



Letter To The Editor

The Use of AI in an Ever-Changing World

Ana Fraiman, Ph.D., Professor Emerita
Audrey L. Reynolds Distinguished Teaching Professor
Department of Chemistry
Northeastern Illinois University
Chicago, Illinois 60625
a-fraiman@neiu.edu



This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/)

Recommended Citation

Fraiman, A. (2025). The Use of AI in an Ever-Changing World. *Advances in Peer-Led Learning*, 5, 4-6. Online at <https://doi.org/10.54935/apll2025-01-02-04>



Letter To The Editor

The Use of AI in an Ever-Changing World

Ana Fraiman

Audrey L. Reynolds Distinguished Teaching Professor

Department of Chemistry

Northeastern Illinois University

Chicago, Illinois 60625

a-fraiman@neiu.edu

It is a year since this journal published our paper on *Testing the reliability of ChatGPT in providing spectral information of organic molecules* (Fraiman, et al. 2024). It is even clearer now that Artificial Intelligence (AI) represents a transformative revolution which is developing at an unprecedented pace (Rodriguez, et al., 2023; Tokay, et al., 2025). When we published our work on spectroscopy data generated by ChatGPT, the numerical values it provided were remarkably accurate and closely aligned with experimental results. However, in the fall of 2024, ChatGPT could only generate numerical data with explanations, not visual representations. Despite our efforts to transform these numbers into visual formats, we could not replicate the graphical representation typical of experimental spectroscopy.

In one year, ChatGPT now provides both the numerical values as well as the visual representation of spectra. In the field of Organic Chemistry specifically, there is extensive information about organic-chemical reactions including detailed reaction mechanisms.

I recently tested ChatGPT by providing reactants in several reactions with reagents that would fail experimentally. ChatGPT provided answers and explanations why the reactions could not take place, and how to modify the reagents in order to obtain the desired products. One conclusion of this small experiment is that all my exams could now be answered by ChatGPT. Therefore, we need to think about new ways that we teach and test students' knowledge.

There are many AI programs on the market, available for free. We must accept that students will use these programs, and it is counterproductive to forbid the use of AI. It is a new tool that is available and methods of teaching must be reconsidered as a result. Educators are responsible for supporting students' learning in how to interpret the outcomes of information

provided by AI, which demands an emphasis on critical thinking as well as evaluation in order to understand, analyze and use the results. Educators also have to teach how to use primary sources for verification of results provided by the output of AI programs.

AI is changing the workplace and education. Although cheating is a common concern it should not be the sole focus when integrating AI into the classroom. This new AI revolution demands we adapt. The teaching approach should be on mastering new approaches to solving problem and gaining competency with constantly evolving tools. This requires the willingness to be “life-long learners,” a phrase that has been bandied about for fifty years, and now expresses an urgency to meet change, because the tools of AI are constantly changing. Educators must not only demonstrate content mastery in their respective fields but also actively invest in developing innovative and safe educational methods to foster effective learning with AI.

Educators need to be concerned about changing our ways of teaching to introduce AI and change how we assess learning in this new environment. The means of student learning may be changing even more rapidly than what is being learned. We ought to prepare students for upcoming complexities. This can be achieved with Peer-Led Team Learning workshops in which students learn how to listen, collaborate, solve problems together, and develop important interpersonal skills for this AI world. The challenges of the learning environment and the workplace demand teamwork, emphasizing the development of deep knowledge and the integration of new tools.

There are many ways AI can be introduced in the PLTL workshop session. One thing is clear: Chat GPT or another AI program is not going to replace the Peer Leader. AI is a new technology that peer leaders can utilize during the workshop and help the students understand that AI is not always correct. An example can be during the discussion of a new concept. The peer leaders can present additional problems that are generated by AI and ask the students to verify if the answers are correct: if so, why, and if not, why not. This preserves PLTL pedagogy in that students are solving problems collaboratively. In the same way that we prepare peer leaders with various tools of facilitation, we as instructors will develop various tools and ways that AI can assist in promoting understanding, overcoming misconceptions, creating analogies, and finding other ways of approaching problems (Pattison, 2025).

Educators need time to avail themselves of all possible preparation, as well as time for the development of skills and knowledge to meet these changing educational needs. In order to prepare students for the changing workplace, instructors must be afforded time to learn about AI. Organic Chemistry is my area of expertise, and I foresee the incorporation of AI in the

teaching of Organic Chemistry (Agar, et al., 2024). Every field is undergoing a similar transformation with the concurrent need for integration of AI and learning.

References

- Agar, S., Tokay, I., Akkurt, B., Gokoluk, E., Akbulut, M. B., Ozler, B. D., & Elmas, M. (2024). AI Integrated Theoretical/Organic Chemistry is Set to Revolutionize the Future of Education and De Novo Drug Discovery. *World Journal of Chemical Education*, 12, 4, 72-80. <https://pubs.sciepub.com/wjce/12/4/1/>
- Fraiman, A., Barron, P., Dorsey, B., Delgado, S.A., & Sanchez, E. (2024). Testing the reliability of ChatGPT in providing spectral information of organic molecules. *Advances in Peer-Led Learning*, 4, 69-108. <https://doi.org/10.54935/apll2024-01-07-69>
- Pattison, K. (2025). No one knows the answer and that's the point. *The Harvard Gazette* (November 10). https://news.harvard.edu/gazette/story/2025/11/no-one-knows-the-answer-and-thats-the-point/?utm_source
- Rodrigues Vasconcelos, M.A., & dos Santos, R.P. (2023). Enhancing STEM learning with ChatGPT and Bing Chat as objects to think with: A case study. *Eurasia Journal of Mathematics, Science and Technology Education*, 19, 7. <https://doi.org/10.29333/ejmste/13313>
- Tokay, I., Gokoluk, E., Filizdanoglu, Z., Durmaz, S., Kheirkhah, S., Rahpeimaei, Z., Akkurt, B., Agar, S., & Elmas, M. (2025). Shaping the Future of University Education: The Role of Artificial Intelligence in Higher Education and Its Impact on Foreign Language and Chemistry Courses within Health Sciences Faculties. *American Journal of Educational Research*, 13, 3, 111-120. <https://www.sciepub.com/education/abstract/16499>