ECE 6122 Syllabus

Advanced Programming Techniques ECE 6122, Section Q, 3 Credits

Fall 2026

Instructor Information

Instructor: Jeffery Hurley

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General Course Information

Description

Course covers 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:

Programming Assignments 70%; Unsupervised Lab 10%; Final Project 20%.

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

Assignments

- Homework 1, 10%
- Homework 2, 10%
- Homework 3, 10%
- Homework 4, 10%
- Homework 5, 10%
- Homework 6, 10%
- Homework 7, 10%
- Unsupervised Lab, 10%
- Final Project 20%

Description of Graded Components

There is a homework assignment for each of the major topics covered. The final project combines several of the topics covered.

Course Policies

Attendance and/or Participation

This will be an active classroom, where you will be expected to participate. I have noticed a drastic difference in the performance between students who regularly attend class and participate compared to those who don't. Therefore, course attendance and participation is considered when determining your final 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 course does not count towards a Core IMPACTS area.

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

None.

Collaboration, Group Work, and Use of Generative AI

You are allowed to consult with other students on all homework assignments, but any work you turn in must be written in your own hand.

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

Late homework will be penalized accordingly. Homework extensions are given for illness, approved Institute activities or religious observances.