

Questions to prompt critical reading and study for Science, Technology, Engineering and Math subjects

Ideas for note-taking prompts during lectures and readings:

1. Further than asking simply ‘what’s the answer to this problem’, focus on ‘why’ questions, e.g.

- a. Why are we learning this?
- b. Why is this different/similar to what I’ve learned before?
- c. Why is that concept relevant?
- d. Why should I use this theory or formula as opposed to another?
- e. Which principles are the most important here and why?

2. Reflect on how you’re going and what you can do to study more effectively:

- a. What don't I understand? How will I find out?
- b. Am I studying effectively? Why/why not? What strategies could I test out?
- c. How am I going on the quizzes? Which concepts can I investigate further?
- d. What did I do well on in the class/quiz/exam? Why? What strategies did I use to study that? Does it work if I apply the same strategies elsewhere?
- e. What did I do badly on? Why? How can I prepare for it in future?

3. Practice regularly and get feedback. Each week, make time to do extra practice questions, e.g. from past exams, your textbooks and online sources. Make time to talk with your demonstrators and peers about these practice questions, to check out how you did and what you need to do next.

Note-taking for problem solving

In addition to taking notes while thinking about lectures and readings, it’s useful to consistently take notes about the problems themselves. Asking critical questions as you go will help you to go beyond the math. So will revising your ideas based on feedback from your quizzes, workshops and advice from demonstrators.

If you keep the problems notes in a separate document or section of your notebook, you can keep adding to them and revising with them throughout the semester. This way, you’ll be able to keep track of the connections and differences between the problem types throughout the semester, and this will help you to prepare for your exams.

Here is a template that you can use each time you study.

Date	Topic	
Problems and working	Note	Revision
Problems from class Working and solutions Problems from textbooks Working and solutions Problems from practice Exams and online sources Working and solutions Problems that I invent Working and solutions Revision problems (i.e. more problems that you can test out after you receive feedback on the above problems)	Why am I taking this approach? What other approaches might be possible and why? Which approach is best and why? What am I certain about? What am I uncertain about? How are these problems relevant to the lecture and course info? What concepts are relevant here? What do I need to get feedback on?	Based on feedback (quiz results, in class tasks, talking with your lecturer or demonstrators in their office hours), make revisions to your notes. Why was my approach correct or not? What do I need to remember next time? How should I work through my revision problems?
Summary: Why is this problem relevant to the course? What have I learnt?		