

PROMPT ENGINEERING

General Cheat Sheet for Faculty & Students

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How to use this guide

- ❖ This is a shared resource for everyone — students and faculty alike. Sections 1–6 apply to all users.
- ❖ New to AI prompting? Start at Section 1 and work through in order.
- ❖ Already comfortable with basics? Jump to Section 3 (Techniques) or Section 4 (Reflection Exercises).
- ❖ Quick lookup? The Quick-Reference card on page 3 below has the most-used formulas.

Quick-Reference Prompt Formula Card

The four formulas below cover ~80 % of academic prompting needs. Memorize these first.

FORMULA 1 · The Foundation (use every time)

ROLE + CONTEXT + TASK + CONSTRAINTS + FORMAT

Example: 'You are a health policy expert [ROLE]. I am a junior studying U.S. Medicare [CONTEXT]. Explain the 2023 drug-pricing provisions [TASK] in plain language, no jargon [CONSTRAINTS], using 3 bullet points [FORMAT].'

FORMULA 2 · The Iteration Trigger

That answer is [ISSUE]. Please [FIX] and add [MISSING ELEMENT].

Example: 'That answer is too surface-level. Please go deeper on equity implications and add a specific state-level example.'

FORMULA 3 · The Adversarial Probe

Now argue the OPPOSITE position using the same evidence.

Example: 'You just argued for universal coverage. Now build the strongest counterargument against it using the same data.'

FORMULA 4 · The Gap Detector

What did you leave out, assume, or oversimplify in your last answer?

Use this after any AI response to uncover hidden assumptions before you trust the output.

Section 1 — What Is a Prompt? (Start Here)

A **prompt** is any instruction, question, or message you give an AI tool. The quality of your prompt directly determines the quality of the output. Bad prompt → vague answer. Specific prompt → useful answer.

The 5 Ingredients of a Strong Prompt

Ingredient	What It Does	Quick Example
1. Role / Persona	Tells AI what expert lens to use	"Act as a physical therapist..."
2. Context	Gives background AI needs to be relevant	"I'm a student in HLSC 285 studying shoulder muscles..."
3. Task	States exactly what you want AI to produce	"Explain the rotator cuff muscles and their actions"
4. Constraints	Sets limits (length, style, audience, sources)	"Use only anatomical terms from the Trail Guide textbook"
5. Format	Specifies how output should look	"Respond in a table: Muscle Origin Insertion Action"

Why One Prompt Is Never Enough

AI responses are a starting point, not a final answer. Think of prompting as a conversation, not a search engine query. Submitting a single prompt and copying the response is the academic equivalent of reading only the title of a textbook.

 One-Shot Behavior (Weak)	☒ Iterative Behavior (Strong)
Single prompt → copy-paste → submit	Multiple back-and-forth exchanges
Assignment text pasted verbatim	Student adds own context and constraints
AI answer accepted without question	Student pushes back: "That's not quite right because..."

▶ One-Shot Behavior (Weak)	☑ Iterative Behavior (Strong)
Final submission = AI output	Final submission builds on + critiques AI output
No evidence of thinking	Chat log shows genuine engagement

Section 2 — Building Your First Prompt

Step-by-Step: From Zero to Effective

1. Start with the task in plain English. Don't overthink it. Just write what you want.
2. Add your role and context. Who are you? What course/project is this for?
3. Add constraints. What should AI NOT do? What sources should it use?
4. Specify format. Table? Bullet list? 200 words max? Specify it.
5. Send it. Read the response critically — don't accept it yet.
6. Iterate. Use Formula 2 or Formula 4 from the Quick-Reference card.

Anatomy of a Weak vs. Strong Prompt

✗ Weak Prompt	☑ Strong Prompt
Explain the ethical issues with AI.	You are an ethics professor. I am writing a 500-word essay for ECON 230 (Business Ethics). Explain THREE specific ethical risks of AI in hiring decisions — focus on algorithmic bias and transparency. Cite one real corporate example. Use formal academic language.

✗ Weak Prompt	☑ Strong Prompt
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Summarize the health policy article.

I am a health policy student using the Valaitis textbook. Summarize the key arguments in Chapter 4 about social determinants of health. Then identify ONE argument you consider weakest, and explain why. Format: paragraph summary, then a separate 'weakest argument' section.

✗ Weak Prompt

☑ Strong Prompt

Tell me about the trapezius muscle.

You are a musculoskeletal anatomy tutor. Using terminology from 'Trail Guide to the Body' (Biel, 6th ed.), describe the trapezius muscle: origin, insertion, action, and one clinical relevance example. Do not include muscles outside the trapezius. Respond in a 4-row table.

Context-Setting Templates (Copy & Adapt)

Template A — For Anatomy (HLSC 285)

"You are a musculoskeletal anatomy tutor. I am an undergraduate in HLSC 285 at Mercy University. We are studying [CHAPTER TOPIC] using 'Trail Guide to the Body' (Biel, 6th ed.). [YOUR TASK HERE]. Use anatomical terminology only. Respond one muscle at a time."

Template B — For Health Policy (HLSC 275)

"You are a health policy thinking partner. I am analyzing [TOPIC] for a graduate course. My primary source is the Valaitis textbook. Do not cite outside sources unless I ask. [YOUR TASK HERE]. Ask me a clarifying question before answering if my request is ambiguous."

Template C — For Business Ethics (ECON 230)

"You are a business ethics expert. I am analyzing [CASE/TOPIC] for ECON 230. Apply the [FRAMEWORK — e.g., utilitarian / Kantian / stakeholder] framework. [YOUR TASK HERE]. Identify any assumptions you are making in your analysis."

Section 3 — Advanced Prompting Techniques

Once you are comfortable with the basics, these techniques produce significantly better results and demonstrate the kind of critical AI engagement graded in your assignments.

Technique	What It Is	When to Use It
Few-Shot Prompting (Beginner → Intermediate)	Give AI 1–3 examples of the format or quality level you want before making your actual request.	When AI keeps getting the structure wrong. Examples show, rather than tell, what you need.
Chain of Thought (Intermediate)	Ask AI to 'think step by step' or 'show your reasoning before giving the answer.'	Complex analysis tasks — ethics cases, policy analysis, anatomical reasoning problems.
Chain of Density (Intermediate)	Ask AI to summarize, then make it denser: 'Now rewrite with more detail in the same length.'	When summarizing textbook sections or case studies — forces compression and precision.
Adversarial Prompting (Intermediate → Advanced)	Ask AI to argue the opposite of what it just said, using the same evidence.	Ethics essays, policy debates — forces you to see both sides before forming your own view.
Tree of Thoughts (Advanced)	Ask AI to generate 3 different approaches to the problem, then evaluate each one.	Research planning, complex case studies, or when you are unsure which angle to take.
Critique & Refine (Advanced)	After AI answers: 'Critique your own answer — what did you get wrong or oversimplify?'	Before citing or submitting anything based on AI output. Builds verification habits.

Technique in Action: Adversarial Prompting Walkthrough

Step-by-Step Example (ECON 230 — Stakeholder Analysis)

Step 1 → 'Identify all stakeholders affected by Amazon's warehouse automation policy.'

Step 2 → 'Which stakeholders did you miss or underweight? Who has the least power in this situation?'

Step 3 → 'Now build the strongest argument DEFENDING Amazon's automation decision.'

Step 4 → 'Now build the strongest argument AGAINST it using the same evidence.'

Step 5 → 'What did AI emphasize in pro- vs. anti- arguments that reveals a possible bias?'

Your job: Write your own position that goes beyond both AI arguments.

Section 4 — Reflection Exercises After AI Output

These questions are the core of AI-literate thinking and apply in any course or discipline. Use them after every AI response — before you cite, build on, or submit anything based on AI output. Many of these appear directly in graded assignments.

Who should use these?

Everyone — students and faculty. These questions work across all subjects because they target how AI thinks, not what it knows about a specific topic.

Faculty: use these as graded reflection prompts or adapt them into follow-up questions on any assignment.

Students: use these as a self-check habit before finalizing any AI-assisted work.

4.1 After the First AI Response



Reflection Exercise — Answer These After Reviewing AI Output

1. What was the single most useful thing AI provided in this response?

Your answer: _____

2. What did AI get wrong, oversimplify, or leave out entirely?

Your answer: _____

3. What assumption did AI make that you did not explicitly ask it to make?

Your answer: _____

4. Did AI hedge with words like 'generally,' 'typically,' or 'may'? What does that signal about its confidence?

Your answer: _____

5. How does this response compare to what your course materials (textbook, readings, lectures) say?

Your answer: _____

4.2 After Iterating (2nd Prompt Onward)

Reflection Exercise — Answer These After Reviewing AI Output

1. How did AI's response change after your follow-up — and what does that tell you about your first prompt?

Your answer: _____

2. Did pushing back on AI reveal a gap in the original answer, or did AI simply agree with you to avoid conflict?

Your answer: _____

3. At what point in the conversation did AI produce its most useful output? Why then, and not earlier?

Your answer: _____

4. What would you need to ask next to push this response from 'adequate' to 'genuinely useful'?

Your answer: _____

4.3 Evaluating AI's Reasoning & Bias

Reflection Exercise — Answer These After Reviewing AI Output

1. Whose perspective or worldview does AI seem to default to in this response? Whose is absent?

Your answer: _____

2. Did AI present this topic as settled fact or as a contested debate? Is that framing accurate?

Your answer: _____

3. What real-world data, statistic, or example did AI cite? How would you verify it?

Your answer: _____

4. Does AI's answer change significantly if you reframe the question from a different stakeholder's point of view?

Your answer: _____

5. What kind of source or context would fundamentally change AI's answer if you added it?

Your answer: _____

4.4 Before You Submit or Use AI Output



Reflection Exercise — Answer These After Reviewing AI Output

1. What is the one thing in this AI response you are least confident is accurate?

Your answer: _____

2. What did you have to find, add, or verify yourself that AI could not provide?

Your answer: _____

3. In one sentence: where do you agree with AI, and where do you disagree — and why?

Your answer: _____

4. If someone asked 'did you write this or did AI?', what would your honest answer be?

Your answer: _____

5. What did working with AI on this task teach you about the topic that you did not know before?

Your answer: _____

6. How would you phrase your initial prompt differently if you started over?

Your answer: _____

Section 5 — Common Mistakes & How to Fix Them

Mistake	Why It Fails	The Fix
Vague task: 'Tell me about X'	AI produces generic overview with no relevance to your specific need	Specify: what aspect, for what purpose, at what depth, using which framework
No constraints: AI goes off-topic	AI pulls from its broadest training data, not your course material	Add: 'Use only [textbook]. Do not cite outside sources. Stay focused on [specific topic].'
Accepting AI's first answer	First answers are rarely the best. AI is approximating what you might want.	Always use Formula 2 (Iteration Trigger) at least once before using any AI output
Using AI for time-sensitive facts	AI has a knowledge cutoff and will hallucinate recent events	Verify all dates, statistics, policies, and names with a primary source
Asking for an 'essay' or 'report'	AI writes a convincing but shallow essay that hides its uncertainty	Break the task into stages. Never ask for a complete document in one prompt.
Ignoring AI's uncertainty signals	Phrases like 'generally' or 'typically' signal AI is guessing	When you see hedging language, ask AI directly: 'How confident are you in this claim?'
Not specifying audience/level	AI defaults to a generic educated adult — may be too advanced or too basic	State: 'Explain this for a second-year undergrad with no prior background in...'

Section 6 — Assignment Submission Checklist

Before You Submit — Check Every Box

- ☐ My chat log shows at least 3 back-and-forth exchanges (not just 1 prompt + 1 answer)
- ☐ My initial prompt included: role, context, task, constraints, and format
- ☐ I used at least one iteration (Formula 2) to improve on AI's first response
- ☐ I identified at least one thing AI got wrong, oversimplified, or left out
- ☐ My final submitted work contains something AI did NOT provide (my own analysis/example/judgment)

- ☐ My reflection answers are specific — they name exact prompts and exact AI errors
- ☐ I have not submitted AI's response verbatim without critical annotation
- ☐ I exported my full chat log (PDF or screenshot of complete conversation)

How to Export Your Chat Log

BoodleBox: Click the three-dot menu on the chat → 'Export Conversation' → PDF

ChatGPT / Claude / Copilot: Use browser Print → Save as PDF (select 'All' pages)

Screenshots: Acceptable — capture all turns including your prompts AND AI responses

Required: Your prompts must be visible. Do not submit only AI's responses.

References

The following sources informed the frameworks, statistics, and pedagogical principles in this guide.

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Key Statistics Cited in This Guide

Stat	Finding	Source
86%	of students globally use AI in their studies	<i>Digital Education Council, 2024</i>
54%	use AI weekly; ~25% use it daily	<i>Digital Education Council, 2024</i>
80%	of undergraduates worldwide have used GenAI to support their studies	<i>Chegg, 2025</i>
61%	of faculty have used AI in teaching, but 88% do so only minimally	<i>EDUCAUSE, 2024</i>
93%	of higher education staff expect to expand AI use within two years	<i>EDUCAUSE, 2024</i>
94%	of top universities have faculty guidelines emphasizing course-specific GenAI policies	<i>AI Curriculum Research Synthesis, 2025</i>
76.8%	accuracy achieved by current LLMs on USMLE-style anatomy questions (up from 44.4% with GPT-3.5)	<i>Gordon et al., BEME Guide No. 84, 2024</i>

Statement

This document was created with the help of Anthropic's Claude Sonnet 4.6