

ECE 4122 Unsupervised Laboratory Syllabus

Advanced Programming Techniques for Engineering Applications ECE 4122, Section BEL, 0

Credits Fall 2026

Instructor Information

Instructor: Jeffery Hurley

Email: jhurley@gatech.edu

General Course Information

Description

Laboratory is unsupervised and must be taken at the same time as the course and counts towards 10% of your grade in the course. The laboratory reinforces the concepts covered in class of a number of programming techniques for distributed and parallel computing and other advanced methods, such as multiprecision arithmetic and nonblocking I/O. Credit not awarded for ECE 4122 and ECE 6122.

Course Learning Outcomes

Develop multi-threaded C++ applications using standard threading models

Develop 3D enabled C++ applications using OpenGL

Develop distributed C++ applications on (high performance computing) HPC systems

Develop C++ applications using shortest path algorithms and optimization techniques

Develop distributed C++ applications using TCP and UDP sockets for communication

Develop GPU enabled C++ applications

Required Course Materials

There is not a required textbook. We will be using free online textbooks through GaTech library and other online resources

Grading Policy:

Online Concept Quizzes 100%

A>90; B>80; C>70; D>60

Assignments

- Quiz 1, 20%
- Quiz 2, 20%
- Quiz 3, 10%
- Quiz 4, 10%
- Quiz 5, 10%
- Quiz 6, 10%
- Quiz 7, 10%

Description of Graded Components

There is a quiz for each of the major topics covered.

Course Policies

Attendance and/or Participation

This is an unsupervised laboratory, therefore attendance/participation will not be considered towards the laboratory grade.

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.

Core IMPACTS

This laboratory does not count towards a Core IMPACTS area course.

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.

Pre- &/or Co-Requisites

ECE 2035 [min C] or ECE 2036 [min c] Prerequisite.

Collaboration, Group Work, and Use of Generative AI

All quizzes must be completed without any outside assistance.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Quizzes must be completed by the due dates. Quiz extensions are given for illness, approved Institute activities or religious observances.