



Centre for
Teaching
and Learning



AI for Learning: Helping Foundation Year Students in the Physical Sciences Use ChatGPT Effectively

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AI for learning: helping foundation year students in the physical sciences use ChatGPT effectively

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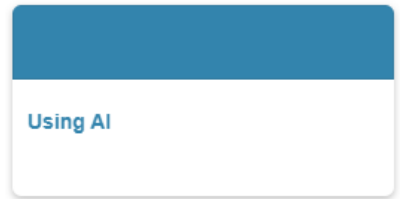
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Project Objectives

- 1) Explore how ChatGPT could be used as a learning aid rather than shortcutting student efforts
 - What can it help with? [specifically in the physical sciences, and with a focus on self-study]
 - What are its limitations?
 - Paid-for vs. free usage; an uneven playing field?
- 2) Support students' [and tutors'] AI literacy
 - How to use ChatGPT productively and responsibly
 - In-person training and asynchronous materials
 - Monitor students' attitudes and use of AI through regular surveys/focus groups



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Three ways of using ChatGPT

2. Socratic questioning

I am a foundation year student studying materials science. I have taken a maths course in matrices. Use the socratic approach to test my understanding of this topic. I have uploaded the lecture notes. Ask one question at a time and do not give me hints

1. Generating quizzes and practice problems

I am a foundation year student in chemistry. Create a ten-question quiz to test my understanding of the ideal gas laws, based on real-world scenarios. Five of the questions should make me do numerical calculations. Give me the questions one at a time and give me feedback on my answers including how good my reasoning is. Don't give me any hints, and do make sure I include the correct units for any calculations along with full reasoning for all answers.

3. Spot the error

Generate 250 words describing the types of intermolecular bonding, with examples, but deliberately make some errors in it. Don't tell me how many errors or mistakes there are, let me find them. Give me feedback on whether or not I am right but do not give me any hints even if I am wrong. Use critical questioning to help me find all the errors without giving me the answer.

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What have we learnt?

In the words of the students...

I guess the biggest fear though is, if you don't know it's wrong, then you're revising the wrong stuff.

I always had a go at answering a question before going to ChatGPT, because it's so helpful it will give me too many hints

Learning is when I have to go thru pain to understand a concept. ChatGPT acts as the painkiller and very often bypasses the learning process. It's unfortunate but because it's so accessible and popular, it's the most logical shortcut to take. Pre-ChatGPT me had a functional brain

I wanted it to explain something more professionally to me rather than giving me watered down analogies, so I told it to "be like an Oxford tutor"

Sometimes if you're doing the quiz and you tell it your answer, it doesn't want to tell you you're wrong!

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