

COURSE SYLLABUS

Undergraduate Research

CLL 4699 • Fall 2026 • Georgia Institute of Technology

Course Information

Instructor	Abeera P. Rehmat, Ph.D. — arehmat3@gatech.edu
Course Prefix and Number	CLL 4699: Undergraduate Research
Term	Fall 2026
Credit Hours	Variable, 1–3 credit hours (as arranged with faculty mentor)
Meetings	No standing class meeting. Meeting frequency and format are determined individually by the student and faculty mentor.

Course Description

Undergraduate research conducted under the guidance of a faculty mentor. This course may be taken as an audit, a paid course, or a volunteer research experience. The modality, meeting schedule, and specific research responsibilities should be discussed and agreed upon by the student and the faculty mentor at the start of the term.

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
- 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
- For projects involving the design, building, or development of a tool, prototype, or intervention, applies the stages of the Engineering Design Process (Identify, Understand, Ideate, Prototype, Evaluate, Communicate) and human-centered design thinking

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 project's difficulty and scope, the number of credit hours, and the student's technical proficiency. It is the joint responsibility of the instructor and the student to discuss expectations and how meeting or not meeting the expectations affects the final grade. The grading process will be clearly articulated to the student to allow reasonable prediction of 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 Georgia Tech's grading system.

Description of the 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, tool development and evaluation, 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 abstract (35%)

- Students will submit a one-page abstract for the work-in-progress paper for the American Society of Engineering Education (ASEE). The abstract should clearly describe the research problem, relevant literature, project objectives or research questions, data and methods, and preliminary findings. Because the project involves developing a tool for K-12 Engineering Education, the paper should also explain the development and usability. 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 draft paper. The draft 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; evaluation results; a discussion of findings, limitations, and ethical considerations; and implications for future research for Engineering Education. The draft paper will be evaluated based on the quality and completeness of the research, the appropriate interpretation of results, evidence of revision and intellectual development, technical accuracy, the effective use of tables or visualizations, and the clarity and professionalism of the written presentation.

Course Policy

Attendance Policy

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 and Research Honesty/Integrity Statement

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 the [Student Code of Conduct](#) and the [Academic Honor Code](#), especially [Appendix A: Graduate Addendum to the Academic Honor Code](#).

Students are expected to perform research in an ethical and responsible manner. Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, which will investigate the incident and determine the appropriate penalty for the violation.

Allegations of scientific or scholarly misconduct are handled in accordance with the procedures outlined by the [Policy for Responding to Allegations of Scientific or Other Scholarly Misconduct](#).

Core IMPACTS

Not applicable

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) 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

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](#) articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in [The Expectations of Advisors and Advisees](#). 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.

Campus Resources

The Undergraduate Research Opportunities Program (UROP) provides resources and support for undergraduate research students and their mentors. Visit <https://undergradresearch.gatech.edu/> or contact UROP at urop@gatech.edu for more information.