THE UNIVERSITY OF CHICAGO

Teaching High School Students LLM Literacy Through a Technical, Socio-Ethical, and Career Development Lens

Target Audience: High School and College Educators

Expected Read Time: 15 minutes

Description: We present the syllabus for a 3-week high school summer intensive Large Language Model (LLM) literacy course (75-instructional hours). Students were in class from 9am-3pm, 5 days a week for 3 weeks. This syllabus was taught during Summer 2025 to a class of 30 students. No prior computing knowledge or experience is required to take this course. We provide the following resources as part of our submission: (1) Course Syllabus, (2) Weekly Projects, and (3) LLM Activity Interface and Design.

Below, we provide insights into the **design decisions behind the course** to support the adaptation and implementation of all or part of the course. Even though this course was taught for a high school audience, we believe that this course can help high school and college educators integrate AI literacy into their own classrooms.

Course Design & Topic Selection: Zhang et al.[1] defines the core dimensions of AI literacy as technical, socio-ethical, and career futures, as such as we use these dimensions to structure the focus of each week's content.

For the technical dimension (week 1), each day is focused on a different part of the LLM training pipeline. This technical understanding forms the foundation for future topics in the socio-ethical dimensions where students can connect phenomena like bias and hallucinations to different stages of the training process to understand the impacts that certain design decisions (e.g. selection of training data) has on society. For the socio-ethical dimension (week 2), we cover a broad range of topics from bias and hallucinations to the environmental impact and intellectual property to help students use a variety of lenses (e.g. environmental or legal) to support critical evaluation of these technologies. Finally, for the career development dimension (week 3), we use many domains including finance, software engineering, and art as case studies to understand the impacts of LLMs on different careers. Students read, discuss, and debate news articles and research papers to evaluate the capabilities of LLMs in these different domains.

Lesson Structure: Many high school students are active users of large language models (LLM) like ChatGPT. Students develop their own mental models around how these technologies work through their experiences. It's important for the educator to understand students' mental models to help them further their own learning and correct misconceptions. We structure each lesson around 3 main components (1) supporting students in surfacing their prior experiences and mental models related to LLMs through pre-lesson activities, (2) engaging students in guided experimentations with LLMs through in-class lectures and activities, and (3) facilitating reflections on what students' learned to generalize to other contexts. Through course evaluations, we find that this lesson structure was effective in supporting students' learning.[2]

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[1] Helen Zhang, Irene Lee, Safinah Ali, Daniella DiPaola, Yihong Cheng, and Cynthia Breazeal. 2023. Integrating ethics and career futures with technical learning to promote AI literacy for middle school students: An exploratory study. International Journal of Artificial Intelligence in Education 33, 2 (2023), 290–324.

[2] Grace Li, Jaemarie Solyst, and Mina Lee. 2025. A Constructivist Approach to Structuring Technical and Socio-Ethical AI Literacy Lessons. Preprint: https://drive.google.com/file/d/1nllehpHuEBHrBtqX-57xWDWy0b5JzkK0/view?usp=sharing (2025).