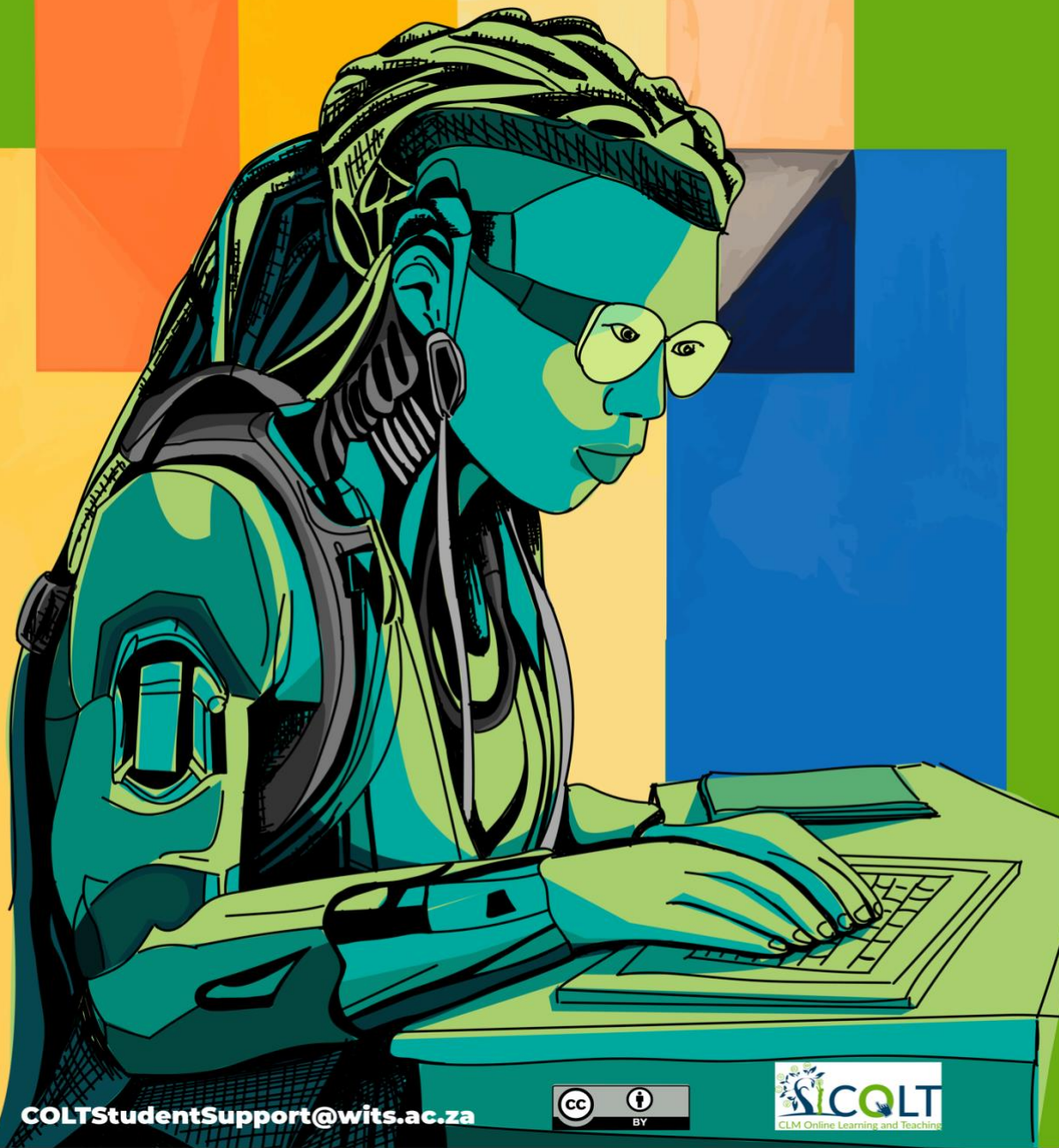


Guidelines for Effective Prompting with Generative AI Tools (Draft)

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CLM Faculty: Draft Guidelines for Effective Prompting with Generative AI Tools

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Introduction

The aim of this faculty guideline document is to discuss how to elicit relevant responses from Generative Artificial Intelligence (GAI) tools such as ChatGPT, Gemini, Copilot or Claude. It considers multiple possible strategies that can be adopted when using these tools to assist with learning, teaching, or research tasks. This guideline document should be read in conjunction with the companion guidelines:

- [CLM Staff Guidelines for Learning and Teaching with Generative AI Tools](#)
- [CLM Staff Guidelines for Generative AI Tools with Assessment](#)
- [CLM Researcher Guidelines for the Ethical Use of Generative AI Tools for Research](#)
- [CLM Student Guidelines for Generative AI Tools in Higher Education](#)

Prompting involves crafting effective strategies to engage with GAI tools. Clearer instructions result in more accurate outputs. Ambiguous prompts are more likely to produce inaccurate outputs. This guide summarises productive prompting strategies and emerging practices.

1. Prompting and GAI Tools

The natural language style of GAI tools invites us to “think about a prompt as a conversation” (White, 2023; Cathey, 2023). However, these are **not** human conversations, even though they mimic human interactions. GAI tools use Large Language Models (LLMs) that are responding to your inputs by trying to predict a next likely word (see Webb, 2024). By carefully crafting prompts you can better direct what is generated so it becomes more useful.

The growing number of GAI tools (for example, [ChatGPT](#), [Gemini](#), [Copilot](#), [Claude](#)) have some differences in how they operate and the data on which they were trained. One distinguisher is the amount of prompt information they permit; some allow you to upload documents or images to assist with tasks. The paid versions offer more features than the free versions. Trying more than one platform is useful to get a sense of their capabilities and limitations. However, these tools evolve quickly so it is useful to keep up to date the latest developments.

Whichever platform you select, the prompting strategies will be similar. We have included a shorthand guide approach below, followed by a longer explanation of specific prompt patterns you can adopt.

When creating prompts, you can use the acronym **CREATE**, as a shorthand approach to writing prompts: Clarity, Relevant information, Examples, Avoid Ambiguity, Tinker, Evaluate (Barrett, 2023):

Clarity	Clearly define the task or intent of the prompt, including specific information about the output.
Relevant information	Provide relevant details, including context, specific keywords and facts, the tone, audience, format, and structure.
Examples	Use examples in the prompt to provide context and direction for the output.
Avoid ambiguity	Focus on the key information and remove unnecessary details in the prompt.
Tinker	Test and refine the prompt through multiple iterations. Explore different input versions to discover the best results. Try similar prompts on different platforms.
Evaluate	Continuously evaluate the output and adjust the prompt as needed to improve the quality.

2. Useful Prompt Pattern Strategies

Giving greater context is more likely to generate the results you anticipate. It is important to remember that GAI tools are not traditional search engines so will not respond in similar ways to “googling” strategies. You may have to engage in several rounds of prompting to elicit the expected output. More focused outputs can be generated using structured ‘prompts’ that will elicit a more specific response from the GAI tools.

Prompt engineering is an emerging discipline which refers to the development of prompts to efficiently use GAI tools for a wide variety of applications. Anyone can draw on these ideas to improve the phrasing of queries to generate outputs. There are emerging frameworks for prompt engineering, but for this guide we use the term “prompting” to refer to the crafting of an appropriate query structure. We offer an introduction to some pattern-based strategies for GAI tools (White et al., 2023; Corral, 2023; Alattas, 2023; Ismiguzel, 2023). Each of the strategies is briefly explained. You can enter the prompt examples into any GAI tool and see the output that is generated.

The strategies are grouped into three prompting pattern types:

1. Patterns based on inputs and outputs (including role playing and audience).
2. Patterns based on refining and interrogating the questions (including question refinement, cognitive verification and flipped interaction).
3. Patterns based on specifying a template.

1. Inputs and Outputs Patterns

These are prompts that specify what kind of input the model should expect and what kind of output it should generate. For example, the **role-playing or persona pattern** requires you to ask the GAI tool to **assume the role of an expert, or a specified character**. The **audience pattern** defines **exactly for whom the output is intended**. You can combine both patterns within a prompt or a series of prompts.

1.1 Role-playing Pattern

This type of prompt instructs the GAI tool to respond from the perspective of a specific persona or role. This may range from assuming the appropriate tone to having the GAI tool take on a coaching or tutoring role for you. In specifying a role, you can also formulate your expectation of the output. Before prompting, you may want to also provide examples of your writing style, or the output style you want. This pattern is best for: **delivering more tailored and accurate outputs with the correct tone**. Remember that the more specific, contextualised information you provide, the more tailored results you will receive.

Tip: The role does not have to be human; you can ask the GAI to pretend to be an inanimate object like a database or a Linux machine.

Suggested prompt format:

- *Act as persona X*
- *Provide information about topic Y.*

Nyakundi (2023) suggests using the 5 Ws framework in formulating role-based prompts.

- **Who** – specify the role you need the GAI tool to assume.
- **What** – indicate the action you require the GAI tool to perform.
- **When** – specify the timeframe in which the GAI tool must complete its task.
- **Where** – specify the location or context of your prompt.
- **Why** – articulate the motivation, reasoning, or goals governing the prompts.

Role-playing pattern examples:

Example 1: *Your role as a coding tutor is to create personalised study plans to help first year university students learn how to code in the Python language. Your responsibilities will include understanding the goals, time commitment, and preferred learning resources of each student, and using that information to develop a comprehensive study plan with clear timelines and links to relevant resources. You should be able to adapt your tutoring style to meet the individual needs of each student and provide ongoing support and guidance throughout the learning process. Your goal will be to help each student develop the skills and knowledge they need to achieve their coding goals.*

Example 2: *Act as a 3D modelling teacher who uses Blender 3D. A student is struggling to conceptualize procedural nodes-based 3D modelling. Provide a metaphor for understanding the concept of nodes-based 3D modelling and help the student understand when to use traditional modelling and when to use procedural modelling. Include some points on getting started with some simple nodes as a way of getting started successfully.*

Example in context: The following role-playing pattern prompt “You are an object-oriented programming lecturer. Introduce students to Python programming language was entered into three GAI tools and the following outcomes were noted:

- **Gemini:** provided a generic overview of Python, describing the basic syntax used in coding and provides an example of a simple prompt to generate a piece of code.
- **Copilot:** provided an overview that went into a little more depth, but which was very similar to the one produced by Gemini.
- **ChatGPT’s** output is very similar to the bots above. However, it addressed the students in the way in which a lecturer would, which was not as obvious in the response of the other bots.
- Note: Gemini cautions the user regarding the generated code. All three tools followed the prompt without issue, but you would need to decide on the preferred output style and refine the interaction accordingly. The outputs can and should be edited with further prompts.

1.2 Audience Pattern

The audience pattern moves the focus of the output to who is reading the outputs. When formulating this type of prompt, you should request information from the GAI tool for a specific audience (Corrall, 2023, White et al., 2023). This pattern is best for tasks such as **summarising, translating, paraphrasing, or captioning.**

Suggested prompt format:

- *Explain X to me.*
- *Assume that I am persona Y.*

Audience pattern examples:

Example 1: *Please help me write helpful information for university researchers. The writing style should be similar. I want you to understand this writing style so I will provide some examples. Remember my writing style as being PATTERN_STYLE. Afterwards when I ask you to write using PATTERN_STYLE, then use this style of writing. (afterwards provide example paragraphs)*

Example 2: *Explain information retrieval to me summarised in a set of bullet points. Assume I am a university economics lecturer.*

2. Refining and Interrogating Questions Patterns

Another approach is to focus on refining and interrogating the questions you give the GAI tool and make use of the GAI’s capacity to enhance your prompts. These patterns are best

for **approaching complex tasks or ambiguous queries, providing explanations or justifications, or checking facts or logic.**

2.1 Question Refinement Pattern

This type of prompt enables you to utilise the GAI tool’s capabilities to help in framing a question to arrive at an accurate answer (White et al., 2023) by suggesting a better version of the question to use instead.

Suggested prompt format:

- *When I ask a question, suggest a better version of the question to use instead.*
- *Optional: Ask me if I would like to use the better version instead.*

Question refinement pattern example:

Example 1: *From now on, whenever I ask a question, suggest a better question, and ask me if I would like to use it instead.*

Example 2: *Whenever I ask a question about studying accountancy, suggest a better question which emphasises the career prospects. Ask me for the first question to refine and ask me if I would like to use the suggested question instead.*

2.2 Cognitive Verification Pattern

This prompt pattern involves you providing the GAI tool with rules on how to respond to secure a comprehensive answer. It involves subdividing the initial question into smaller ones that may aid in informing the response. The aim is to improve the accuracy of the GAI tool’s response to the main question by forcing it to incorporate potentially omitted pieces of information.

Suggested prompt format (White et al., 2023):

- Step 1: Start by specifying “when you are asked a question, follow these rules”.
- Step 2: Ask the GAI tool to generate sub-questions that would help answer the question more accurately. The aim is to generate questions in response to the first question with the aim of using that additional input to answer the question more accurately. You can also specify how many sub-questions the GAI tool should ask and provide additional question refinement in the form of context.
- Step 3: Instruct the GAI tool to combine your answers to the sub-questions it provides to generate the final answer to the main (overall) question. Once the GAI tool acknowledges your instructions, ask your question.

Cognitive verification pattern example (adapted from White et al., 2023, p. 5):

When I ask a question, follow these rules. Generate a few additional questions that would help you answer the question more accurately. Combine the answers to the individual questions to produce the final answer to the question. Assume I know little about the topic we are discussing and please define any terms that are not general knowledge. When I have answered three of your questions, combine the answers to produce the final answer to my original question.

2.3 Flipped Interaction Pattern

In this pattern, instruct the GAI tool to generate questions for you to answer to enable it to improve the required output. This pattern can be a useful tool for getting a GAI tool to provide you with your required output based on questions it asks you. While similar to the Cognitive Verifier pattern (in which the GAI tool is also asked to generate questions), it places more onus on the GAI tool to ask you clarifying questions until it can generate the required output.

The suggested prompt format consists of two steps:

- *Step 1: Specify the goal of the interaction, e.g. I want you to ask me questions to achieve X (X is the desired goal). Focus on a particular topic or outcome.*
- *Step 2: Specify the duration of the interaction and/or the number of questions it can ask, e.g. You should ask me questions until you have sufficient information to produce the desired outcome.*

After inputting the above steps, prompt the GAI tool to ask you the first question, e.g. “Ask me the first question.”

Flipped interaction pattern examples:

Example 1: *I want to create a workshop plan to develop a strategic plan for my division for the coming year. You should ask me questions until you have enough information to create the plan. Ask one question at a time.*

Example 2: *I want to create a lecture plan on climate change for a South African university first-year course. You should ask me questions until you have enough information to create the lecture plan. Ask one question at a time.*

Standard Template Patterns

3.1 Template Pattern

This pattern attempts to control the structure and context of the GAI tool output by providing the data and specifying a template to be used to format the information provided. Note that you need to know, beforehand, what formatting components your GAI tool will accept to be able to respond appropriately/accurately.

These patterns are best for tasks that require following **a fixed structure or format for the output, such as generating computer code, specific poetic styles, or technical reports**. There are many other types of prompts that you can explore, such as prompts that use keywords, provide detailed examples, partial input, instructions, or contextual information.

The suggested prompt format consists of four steps:

- Step 1: Specify to use a template, e.g. “I am going to provide a template for your output.”

- Step 2: Indicate the format of the placeholder you will use. This must be something that the GAI tool has been trained on, such as using ALL CAPS, enclosing in brackets/markup tags, etc. For example, “CAPITALISED WORDS are my placeholders.”
- Step 3: Instruct the GAI tool to fit the output into one or more of the placeholders provided, e.g., “Fill in my placeholders with your output.”/ “Any time that you generate text, try to fit it into one of the placeholders that I list.”
- Step 4: Instruct the GAI tool to not deviate from the template by trying to include other elements, e.g. “Please preserve the formatting and overall template that I provide.” While this is a useful way to control the output of the AI tool, a potential drawback of this pattern is that specified template components may exclude potentially useful information.

Template pattern example:

Example 1: *I am going to provide a template that takes inputted text and generates a series of questions and answers. CAPITALISED WORDS are my placeholders. Fill in my placeholders with your output. Please preserve the overall formatting of the template.*

My template is:

****Question:***QUESTION*

****Answer:***ANSWER*

Use the data I will give to you below and create 4 questions and answers using the template I provided above.

Data = "Prompt engineering, primarily used in communication with a text-to-text model and text-to-image model, is the process of structuring text that can be interpreted and understood by a generative AI model. Prompt engineering is enabled by in-context learning, defined as a model's ability to temporarily learn from prompts. The ability for in-context learning is an emergent ability of large language models. A prompt is natural language text describing the task that an AI should perform. A prompt for a text-to-text model can be a query such as "what is Fermat's little theorem?" a command such as "write a poem about leaves falling", a short statement of feedback (for example, "too verbose", "too formal", "rephrase again", "omit this word") or a longer statement including context, instructions, and input data. Prompt engineering may involve phrasing a query, specifying a style, providing relevant context or assigning a role to the AI such as "Act as a native French speaker". Prompt engineering may consist of a single prompt that includes a few examples for a model to learn from, such as "maison -> house, chat -> cat, chien ->", an approach called few-shot learning.

3. Tips for Prompting

Here are some additional tips for crafting your prompts:

- It is worth spending time **developing your queries or prompts** to get the best results. Try more than one type of prompt and consider **using different GAI tools** depending on what you are seeking so you can get to know their strengths.
- **Assume you will have multiple interactions** until you get the desired result. Keep refining your prompt based on the responses you receive and keep asking for further refinements. You can include many conditions and specific qualifiers in your questions. Your approach should be iterative so that each output improves on the previous one. Use your existing knowledge to tailor each request to make it as specific and relevant as possible (White, 2023).
- It is possible to **combine multiple patterns**, and you should experiment to see what gets you the best results. Here is one example (adapted from White et al., 2023, p. 10):
*“From now on, whenever I ask a question, ask four additional questions that would help you produce a better version of my original question (**Cognitive verification pattern**). Then, use my answers to suggest a better version of my original question (**Question refinement pattern**). After the follow-up questions, temporarily act as a user with no knowledge of AWS and define any terms that I need to know to accurately answer the questions (**Role playing pattern**).”*
- Be aware of the **in-built bias** which can skew your results, particularly that the training data will be largely based on content available on the internet which is dominated by mainstream knowledge and languages. To control for the bias, give explicit instructions and use consciously inclusive language.
- While it is possible to **provide the GAI tool with information** that may assist it to generate the required output, remember that this information could also be incorporated into the model on which the tool runs and then may become accessible to other users of that tool (White, 2023).
- Always view GAI as a tool that can offer assistance, never an author. Take responsibility and **critically review any outputs** before using them.

The following interaction with **Copilot** illustrates the power of prompts to skew outputs and demonstrates the importance of refining and evaluating first responses:

First Prompt	Provide a list of the most successful entrepreneurial business leaders of all time.
Copilot response	Generates a list of mostly current business leaders from the USA: Elon Musk, Jeff Bezos, Steve Jobs, Bill Gates, Warren Buffet, Richard Branson,

	Oprah Winfrey, Andrew Carnegie, Henry Ford, Walt Disney, Mark Zuckerberg.
Follow up prompt	This list comprises people from the USA. Please revise the list to be more globally representative.
Copilot response	Provides a list of people from different countries: Jack Ma, Mukesh Ambani, Carlos Slim, Masayoshi Son, Aliko Dangote, Richard Branson, Narayana Murthy, Ingvar Kamrad, Sundar Pichai, and Strive Masiyiwa.
Additional follow up prompt	Review the first and second lists you produced and provide a new list of the top 10 entrepreneurs globally, based on ranking the success of the companies they are associated with.
Copilot response	Copilot's answer provided more detail and links. Notably, Tim Cook doesn't appear in the original lists: Jeff Bezos, Elon Musk, Tim Cook, Sundar Pichai, Mukesh Ambani, Jack Ma, W.arren Buffett, Satya Nadella, Masayoshi Son, Carlos Slim.

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