CS 8001 OLL Syllabus

Cognitive Science and LLMs

Summer 2026

Instructor Information

Instructor of Record: Ana Rusch, ARusch3@gatech.edu

Primary Instructors: Lara Karki, lschenck@gatech.edu

General Course Information

Description

Are LLMs causing you to lose your skills or critical thinking ability? This is an open research question, and the findings so far are mixed. In this seminar, we will review and discuss human-AI interaction research and work together to design and run our own small studies to understand how use of LLMs may impact our thinking. Together, we will develop techniques to help us understand the how we use LLMs and learn approaches for responsible LLM use from a cognitive science perspective.

This seminar aims to develop students' ability to monitor their own use of LLMs, to notice when they are handing off thinking work to an LLM, and to decide if and when they want to do that. To accomplish this, we will first develop a knowledge base in the latest research on interacting with LLMs, core cognitive science concepts, and human-computer interaction research methods. Throughout the seminar, students will conduct hands-on experiments to examine their own LLM use, and we will discuss, critique, and reflect on our experiences. The seminar will culminate in students designing and running their own small study.

Seminar sessions will consist of a variety of lecture, discussion, hands-on work time, and there will be both synchronous and asynchronous opportunities for participation.

Course Learning Outcomes

Upon successful completion of this course, you should be able to:

- Explain the problems with focusing exclusively on productivity as a measure for success in LLM usage.
- Design a study using HCI research methods to gain insight into the role of LLM use in metacognition.
- Describe prompting strategies for LLMs to preserve, or enhance, critical thinking.

Required Course Materials

Readings and any assigned media files will be added to Canvas or will be available for free online.

Course Requirements & Grading:

Grading for the seminar is pass/fail, and each assignment is also pass/fail. Final grades for the seminar will be determined based on the cumulative pass/fails for all graded components of the course. Pass grades are awarded if the submission is submitted and demonstrates a reasonable amount of thought was put into it.

Assignments

- Weeks 1-5 reflection prompts (5 pass/fail grades)
- Data collection for sample study 1 (1 pass/fail grade)
- Data collection for sample study 2 (1 pass/fail grade)
- Final study (4 pass/fail grades)
- Study design document
    - Data collection
    - Data analysis
    - Findings presentation
- Participation – weeks 1-10 (10 pass/fail grades)

Total: 21 pass/fail grades (more passes = pass; more fails = fail)

Description of Graded Components

Participation: Students are expected to participate on a weekly basis through responding to prompts on Ed Discuss, attending the synchronous seminar, or scheduling 1-1 or group office hours with the instructor.

Reading Reflections: For each of the first five weeks of the seminar, students will be assigned a role to read with LLMs vs. on their own. They will write a reflection on their experience with the reading and the way they read it.

Sample Studies 1 & 2: During the first five weeks, the instructor will assign students to collect data about their LLM use throughout the week. These small studies will familiarize students with research methods that will be used in their final study project.

Final Project: Based on themes from the course and using the sample studies as a demonstration, students will design their own study and collect data to gain insight into an aspect of their own LLM usage.

Course Policies

Pre- &/or Co-Requisites
Prior experience and habitual use of LLMs (e.g., ChatGPT, Gemini, Claude, or DeepSeek) is a pre-requisite for this course. Successful students will regularly use LLMs in their workflows at least multiple times per week. Any students interested in the course who do not have this prior knowledge can email the instructor to discuss (lschenck3@gatech.edu).

It is recommended that students have a Pro subscription to one or more LLM. Gemini offers a free 1-year Pro subscription for students (register with your GT email address).

Collaboration, Group Work, and Use of Generative AI

This course is all about using gen AI and understanding its impacts on thinking through experimentation and reflection. This will involve a comparison of experiences and work outputs completed with gen AI vs. without. In some parts of the course, students will be assigned role to use or not use gen AI in a task. If instructed not to use it, they will be trusted to perform the task without gen AI. Honesty from students regarding their use of gen AI is critical to the success of the seminar and students' own learning.

Attendance and/or Participation

This seminar will include a weekly synchronous meeting on Tuesdays from 8-9pm ET, and we may reschedule after the start of the seminar depending on enrollment and student availability. There will be asynchronous options for participation through Ed Discuss. Students who cannot attend the synchronous seminar are expected to respond to a related prompt each week and to reach out to the instructor with questions. Participation will be part of the pass/fail grade. Students need to attend or participate online for 7/10 classes in order to receive a passing grade for the participation component of the seminar.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.