Applied Agentic AI for Everyday Academic Life

ISYE 4803 YAN / ISYE 8803 YAN | Spring 2027 | 3 credits
CRNs 35499 / 35500

Public syllabus

Course information

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Office: George Tower 1213
Meetings: Tuesday and Thursday, 11:00 a.m. to 12:15 p.m. Eastern Time
Classroom: George Tower/Scheller Tower 0222
Office hours will be announced in Canvas.

Prerequisites and eligibility

Undergraduate prerequisite (ISYE 4803): ISYE 3133. The undergraduate offering is intended for seniors. Prior programming or AI experience is not required. The undergraduate course counts as a breadth elective for all concentrations with the Systems designation. Graduate students may enroll in ISYE 8803.

Course description

Practical use of agentic AI in academic, personal, and professional workflows. Topics include task formulation, context management, coding and data analysis, reusable skills, memory, multi-agent coordination, and workflow automation. Emphasis on verifying outputs, ensuring reproducibility, protecting private data, and exercising human judgment. Through hands-on assignments and a final project, students design, evaluate, and demonstrate AI-assisted workflows for tasks relevant to their studies and research.

Course learning outcomes

By the end of the course, students should be able to:

1. Formulate an open-ended task as a workflow with clear inputs, constraints, deliverables, and success criteria.
2. Organize sources, instructions, and memory so an agent can carry out a task and continue work across sessions.
3. Use AI for reading, writing, coding, and data analysis while independently explaining the decisions behind the work.
4. Verify claims and citations, test code and calculations, and diagnose plausible errors in AI-generated results.
5. Build reusable skills and automated workflows with suitable permissions, checkpoints, and recovery steps.
6. Evaluate workflows using task quality, time, cost, and human effort, and communicate their limitations.

Learning approach and course outline

The course adapts readings and demonstrations from recent academic papers, frontier lab blog posts, and open-source codebases. Topics progress from task formulation and context management to academic artifacts, coding and analysis, reusable skills, memory, tool use, automation, multi-agent coordination, and evaluation.

Classes combine explanations, complete worked examples, guided practice, and discussion. Students will inspect evidence, diagnose constructed errors, and make independent judgments before answers are discussed. Projects culminate in a working workflow and an individual explanation of its results.

Required course materials and technology

No textbook is required. Assigned materials will consist of instructor notes, selected articles, technical documentation, and open-source examples. The final reading list will be provided before the course begins. Students need regular access to a computer and internet connection and should contact the instructor early about access or installation difficulties.

No paid AI account is required. Students may bring their own AI tools or subscriptions. The planned starting option is free Google Gemini through a Google account. If its capabilities or usage limits are insufficient, the instructor will provide access to an open-source or open-weight model through a supported course environment, including a lightweight model where appropriate. Required work will have a no-cost completion route; students will not need to purchase API credits or run a large model on their own computer.

Frontier-model access is not guaranteed. The instructor is exploring teaching credits from OpenAI and Anthropic and university educational AI opportunities. Approved licenses or credits may expand available tools. The course does not depend on receiving them. Setup instructions will distinguish browser-based tools from the model and tool access needed for agent exercises.

Undergraduate and graduate requirements

Both sections share the core topics. ISYE 4803 students will implement a useful workflow, compare it with a simple baseline, verify its outputs, and explain their decisions. ISYE 8803 students will additionally connect the project to relevant technical literature, conduct systematic comparisons across tasks or repeated runs, and analyze failure cases and the limits of their conclusions. Assignment rubrics will specify the additional graduate requirements.

Grading policy

Course grades use the following assessment weights.

Component	Weight
Practical assignments	40%
Individual understanding checks	15%
Project milestones and final artifact	25%
Final demonstration and individual oral defense	20%
Total	100%

Assignments assess useful artifacts, reproducibility, verification, and explanation. Projects assess problem formulation, implementation, comparison with a baseline, and documented limitations. Each student must explain their own contribution. Individual understanding checks and the individual oral defense are completed without live AI assistance; AI use is expected in practical assignments and projects.

Letter-grade scale: A, 90% or above; B, 80% to below 90%; C, 70% to below 80%; D, 60% to below 70%; F, below 60%.

Final assessment policy

The final assessment consists of a project demonstration and individual oral defense. There is no separate written final examination. The final workflow artifact, reproducibility instructions, evaluation summary, demonstration, and oral defense are the deliverables during the final instructional days. Exact dates and presentation arrangements will be confirmed in Canvas.

Attendance and participation

Regular attendance and active participation are expected because class includes demonstrations and guided practice. Under this grading plan, attendance itself is not separately graded. Individual understanding checks contribute to the grade. Students are responsible for missed material and announcements. Institute-approved absences and approved accommodations will be addressed through an appropriate alternative without academic penalty, consistent with applicable Georgia Tech policies.

Collaboration and generative AI

AI is an intended part of practical coursework. Students must identify the tools used, explain their contribution, and describe how outputs were checked, corrected, or rejected. Students remain responsible for all submitted claims, code, calculations, and citations. Every student must be able to explain, test, and revise the submitted work.

Collaboration is permitted when authorized by the assignment. Contributions from classmates, external sources, and AI tools must be acknowledged. Fabricated evidence, undisclosed copying, and misrepresentation of contributions are unacceptable. Individual understanding checks and the individual portion of the oral defense must reflect the student's own understanding.

Exercises will use public, synthetic, or appropriately authorized data. Students must protect credentials and private information and obtain authorization before agents send messages, publish material, spend money, or modify shared resources. The instructor may use AI to support preparation, organization, and feedback while retaining responsibility for grading decisions and student support.

Academic integrity

Students are responsible for following the Georgia Tech Academic Honor Code. Suspected violations will be handled through the applicable Institute procedures. AI use must comply with assignment instructions and the Honor Code. The Academic Honor Code is available at https://catalog.gatech.edu/policies/honor-code/.

Acceptable student conduct

Students are expected to communicate respectfully, allow others to participate, and treat classmates and the teaching team professionally. Course activities, including online discussion and AI-assisted work, must follow the Student Code of Conduct and Georgia Tech's Student-Faculty Expectations. See https://catalog.gatech.edu/rules/21/ and https://policylibrary.gatech.edu/student-life/student-code-conduct.

Disability accommodations

The Office of Disability Services provides assistance to students seeking academic accommodations. Students should contact the office to arrange approved accommodations and share their accommodation letter with the instructor as early as possible. The instructor will work with students to implement approved accommodations. Information is available at https://disabilityservices.gatech.edu/.

Course communications

Canvas will provide course announcements, assignment instructions, readings, due dates, and detailed activity schedules. Changes to course requirements will be communicated promptly. The public syllabus and the syllabus provided to enrolled students will remain consistent. Detailed setup guidance and day-to-day instructions may be provided separately in Canvas.