From Curiosity to Classroom Practice: A Chemist's Personal Journey with AI

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When ChatGPT first came out, I wasn't skeptical. I was curious. I opened a browser tab, typed in a general chemistry question, and was surprised by how clearly and confidently it responded. I was immediately intrigued. I started trying it out in different ways: having it generate chemistry problems, explain concepts from different angles, and even imitate the tone I typically use with students. It didn't take long before I realized this tool could change the way I approached course design and student support.

What started as a personal experiment quickly became part of my regular teaching approach. I began using ChatGPT to create scaffolded worksheets for General Chemistry I and II, customizing them based on student feedback and where the class seemed to be struggling. For example, when students had trouble with a topic like molecular geometry, I could create guided steps that helped them build understanding piece by piece. These worksheets became more than practice. They helped students figure out where they were confident and where they needed support. One version began with a summary generated by AI, followed by prompts asking students to critique the summary and rewrite it in their own words. Several students later told me that this process helped them recognize gaps in their thinking.

ChatGPT also helped me streamline the behind-the-scenes work of my Specifications Grading approach. Because students have multiple chances to show mastery, I need several versions of the same assessment at the same level of difficulty. What used to take hours of rewriting became much more manageable with ChatGPT. This gave me more time to focus on providing meaningful feedback and supporting individual student progress.

Beyond content creation, ChatGPT helped me simplify many of the routine tasks that come with teaching. I used it to write prompts, design in-class activities, create feedback forms, and draft exit tickets. With less time spent on these logistics, I was able to focus more on connecting with students, reflecting on their needs, and adjusting my instruction as the course progressed.

At the same time, I realized that many students were unfamiliar with AI or hesitant to use it. I couldn't expect them to benefit from a tool they didn't understand or trust. So, I took time in class to guide them. I showed them how to set up an account, offered sample prompts, and walked them through how to adjust those prompts based on their own learning goals. We talked openly about the pros and cons of using ChatGPT, including its limitations and the importance of using it responsibly. I emphasized that while AI can be helpful, it is no replacement for genuine thinking or personal effort. We also discussed what ethical use looks like in practice, including the need to question what AI generates, give credit where it's due, and reflect on how it fits into academic integrity.

To make things easier, I shared a few starter templates they could modify. Some students began by asking ChatGPT to explain a concept in simple terms. Others used it to generate practice quizzes or test questions. These small steps helped students gain confidence and encouraged them to take ownership of how they used the tool.

Some students picked up the tool quickly, using it to create study guides or quiz themselves on key ideas. Others took a bit longer, which was completely fine. A few even used ChatGPT to create mock exams based on topics from the syllabus, using them for self-assessment and group review. By the end of the semester, informal feedback suggested that many students felt more confident and better prepared when using AI as part of their learning. Anonymous surveys I distributed throughout the term supported this. Several students shared that AI became more approachable once they learned how to use it responsibly. Others expressed that they would have appreciated more structured guidance earlier in the semester, which I kept in mind when planning future courses.

As I continued to use ChatGPT in later semesters, I started to see patterns in how different student populations responded. Students in General Chemistry I, where the material leans more toward math and procedures, were generally quicker to use AI tools. In General Chemistry II, which emphasizes conceptual understanding, some students were more hesitant. In one AI-supported assignment, some students felt empowered, while others found the steps difficult to follow. That experience reminded me how important it is to strike the right balance with scaffolding. If the structure is too tight, it can feel restrictive. If it's too open-ended, students may not know how to engage effectively.

To keep growing in my own understanding, I participated in AI-focused faculty workshops and joined the BearcatGPT Pilot Study. This gave my students access to a version of ChatGPT that had been trained on course-specific materials. I incorporated this into a portfolio assignment where students used guided prompts to reflect on their learning and deepen their understanding. Watching them interact with this tool in thoughtful ways reinforced my belief that AI, when used well, can be both intentional and ethical. Since they were using the BearcatGPT RAG model (Retrieval-Augmented Generation), I felt more confident about the quality of responses they received. Still, I reminded them often to evaluate the content, question unclear results, and not take everything at face value. During recitation, I regularly checked in to see if anyone needed help writing or improving their prompts. At

one point, a few students mentioned that algebraic equations were sometimes difficult to read because they appeared distorted. I contacted the tech team, who responded quickly and resolved the issue. It was encouraging to receive such helpful support, not just from the technical staff, but also from fellow faculty who were experimenting with AI in their own classrooms.

During the last few weeks of the semester, I used BearcatGPT to generate exit tickets. These gave students a chance to share which topics they felt confident about and where they needed more help. I used that feedback to build our final review sessions and create tailored study guides. In their end-of-semester reflections, many students mentioned that these review resources helped them feel more prepared.

At first, I thought students would naturally explore ChatGPT on their own, but I soon realized that most needed guidance. Since then, I have made it a regular part of my teaching to model how to write effective prompts, how to evaluate and refine AI-generated content, and how to use AI as a supportive tool rather than a shortcut. Now, I find myself scaffolding not only the chemistry content but also the students' use of AI to engage with that content.

Looking back, integrating AI into my teaching was not just about saving time or trying something new. It changed how I think about teaching altogether. I became more reflective, more flexible, and more focused on how learning actually happens.

AI is not a replacement for good teaching. But when used thoughtfully, it can enhance the relationship between instructors and students. It can give students tools to learn more deeply and help them approach new ideas with curiosity and care. For me, what started as an experiment with a new tool grew into a valuable part of my evolving teaching practice. As AI continues to develop, I plan to keep asking how it can support—not replace—the core work of teaching. I hope to create a space where students can feel confident using AI responsibly and where integrity, curiosity, and critical thinking remain at the heart of learning.