

Empowering Students through AI: A Hands-On Workshop for Creating AI Tutors

Workshop Duration: 3 hours

Abstract:

Artificial intelligence (AI) is rapidly transforming higher education, enhancing personalized and enabling efficient learning (Brandhofer, Gröblinger, Jadin, Raunig, & Schindler, 2024). Despite these advancements, challenges persist for university lecturers regarding the quality of students' work and their knowledge and skills. The integration of AI tutors aligns with prior research. Imran and Almusharraf (2023) highlight the role of chatbots as aids and facilitators for both learners and instructors, emphasizing their potential to ease and support the academic process. Wu and Yu (2023) and Albdarani and Al-Shargabi (2023) showcase how AI chatbots improve learning outcomes through personalized support. Baillifard et al. (2023) and Chen et al. (2022) underline AI's ability to enhance learning by applying principles of learning sciences and offering responsive assistance. Fuchs and Aguilos (2023) discuss how students value personalized AI learning experiences. Together, these studies underline the transformative potential of AI tools in education.

This workshop takes a proactive, hands-on approach to integrating AI into the teaching process. Rather than banning AI, we propose to equip students with essential AI competencies while supporting their individual learning journeys.

In this interactive 3-hour workshop, participants will explore how to develop customized AI tutors using tools like ChatGPT. Through practical exercises, participants will conceptualize and create AI chatbots tailored to their specific teaching contexts. We will discuss best practices, common pitfalls, and the pedagogical implications of using AI in student-centered environments.

The proposed workshop structure is as follows:

Part A – Presentation of the AI tutor project “Bridging Courses” currently developed at FHWien der WKW

Part B – Roundtable discussion on experiences with AI in the classroom / benefits and challenges of AI in teaching

Part C – Takeaways “Do’s and Don’ts when using AI in student settings”

Part D – Input on prompt development for custom GPTs for teaching

Part E – Project work, create your own AI tutor for chosen use case

Part F – Reflection on learnings and presentation of AI tutor projects

Anticipated workshop learning objectives

The interactive nature of the workshop facilitates exchange of ideas and use cases as well as practical applications of prompting for custom GPTs. Upon completion of the workshop, participants will:

- Understand the role and impact of AI tools (like ChatGPT) in higher education
- Explore both the opportunities and challenges of integrating AI in teaching
- Learn effective prompt engineering techniques
- Design and develop a basic AI tutor for a specific educational use case
- Collaboratively develop and present AI tutor prototypes in small groups

Whilst participants of the workshop are not required to have prior knowledge in the use of AI, an open mindedness for the exploration of AI-based teaching tools is conducive to the success of the workshop. In addition, certain requirements are necessary for the facilitation of the workshop:

Participants must be equipped with a laptop with internet access and a paid ChatGPT license (e.g. ChatGPT Plus). Please note that free licenses are not sufficient for building custom GPTs.

The workshop requires no specific room set-up, but the room needs to have sufficient power plugs for participants. The workshop size is limited to 25 participants.

References

Albdrani, R. N., & Al-Shargabi, A. A. (2023). Investigating the Effectiveness of ChatGPT for Providing Personalized Learning Experience: A Case Study. *International Journal of Advanced Computer Science and Applications*, 14(11). <http://dx.doi.org/10.14569/IJACSA.2023.01411122>

Baillifard, A., Gabella, M., Banta Lavenex, P., & Martarelli, C. S. (2023). Implementing Learning Principles with a Personal AI Tutor: A Case Study. *arXiv preprint*. <https://arxiv.org/abs/2309.13060>

Brandhofer, G., Gröblinger, O., Jadin, T., Raunig, M., & Schindler, J. (Hrsg.). (2024). *Von KI lernen, mit KI lehren: Die Zukunft der Hochschulbildung. Projektbericht*. Norderstedt: Books on Demand. <https://fnma.at/content/download/2990/19034>

Chen, Y., Jensen, S., Albert, L. J., Gupta, S., & Lee, T. (2022). Artificial Intelligence (AI) Student Assistants in the Classroom: Designing Chatbots to Support Student Success. *Information Systems Frontiers*, 25(1), 161–182. <https://doi.org/10.1007/s10796-022-10291-4>

Fuchs, K., & Aguilos, V. (2023). Integrating Artificial Intelligence in Higher Education: Empirical Insights from Students about Using ChatGPT. *International Journal of Information and Education Technology*, 13(9), 1365–1374. <https://doi.org/10.18178/ijiet.2023.13.9.1939>

Imran, M., & Almusharraf, N. (2023). Analyzing the Role of ChatGPT as a Writing Assistant at Higher Education Level: A Systematic Review of the Literature. *Contemporary Educational Technology*, 15(4), ep464. <https://doi.org/10.30935/cedtech/13605>

Wu, R., & Yu, Z. (2023). Do AI chatbots improve students' learning outcomes? Evidence from a meta-analysis. *British Journal of Educational Technology*. <https://doi.org/10.1111/bjet.13334>