their individual needs, ChatGPT can create schedules that prioritize and organize their tasks, block out time for those activities, set reminders, and help students manage social media and other distractions. ChatGPT can also provide students with strategies like the Pomodoro technique which helps overcome procrastination.

Sample ChatGPT prompts:

1. “Create a weekly schedule that helps me manage my class, study, work, and social time. I have [number] of classes a week, each lasting [number] of hours. I want to study for [number] of hours per class. I work [number] of hours a week and would like [number] of hours a week for fun or free time.”
2. “Generate SMART goals for improving my writing skills this semester. Then break down goals into action steps and provide methods on how to track my performance and results.”
3. “I’m struggling to meet the goals I set in my time management plan. Can you assess my productivity and brainstorm solutions?”

61

Study: Career Paths

Assist students in setting and reaching career goals with ChatGPT tools that streamline the process.

It's no secret that many college students are fearful of the future and experience a great deal of anxiety when selecting a major or career path. These fears—often coupled with accumulating student debt—can create additional stress and frustration.

ChatGPT can offer self-assessment exercises that identify strengths and interests and match those findings with a multitude of career paths. It can also research industries and their future outlooks, provide information on the job market globally and in specific locations, and share details on job responsibilities, growth opportunities, and salaries.

When students have determined a career path, ChatGPT can provide information on what students need to do to secure those jobs, including details on degree programs, certifications, and specialized training. It can also offer tips on finding jobs from networking ideas to interview questions. Finally, ChatGPT can offer suggestions and provide examples of successful resumes and other application materials.

Sample ChatGPT prompts:

1. “Describe a typical day in the life of someone working in a [name] career. Include a daily routine, interactions, and typical tasks.”
2. “Research the work environments typically associated with a [name] career. Are there opportunities to work in nonprofit organizations, corporate, or private organizations? If so, what are the cultural aspects of each sector? What types of personalities fit best in each?”
3. Using Bing Chat, which has browsing capabilities, prompt it to: “Generate a list of professional development opportunities for this [name] career and include events that are near [location]. Are there opportunities to connect with mentors there? If so, include the application process.”

AI Glossary

Adobe Firefly – an image-generating AI created by Adobe Sensei; trained only on licensed images and public domain content

Bard – a text-generating AI created by Google using LaMDA technology; interacts with the web

Bing Chat – a text-generating AI created by Microsoft based on the GPT-4 model; interacts with the web

BlenderBot – a text-generating AI created by Meta; the latest version (BlenderBot 3.0) interacts with the web

Canva – a "freemium" online image-creating/editing tool that added AI-image generation to its paid subscription package in 2023

ChatGPT – a text-generating AI chatbot created by OpenAI; does not interact with the web

Claude – a text-generating AI created by Anthropic (ex-employees of OpenAI); interacts with the web

CoPilot – an AI embedded in Microsoft Office products; can generate codes

DALL·E – an image-generating AI created by OpenAI; incorporated within Bing Chat

ErnieBot – a text-generating AI (in Mandarin) from Chinese search engine Baidu

Falcon AI – a text-generating AI created by UAE's Technology Innovation Institute; transparent, open source, trained on RefinedWeb, a custom-made dataset

LaMDA (Language Model for Dialogue Applications) – a LLM trained specifically on dialogue, such as Google's Bard

LLM (Large Language Model) – a type of software / AI that accesses large databases it's been trained on to predict the next logical word in a sentence, given the task/question it's been given. Advanced models have excellent "perplexity" (plausibility in the word choice) and "burstiness" (variation of the sentences).

Jasper – a for-pay text-generating AI aimed at businesses and blog posts

Midjourney – an image-generating AI; interacts with Discord

NightCafe – a free image-generating AI; uses Stable Diffusion algorithms to produce low-resolution images

OpenAI – the company that created ChatGPT and DALL-E

Stable Diffusion – an image-generating AI created by the startup Stability AI

Sydney – the name of the AI that supports Microsoft's Bing search engine

xAI – the ChatGPT competitor launched by Elon Musk

About the Authors

Kevin Yee earned his Ph.D. in German Literature from UC Irvine, and enjoyed teaching for several years as a full-time faculty member at the University of Iowa and Duke University before changing his focus to educational development when joining the University of Central Florida in 2004. He is now the director of UCF's Faculty Center for Teaching and Learning (https://fctl.ucf.edu).

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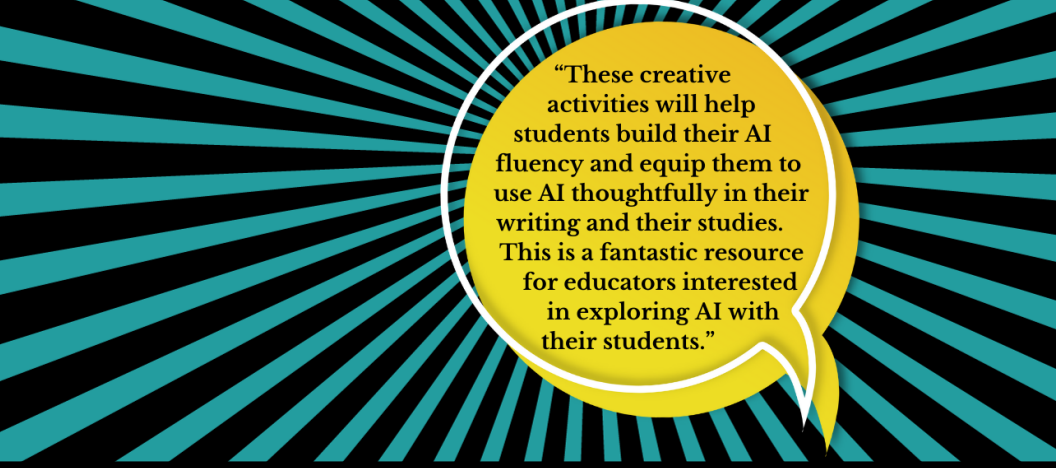
Laurie Uttich, a poet and prose writer, is a Senior Lecturer at the University of Central Florida where she's taught composition and creative writing for 15 years. She is now an Instructional Specialist at UCF's Faculty Center for Teaching and Learning and recently used Bing Chat to come up with names for her son's dog (result: Basho).



Derek Bruff

author of *Intentional Tech: Principles to Guide the Use of Educational Technology in College Teaching* (West Virginia University Press, 2019) and *Teaching with Classroom Response Systems: Creating Active Learning Environments* (Jossey-Bass, 2009)

60+ IDEAS FOR CHATGPT ASSIGNMENTS

AI has powered our phones, our cars, our news, and countless other aspects of our lives for years now. Still, the emergence of ChatGPT feels, to many of us in education, as the most dramatic disruption we've experienced yet. How do we harness the power of AI? And how do we teach our students to do the same?

In this book, four educators with decades of teaching experience provide concrete, applicable ideas of integrating ChatGPT and other AI tools into your curriculum. Whether you teach literature or physics or anything in between, this collection of tips and assignments will provide you with practical ideas you can use in your course today.

"With a fast changing landscape, writing a book about ChatGPT is like making a topographical map of shifting sand dunes in a desert. Luckily, Kevin Yee and colleagues have taken the challenge and wrote this valuable book. With 61 short chapters, it's designed to be a quick read with essential information for using ChatGPT to help your students become better learners. The best part is that the book isn't designed to be read from beginning to end. Skim through to identify what's most helpful to you straight away. In no time, you'll be shown specifically how to help your students enhance their AI fluency."

Todd Zakrajšek

author of *The New Science of Learning: Third Edition* (Routledge, 2022)

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