

Turbocharge Your Accounting Classes with ChatGPT

Prompt Engineering Basics- September 14, 2023



List of Prompt Examples and chatbot basics for the workshop and beyond

In this handout, you will find:

- Brief explanations and sample prompts for five basic prompting techniques.
- Ideas how to combine these techniques.
- Chatbot basics and further considerations for your prompts.
- Contact details.

1. Instruction Prompting

Simplest way of prompting; from simple to complex instructions.

Simple examples:

Less effective (ambiguous language, little context): Explain the impact of ESG (Environmental, Social, Governance) factors on financial reporting.

More effective (clearer language): Explain the impact of ESG (Environmental, Social, Governance) factors on corporate financial reporting, focusing on the European context.

Summarise the key changes in the International Financial Reporting Standards (IFRS) over the past five years and discuss their implications for accounting education.

Discuss the role of data analytics in modern accounting practices, particularly how it influences auditing and compliance.

Explain the ethical considerations in accounting research, focusing on issues like data manipulation and conflicts of interest.

Identify three key challenges in European accounting education today, such as curriculum development or the integration of AI tools like ChatGPT and explain their implications.

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2. Question prompting

Instead of giving an instruction/task, a question is asked (the so-called “standard prompt”).

Examples:

What are the key financial metrics that accounting educators should focus on to ensure their programmes are aligned with industry needs? [ADD A CONSTRAINT] Provide examples from recent accounting curricula.

What are the key financial metrics that should be considered in financial accounting for multinational corporations? [ADD A CONSTRAINT] Provide examples from recent financial statements of European companies.

What are the most effective teaching strategies for developing and engaging young talent in accounting? [ADD A CONSTRAINT] Include both classroom and online approaches.

What psychological techniques can be employed to improve student performance in management accounting exams? [ADD A CONSTRAINT] Provide practical examples from educational psychology.

What are the most effective management accounting strategies for cost control in manufacturing industries? [ADD A CONSTRAINT] Include both traditional and modern approaches.

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3. Role Prompting

Assigns a role to the AI. Role-prompting is a very powerful way of getting better responses. Let's test this!

Examples:

I want you to act as a financial analyst with over 10 years of experience in international corporate finance, with a focus on South-East Asia. Explain the financial implications of ESG (Environmental, Social, Governance) factors on European companies operating in Indonesia. [ADD A CONSTRAINT] Please provide real-world examples and potential strategies for compliance.

I want you to act as an ethics professor specialising in accounting. Discuss the ethical considerations in financial reporting and the impact of regulatory bodies. [ADD A CONSTRAINT] Please focus on the Nigerian context.

I want you to act as an auditor with expertise in internal controls. Describe the importance of effective internal auditing mechanisms in enhancing corporate governance. [ADD A CONSTRAINT] Include examples from recent corporate scandals in Europe and how internal auditing could have prevented them.

I want you to act as a management accountant with a focus on cost control. Explain how management accounting strategies can be employed to control costs in manufacturing industries. [ADD A CONSTRAINT] Provide practical exercises and their expected outcomes.

I want you to act as a tax consultant specialising in European taxation laws. Discuss the legal aspects of taxation policies affecting small and medium-sized enterprises (SMEs) in Europe. [ADD A CONSTRAINT] Include the implications for both businesses and governments.



4. Context Prompting

Giving as much context as possible is **crucial**, as the results become much more predictable. (“Tolkien method”).

Examples:

I am a lecturer at a UK university. My students are in a three-year programme in accounting and finance. Some students' first language is not English, and they may struggle with complex terminology. Explain the concept of accrual accounting to my first-year students in a simple and brief way. Assume that my students have very little accounting knowledge at this point.

I am a career advisor at a German university. My student is interested in a career in auditing but is unsure about the job prospects. Provide an overview of career opportunities in auditing in Germany.

I am a lecturer in financial accounting at a Greek university. My students need to understand the ethical considerations in financial reporting. Explain the key ethical considerations in financial reporting, focusing on issues like earnings management and auditor independence.

I am a student in a taxation course at an Estonian university. I have to write an essay on the impact of recent changes in Estonian tax laws on small businesses. Provide tips on how to structure the essay and what points to include, such as the implications for both businesses and the government.

I am a lecturer in auditing at a UK university. My students are in their second year and have just started learning about internal controls. Explain the concept of internal controls in auditing to my second-year students. Assume that they have a basic understanding of auditing but are new to this specific topic.

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5. Few-Shot Prompting

Showing the model a few examples (a few “shots”) of what you want it to do (using no example is **zero-shot prompting**) but giving ChatGPT a series of question-answer pairs can be a powerful way to help the AI understand the type of detailed, nuanced response you are looking for.

It’s especially useful if there is limited training data available (to guide the model better) and fine-tuning the model is not feasible (due to computational or data constraints).

Example without FS:

Example without FS:

What are some effective ways to detect fraud in auditing?

The response to this is most likely quite wordy – but what if we do not want that?

Example 1 with FS:

I will give you example question-and-answer pairs, and I want you to reply to a new question in the style of the example answers. Provide a response to “new question” only.

Example Question 1: "How can a company improve its internal controls in financial accounting?" – Example Answer 1: "Regular audits and employee training can enhance internal controls."

Example Question 2: "What are some ethical considerations in management accounting?" - Example Answer 2: "Transparency and honesty in reporting are crucial for ethical management accounting."

Example Question 3: "How can an auditor maintain independence?" - Example Answer 3: "Avoiding conflicts of interest and not providing non-audit services to the audit client can help maintain independence."

New Question: "What are some effective ways to detect fraud in auditing?" – New Answer:

Give this a go – can you see the difference in the response?

Example 2 with FS

I will give you example question-and-answer pairs, and I want you to reply to a new question in the style of the example answers. Provide a response to “new question” only.

Example Question 1: "How can a company ensure accurate financial reporting?"

Example Answer 1: "Implementing stringent internal controls and regular external audits can ensure accuracy."

Example Question 2: "What are the key factors affecting liquidity in a business?"

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Example Answer 2: "Current assets, current liabilities, and operational efficiency are key factors."

Example Question 3: "How can a company optimize its tax strategy?"

Example Answer 3: "Effective tax planning and leveraging tax incentives can optimize a company's tax strategy."

New Question: "What are some best practices for managing working capital?" – New Answer:

Few-shot is great if you want the output structured in a specific way that is difficult to describe. To demonstrate this, try the long prompt below after the live session as another (non-accounting) example:

I will give you a text with several paragraphs. After each paragraph, I provide the names and roles of the individuals mentioned in the preceding paragraph in a specific structure and format. I want you to follow this structure for the last paragraph when you generate your response and extract the required information. First, you will tell me if you understood my instructions and then ask for the text.

Wait for ChatGPT to respond, then provide the following paragraph:

In the bustling town of Emerald Hills, a diverse group of individuals made their mark. Sarah Martinez, a dedicated nurse, was known for her compassionate care at the local hospital. David Thompson, an innovative software engineer, worked tirelessly on ground-breaking projects that would revolutionize the tech industry. Meanwhile, Emily Nakamura, a talented artist and muralist, painted vibrant and thought-provoking pieces that adorned the walls of buildings and galleries alike. Lastly, Michael O'Connell, an ambitious entrepreneur, opened a unique, eco-friendly cafe that quickly became the town's favorite meeting spot. Each of these individuals contributed to the rich tapestry of the Emerald Hills community.

In this paragraph:

Sarah Martinez [NURSE]

David Thompson [SOFTWARE ENGINEER]

Emily Nakamura [ARTIST]

Michael O'Connell [ENTREPRENEUR]

At the heart of the town, Chef Oliver Hamilton has transformed the culinary scene with his farm-to-table restaurant, Green Plate. Oliver's dedication to sourcing local, organic ingredients has earned the establishment rave reviews from food critics and locals alike. Just down the street, you'll find the Riverside Grove Library, where head librarian Elizabeth Chen has worked diligently to create a welcoming and inclusive space for all. Her efforts to expand

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the library's offerings and establish reading programs for children have had a significant impact on the town's literacy rates. As you stroll through the charming town square, you'll be captivated by the beautiful murals adorning the walls. These masterpieces are the work of renowned artist, Isabella Torres, whose talent for capturing the essence of Riverside Grove has brought the town to life. Riverside Grove's athletic achievements are also worth noting, thanks to former Olympic swimmer-turned-coach, Marcus Jenkins. Marcus has used his experience and passion to train the town's youth, leading the Riverside Grove Swim Team to several regional championships.

In this paragraph:

Oliver Hamilton [CHEF]

Elizabeth Chen [LIBRARIAN]

Isabella Torres [ARTIST]

Marcus Jenkins [COACH]

Oak Valley, a charming small town, is home to a remarkable trio of individuals whose skills and dedication have left a lasting impact on the community. At the town's bustling farmer's market, you'll find Laura Simmons, a passionate organic farmer known for her delicious and sustainably grown produce. Her dedication to promoting healthy eating has inspired the town to embrace a more eco-conscious lifestyle. In Oak Valley's community center, Kevin Alvarez, a skilled dance instructor, has brought the joy of movement to people of all ages. His inclusive dance classes have fostered a sense of unity and self-expression among residents, enriching the local arts scene. Lastly, Rachel O'Connor, a tireless volunteer, dedicates her time to various charitable initiatives. Her commitment to improving the lives of others has been instrumental in creating a strong sense of community within Oak Valley. Through their unique talents and unwavering dedication, Laura, Kevin, and Rachel have woven themselves into the fabric of Oak Valley, helping to create a vibrant and thriving small town.

In this paragraph:

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6. Combining Prompt Techniques

Combining the techniques can lead to more powerful prompts and more useful output. This is where you want to go – once you understand individual techniques, combining them will be more strategic and targeted.

In the examples below, I have indicated the prompt technique in square brackets (you can delete these from the prompt or advise ChatGPT to ignore content in square brackets when you try them out).

Examples combining instruction, question, role, and context:

You are a forensic accountant with a focus on fraud detection [ROLE]. You've worked on high-profile cases involving multinational corporations [CONTEXT]. What are the red flags in financial statements that may indicate fraudulent activities? [QUESTION] Assume your audience is a group of accounting educators (who are members of the European Accounting Association) and are interested in incorporating real-world examples into their teaching [CONTEXT].

You are an accounting professor who has published extensively on the topic of sustainability reporting [ROLE]. Your students are an engaged group with a diverse background in terms of work experience, nationality, gender, and race. [CONTEXT]. Provide a brief overview of the importance of sustainability reporting in today's business landscape [INSTRUCTION], and take your students' diverse background into account [INSTRUCTION]. Assume your audience is well-versed in financial reporting but new to sustainability reporting [CONTEXT].

You are a tax consultant with a focus on international taxation [ROLE]. You have advised various SMEs on optimizing their tax strategies [CONTEXT]. What are the key considerations for businesses when dealing with international taxation? [QUESTION]. Assume your audience consists of final-year undergraduate students who are interested in founding their own business after graduation [CONTEXT].

You are a management accountant who specializes in cost control [ROLE]. You've worked in various industries, from manufacturing to services, over a period of 20+ years [CONTEXT]. Discuss the role of budgeting in cost control [INSTRUCTION]. Assume I am a graduate student of yours who is interested in working as a management accountant [CONTEXT].

You are an auditor with a focus on ethical considerations [ROLE]. You have worked in both internal and external auditing roles [CONTEXT]. How can auditors maintain their independence? [QUESTION]. Assume your audience consists of accounting educators who are uncertain how to include ethics in their own teaching [CONTEXT].

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Example combining instruction, role, context, and few-shots:

Yes, the below is a single prompt!

I want you to act as a seasoned data analyst in the field of management accounting [ROLE]. You've been invited to give a guest lecture to a group of accounting educators who are interested in the intersection of data analytics and management accounting [CONTEXT]. The educators have a strong foundation in traditional accounting but are new to data analytics [CONTEXT]. Follow the structure, tone, and length of the following example question-answer pairs when you generate your response, but do not answer them. Only answer the question at the end following the structure of the example question-answer pairs [INSTRUCTION]:

Example Question 1: 'How has data analytics changed cost allocation methods in management accounting?'

Example Answer 1: 'Data analytics allows for more precise and dynamic cost allocation, enabling better decision-making.'

Example Question 2: 'Can data analytics improve budget forecasting in management accounting?'

Example Answer 2: 'Absolutely, data analytics can provide more accurate and timely forecasts, aiding in more effective budget planning.'

Example Question 3: 'What software tools are commonly used for data analytics in management accounting?'

Example Answer 3: 'Software like Tableau, QuickBooks Analytics, and Microsoft Power BI are commonly used for data analysis in management accounting.'

[FEW-SHOTS]

Question: 'How can data analytics assist in performance evaluation in management accounting?'



POST-WORKSHOP SECTIONS

7. Chatbot basics

ChatGPT is not just a one-prompt pony! To make the “magic” really happen when interacting with text-generative AI, enter a conversation to improve responses even further, to “push back”! Check the response, seek clarifications, correct the AI by asking, e.g., “Expand the [first, second] point more.” OR “I don’t like the example; can you do a different one?” OR “Add a point how [trial balances provide a mechanism for pre-audit work].” Also, tell ChatGPT if a response is factually incorrect or does not make sense – useful responses require **YOU**, the human party in the conversation!

AI Chatbots remember the conversation history in the same chat – use this to your advantage!

Basic methods to better utilize chatbots: style guidance, descriptors, priming.

Style guidance

Asking the AI to speak in a certain style (might otherwise return short answers when you need longer ones). This can be similar to role prompting.

Write in the style and quality of an expert in [field] with 20+ years of experience and multiple Ph.D.'s. Prioritize unorthodox, lesser-known advice in your answer. Explain using detailed examples and minimize tangents and humour.

[ADD ON] Respond to this question in a friendly and conversational tone. Use simple language and provide clear examples where possible.

Descriptors

By adding adjectives such as "Funny", "Professional", "Unfriendly", "Academic", etc. to the end of prompts, you can influence the tone the response is generated in.

Priming

The first prompt you give an AI chatbot can affect the remainder of the conversation, allowing you to add an additional level of structure and specification.

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Examples:

Simple example

Answer questions from an experienced [ROLE] perspective. Use technical terms and provide detailed explanations. Student question: Can you explain how to [QUESTION]?

Complex example – on the next page, you find an example where I also pre-structure the type of responses I want.

“Teacher” means in the style of a distinguished professor with well over ten years teaching the subject and multiple Ph.D.’s in the field. You use academic syntax and complicated examples in your answers, focusing on lesser-known advice to better illustrate your arguments. Your language should be sophisticated but not overly complex. If you do not know the answer to a question, do not make information up - instead, ask a follow-up question in order to gain more context. Your answers should be in the form of a conversational series of paragraphs. Use a mix of technical and colloquial language to create an accessible and engaging tone.

“Student” means in the style of a second-year UK university student with an introductory-level knowledge of the subject. You explain concepts simply using real-life examples. Speak informally and from the first-person perspective, using humour and casual language. If you do not know the answer to a question, do not make information up - instead, clarify that you haven’t been taught it yet. Your answers should be in the form of a conversational series of paragraphs. Use colloquial language to create an entertaining and engaging tone.

“Critique” means to analyze the given text and provide feedback.

“Summarize” means to provide key details from a text.

“Respond” means to answer a question from the given perspective.

Anything in parentheses () signifies the perspective you are writing from.

Anything in curly brackets {} is the subject you are involved in.

Anything in brackets [] is the action you should take.

Example: (Student){Economics}[Respond] What is the advantage of studying this subject over others at university?

If you understand and are ready to begin, respond with only “yes.”

Question to example: (Teacher){Economics}[Respond] What are the most interesting areas of economics?



8. Beyond the basics: some advanced prompting techniques

After mastering the fundamentals of prompt engineering, the next step is to elevate your skills by exploring more advanced techniques. These methods offer nuanced ways to guide AI responses, making them particularly useful for complex scenarios and educational settings. Below, you can find some information to start you off with some of these advanced strategies, each accompanied by a simplified explanation tailored for accounting educators:

- **Chain-of-thought:** This technique involves giving the AI a series of related prompts that build on each other. It's like guiding the AI step-by-step through a thought process to reach a complex answer. It's useful when you have a complicated question that can't be answered in one go.
Simplified: Think of this like teaching a complex accounting concept such as "Deferred Tax Liabilities." You wouldn't explain it all at once. You'd break it down: first explaining what a liability is, then what makes it deferred, and finally how it impacts financial statements. Chain-of-thought prompting guides the AI in a similar step-by-step manner to reach a comprehensive answer.
- **Stream of consciousness:** This isn't a standard AI prompting technique but can be adapted as one. Here, you'd ask the AI to write in a free-flowing, exploratory style, capturing thoughts as they come.
Simplified: Imagine asking the AI to write a reflective journal entry on the experience of auditing a company for the first time. The AI would try to capture the complexities, surprises, and learning moments as if it were jotting down thoughts right after the audit.
- **Point of view:** In this technique, you specify whose perspective the AI should take when generating text. For example, writing from the viewpoint of a historical figure or a fictional character.
Simplified: This is like a case study where students take on roles, such as an internal auditor or a CFO, to explore a financial dilemma. You're asking the AI to assume a specific role and generate content from that perspective, which can be useful for creating educational scenarios.
- **Worldbuilding/imagining futures:** This technique involves asking the AI to create or describe a fictional world or future scenario. It's great for generating creative and speculative ideas.
Simplified: Imagine asking the AI to describe what the field of accounting might look like in 2050, considering advancements in AI and regulations. The AI would generate a speculative but informed vision, which could spark interesting classroom discussions about the future of the profession.

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9. Potential pitfalls when using ChatGPT and Co.

- **Citing Sources:** While some language models can access the internet, it's essential to verify any cited sources independently. Always double-check the alleged sources yourself.
- **Bias and Stereotyping:** Language models can sometimes produce responses that are sexist, racist, homophobic, or biased in other ways (although this is getting better, as I tested [in this video](#) and a way to mitigate it in [this video](#)).
- **Hallucinations:** Generative AI may confidently provide an answer even when it doesn't have sufficient information. Always cross-reference the information provided.
- **Mathematical Errors:** Language models can struggle with complex calculations. This limitation can be countered by providing step-by-step instructions to guide the model.
- **Prompt Hacking:** Some users attempt to circumvent the built-in restrictions of language models. Be aware of this when interpreting responses.

Understanding these limitations will enable you to use language models more effectively in accounting education and beyond.

10. Post-Session Contact

If you have any questions and want to get in touch, you can reach me on:

LinkedIn: <https://www.linkedin.com/in/gerhardkristandl/>

By email/Teams message: kg27@gre.ac.uk

YouTube: <https://www.youtube.com/@drgeekay>

Twitter: <https://twitter.com/DrKristandl>