

Guided “Learning How You Learn” Reflection

Purpose: This assignment is designed to help you build skills used by successful students and researchers: planning, staying focused, monitoring progress, and reflecting on what works for you. The goal is not to study “perfectly,” but to better understand how you actually work so you can improve over time. You will complete one focused study session of your choosing and reflect on it.

What kind of work can I use this for?

You may use this assignment to work on any real academic task, such as studying for an upcoming exam or quiz, working on a problem set or writing assignment, reading or reviewing material for a class, or preparing for a research task. Choose something meaningful to you right now.

Constraints (please follow these)

- Complete one individual (not group) study session only for this reflection. You are of course welcome to study your topic more, but I want you to reflect on only this study session.
- Session length: 2–4 hours
- Work should be for a course you are currently taking
- This is an individual reflection, not group work
- While not required, handwritten responses are encouraged

Part A: Plan (before you start)

Answer briefly (~5 minutes):

1. What course and specific task will you work on?
2. What is your **concrete goal** for this session?
(Example: “Finish problems 1–5” or “Understand Gauss’s Law,” not “study physics.”)
3. How long do you *expect* this task to take?
4. What do you expect to be easiest? What do you expect to be hardest?
5. Name 1-3 things you will do to reduce distractions or interruptions.

Part B: Time Log (during the session)

Keep a simple record of what actually happens.

You do **not** need to track every minute—just note changes.

Example format:

- 2:00–2:45 — Problem solving
- 2:45–3:00 — Break / phone / interruption
- 3:00–3:50 — Worked, stuck on one problem
- 3:50–4:00 — Reviewed notes, wrapped up

Be honest. This is for learning, not judgment.

Part C: Reflection (after you finish)

Answer each prompt briefly but thoughtfully.

1. **Goal:** Did you reach the goal you set? Why or why not?
2. **Time:** How did the actual time compare to what you expected?
3. **Focus:** What interfered most with your focus? How well did you manage it?
4. **Strategy:** What approach or strategy worked best? What didn't work as well?
5. **Understanding:** What material now feels solid? What is still confusing?
6. **Next time:** What is/are 1-3 specific things you would do differently when working on a similar task?

Grading

This assignment is graded on completion and thoughtfulness, not on performance or results.

You will receive full credit if:

- All parts are completed
- Responses are honest and reflective
- The work shows genuine effort

There are no “right” outcomes—struggle and incomplete goals are common and expected. If you find this assignment helpful, I recommend you try repeating it (not all questions still effective).

(Not graded) If you find this exercise helpful, I recommend that you try repeating a shorter version of it for future study sessions or major assignments. For repeated attempts, you might focus on just a few key questions, such as:

- What is my specific goal for this study session?
How will I know when I've made meaningful progress?
- How long do I expect this to take, and why?
Afterward, was that estimate realistic?
- What is the most important material to focus on right now?
What is still confusing or slow to make sense?
- What strategy or approach am I going to try first?
If it isn't working, what will I do instead?
- What got in the way of my focus, and how well did I manage it?
- What is one thing I would do the same—and one thing I would change—next time?

The goal is to build a habit of planning, monitoring, and adjusting how you work.

Three-Part Assignment: AI, Learning, and Finding Reliable Sources

Purpose

Artificial intelligence tools can be useful in academic and professional settings, and you are likely to encounter them throughout your education and future career. However, AI tools also have important limitations. In this assignment, you will explore both how AI can hinder learning and how it can mislead users when locating or suggesting references, and reflect on what that means for your own work as a student and researcher. Note that AI has other positives and negatives beyond the scope of this assignment; this is merely a starting point.

This assignment is not about avoiding AI entirely. Instead, it is about learning to use it critically and responsibly.

Part 1: AI and Learning (Reflection)

Answer the following questions in complete sentences (approximately 150–250 words total):

1. Describe a situation in which using AI to complete an academic task could reduce your learning, even if the final answer looks correct.
 - What skill would you miss practicing?
 - How could that affect you later in advanced classes, research, or a job?
2. Describe a situation where AI *could* be helpful without replacing your thinking.
 - What would you still need to do yourself to learn effectively?

Part 2: AI and References (Exploration)

Ask an AI tool a question that would reasonably require references. Examples include:

- “Find academic sources on spontaneous magnetization reversal.”
- “What research exists on undergraduate physics research experiences?”
- “Give references for making a good sample for physics study.”
- “Give references for what it means for a sample to be high quality.”

Then respond briefly to the following prompts (approximately 200–250 words total):

1. Include the references or sources suggested by the AI tool (copied as-is). You do not need to verify them or format them correctly.
2. What kinds of sources did the AI suggest? (For example: textbooks, review articles, popular websites, journal papers, or specific citations.)
3. What potential problems did you notice or anticipate? Which of the following issues seemed most relevant for your prompt, and why? (See examples on next page.)

Consider that AI tools:

- often favor well-known, English-language, or easily accessible sources,
 - may over-represent certain journals, institutions, or viewpoints,
 - can suggest outdated, incomplete, or even non-existent (“hallucinated”) references,
 - usually lack awareness of why a source is credible, contested, or appropriate for a specific context.
4. How could relying only on AI-generated references be risky in research work?
 5. If you had enough time to search better, what would be a better way to find references. How might AI help you if you were struggling to find what you want with this method?

A Note on Sources and Certainty

AI tools are not the only sources that can be incomplete or incorrect. Even peer-reviewed scientific papers sometimes contain mistakes, overlooked assumptions, or conclusions that later turn out to be wrong. Peer review improves quality, but it is not a guarantee of correctness. Science advances because humans question results, test ideas repeatedly, and revise understanding over time. This assignment is not about finding “perfect” sources, but about learning to evaluate information—whether it comes from AI, a textbook, or a published paper. (Note: AI might be an interesting way to explore potential paper errors, yet it still would not be perfect and would likely give many false positives requiring evaluation.)

Part 3: What This Means for You (Short Post Reflection)

Answer the following in 5–7 sentences:

- When you need sources for a research or class project, what role (if any) should AI play?
- What steps would *you* still need to take to make sure your references are appropriate, accurate, and useful?

Expectations and Grading

This assignment is graded on thoughtfulness and engagement, not on having the “right” opinion. You are not expected to be an expert in research or citation practices. You may use AI as part of this assignment, but your grade depends on your ability to evaluate and reflect, not on the quality of the AI’s output.

Why this Assignment Matters

In research and professional settings, tools that generate answers or sources can be powerful—but they cannot judge importance, context, or correctness the way humans can. Developing the habit of questioning, checking, and thinking through information is an essential skill for scientists and problem-solvers.