

CLL 4699 Syllabus

Undergraduate Research (1–3 credit hours, as arranged with faculty mentor)

Fall 2026

Instructor Information

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General Course Information

Description

Undergraduate research is conducted under the guidance of a faculty mentor. This course is an (audit) paid or volunteer research. The modality should be discussed by the student and the faculty mentor.

Course Learning Outcomes

1. Communication

- Uses and understands professional and discipline-specific language
- Expresses ideas orally in an organized, clear, and concise manner
- Writes clearly and concisely using correct grammar, spelling, syntax, and sentence structure
- Demonstrates an ability to interpret, evaluate, and create visual representations of ideas

2. Creativity

- Shows ability to approach problems from different perspectives
- Uses information in ways that demonstrate intellectual resourcefulness
- Effectively connects multiple ideas/approaches

3. Autonomy

- Demonstrates an ability to work independently and identify when guidance is needed

- Accepts constructive criticism and uses feedback effectively
- Uses time well to ensure work gets accomplished

4. Ability to Deal with Obstacles

- Is not discouraged by setbacks or unforeseen events and perseveres when challenges are encountered
- Shows flexibility and a willingness to take risks and try again
- Troubleshoots problems and searches for ways to do things more effectively

5. Intellectual Development

- Recognizes that problems are often more complicated than they first appear
- Approaches problems with an understanding that there can be more than one right explanation or even none at all
- Displays insights into the limits of their knowledge and an appreciation for what isn't known

6. Critical Thinking and Problem Solving

- Uses a reflective and iterative approach to problem solving
- Looks for the root causes of problems and develops or recognizes the most appropriate corrective actions
- Recognizes flaws, assumptions, and missing elements in arguments

7. Practice & Process of Inquiry

- Demonstrates ability to formulate questions and hypotheses within the discipline
- Demonstrates ability to properly identify and/or generate reliable data
- Shows understanding of how knowledge is generated, validated, and communicated within the discipline

8. Nature of Disciplinary Knowledge

- Shows understanding of the criteria for determining what is valued as a contribution in the discipline
- Shows awareness of important contributions in the discipline and who was responsible for those contributions
- Reads and applies information obtained from professional journals and other sources

9. Project Knowledge and Skills

- Displays knowledge of key facts and concepts
- Displays a grasp of relevant methods and is clear about how these methods apply to the research project
- Demonstrates an appropriate mastery of skills needed to conduct the project

10. Ethical Conduct

- Shows understanding of the importance of principles of Responsible Conduct of Research (RCR)

Required Course Materials

No textbooks or materials are required. Resources for research are determined in consultation with the instructor.

Grading Policy

This course is graded on a letter grade basis.

The grade will be assigned based on agreed upon objectives commensurate with the difficulty and scope of the project, the number of credit hours, as well as the technical proficiency of the student. It is the joint responsibility of the instructor and the student to discuss expectations and how meeting or not the expectations affect the final grade. The grading process will be clearly articulated to the student to allow reasonable prediction progress towards the final grade throughout the semester.

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

- A: $\geq 90\%$
- B: 80.0-89.99%
- C: 70.0-79.99%
- D: 60.0-69.99%
- F: $< 59.99\%$

According to policy, grades at Georgia Tech are interpreted as follows:

- A: Excellent (4 quality points per credit hour)
- B: Good (3 quality points per credit hour)
- C: Satisfactory (2 quality points per credit hour)
- D: Passing (1 quality point per credit hour)
- F: Failure (0 quality points per credit hour)

See <http://registrar.gatech.edu/info/grading-system> for more information about the grading system at Georgia Tech.

Description of Graded Components

1. Weekly assignments (15%)

- Students will submit a brief weekly report documenting the research activities completed, key outcomes or findings, challenges encountered and planned next steps. Reports may include summaries of relevant literature, data preparation and analysis, model development and evaluation, dashboard development, troubleshooting, or other project-related tasks. Weekly reports will be evaluated based on completeness, clarity, evidence of consistent progress, and thoughtful reflection on the research process.

2. Mid-term work-in-progress paper (35%)

- Students will submit a first draft of a four-page work-in-progress paper using the ACM two-column proceedings template. The paper should clearly describe the research problem, relevant literature, project objectives or research questions, data and methods, system development progress, preliminary findings, and planned next steps. Because the project involves the development of a real-time learning analytics model and dashboard, the paper should also explain the model-training process, classification framework, evaluation approach, and proposed dashboard functionality. The draft will be evaluated based on the clarity and significance of the research problem, engagement with relevant literature, methodological appropriateness, technical progress, organization, and quality of academic writing.

3. Final work-in-progress paper (40%)

- Students will submit a revised four-page work-in-progress paper. The final paper should incorporate feedback provided on the midterm draft and present the project's completed or most current research outcomes. It should include a clearly articulated research problem, relevant literature, data and methods, model and dashboard development, evaluation results, discussion of findings, limitations, ethical considerations, and implications for future research or system development. The final paper will be evaluated based on the quality and completeness of the research, appropriate interpretation of results, evidence of revision and intellectual development, technical accuracy, effective use of tables or visualizations, and clarity and professionalism of the written presentation.

Course Policies

Attendance and/or Participation

This course does not include scheduled class meetings. Undergraduate research students will participate in research activities on a weekly basis commensurate with registered credit hours and as discussed with faculty research mentors.

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.

Collaboration, Group Work, and Use of Generative AI

Collaboration is expected and encouraged in this undergraduate research course. Students may work with peers and faculty advisors on clearly defined tasks, such as reviewing literature, developing research questions, preparing or analyzing data, building models, and interpreting findings. Roles and the division of work should be discussed in advance. Each student remains responsible for understanding and accurately reporting the work and for appropriately acknowledging the contributions of collaborators.

Generative artificial intelligence (GenAI) may be used only through systems approved by Georgia Tech and only to assist and augment data science, programming, and modeling tasks in ways consistent with the faculty mentor's instructions. GenAI may also support brainstorming, outlining, editing, and other aspects of the writing process. It may not replace the student's substantive reasoning, analysis, interpretation, or authorship. Students must critically review and independently verify all AI-generated content, including code, analyses, factual claims, and citations, and submit only work they understand and can explain as their own.

Any use of GenAI must be disclosed in the submitted work or research record by identifying the tool and briefly describing the purpose and scope of its use; prompts and outputs should be retained and provided if requested. Never enter sensitive, protected, regulated, confidential, or otherwise restricted research information into a GenAI system. Assignment-specific or faculty-mentor instructions take precedence over this general policy. Undisclosed or prohibited use may constitute a violation of the Georgia Tech Honor Code.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](#))