ECE 6612 Syllabus

Comp Network Security, Section A, 3 Credits

Fall 2026

Instructor Information

Instructor: Frank Li

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General Course Information

Description

The vast majority of today's computing devices support network connectivity, from your laptops and desktops, to web servers, to Internet-of-Things devices. This connectivity is essential for enhancing the capabilities of computer technology. However, it has also fostered an environment rampant with network security and privacy concerns.

This course aims to provide a thorough grounding in network security suitable for those interested in working in or conducting research in the area, as well as students more generally interested in either security or networking. We will examine core network protocols and their security, as well as broader issues relating to Internet security for which networking plays a role. Through this course, you should learn the fundamentals of how computer networks should operate, and what can and does go wrong.

Course Learning Outcomes

Understand how data is securely communicated across the Internet

Recognize security and privacy concerns with Internet communication methods

Identify countermeasures to network security concerns

Leverage common tools to investigate real-world network security characteristics

Write about and present a network security research project conforming to the security research community's standards

Required Course Materials

None

Grading Policy:

Homework (3 assignments): 30%; Quizzes (3 quizzes): 30%; Semester Project (proposal, presentation, and writeup): 40%

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

Assignments

- Homework 1, 10%
- Quiz 1, 10%
- Project Proposal: 5%
- Homework 2, 10%
- Quiz 2, 10%
- Homework 3, 10%
- Quiz 3, 10%
- Project Presentation: 10%
- Project Writeup: 25%

Description of Graded Components

Quizzes are in class and open paper-only notes.

Homework assignments are completed individually and submitted online.

The semester project will be done in a group of 3-5 people. Students are able to choose their own groups, and for those without a full group, I will randomly assign students together. The project will be open-ended, but must pertain to network security. The deliverables include an initial project proposal for feedback, a presentation talk or demo of your final project, and a research-style paper on your final project.

Course Policies

Attendance and/or Participation

There are no attendance or participation requirements for lectures. Quizzes must be taken in-person during the allotted time period. Project presentations must be in-person during the allotted time period.

You may need to miss a portion of the course for valid reasons (e.g., sick, onsite interviews). For illnesses or personal emergencies, contact the Office of Student Life, as described in the policies at http://www.catalog.gatech.edu/policies/student-absence-regulations/. For Institute Approved Absences, we adhere to the Institute policies at https://registrar.gatech.edu/info/institute-approved-absence-form-for-students.

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

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 (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

You are expected to have some familiarity with either core computer security or computer networking concepts.

ECE 3600 Computer Communications / ECE 4410 Internetwork Programming / CS 3251 Computer Networking / ECE 6607 Computer Communication Networks or equivalent is expected.

ECE 4115 Introduction to Computer Security / CS 4235 Introduction to Information Security / CS 6035 Introduction to Information Security is helpful but not expected.

Extra Credit Opportunities

None

Collaboration, Group Work, and Use of Generative AI

Homework submissions should be written and submitted separately by each student, but discussion with other students is allowed and encouraged within reason (e.g., students should still independently complete the work). Generative AI should not be used.

Quizzes must be done individually. Any collaboration on quizzes will be considered cheating (see the Academic Integrity section).

Semester projects will be done in groups of 3-5 people (depending on class size). Students are able to choose their own groups, and for those without a full group, I will randomly assign students together.

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

Assignments are due at the time listed in the schedule. There are no undocumented exceptions. If you have an emergency situation or a school sanctioned exception, please contact me before the due date so we can adjust your assignment deadlines (some documentation may be needed).