

CS 3251: Computer Networking I

Georgia Institute of Technology

Summer 2026

Course Details

Instructor Eric Greenlee (he/him) (eric.greenlee@gatech.edu), <https://ericgreenlee.github.io/>
Location J. Erskine Love Manufacturing Building, Rm 183
Time 3:30–5:40 pm, Monday/Wednesday
Office Hours Thursdays 11am - noon via zoom or by appointment (in person or zoom)

Teaching Assistant & Office Hours

Office hours link: <https://gatech.zoom.us/j/96965087310>

Name	Email	Time	Location
Tejonidhi (Tejo) Deshpande	tdeshpande33@gatech.edu	Tuesdays 2-3pm	Zoom

Please email the Instructor/TA an hour before office hours if you plan to attend.

Course Description

The main objective of this course is to provide students with a rigorous understanding of computer networking concepts, protocols, and technologies using the current Internet as the specific case study. Even though we will cover the major Internet protocols in some detail, the emphasis will be on fundamental problems, ideas, and algorithms.

Covered topics include: layering, the web and video streaming as network applications, naming, reliability, congestion and flow control, routing, internetworking, and wireless networks.

Learning Objectives

By the end of this course students will be able to:

- Understand the fundamentals of computer networks, how they are designed and how they operate.
- Utilize various network measurement and troubleshooting tools to better understand network behavior.
- Solve mathematical problems related to the analysis of network performance.
- Recognize challenges in the design and utilization of state-of-the-art networking infrastructure, including wide area networks, datacenter networks, and wireless and cellular networks.

- Build networked applications and network protocols.

Textbooks

No textbook is required for this class. However, we highly recommend:

- **Computer Networking: A Top-Down Approach** (8th or 9th ed.) by Kurose and Ross. Kurose is the primary reference; it may be possible to find this online.
- **Computer Networks: A Systems Approach** by Larry Peterson and Bruce Davie. Available for free at book.systemsapproach.org.

I recommend you **do not buy a new textbook**; many online or low-cost and lightly used options are available, especially from the thousands of prior Georgia Tech students who took this class.

Class Modality

All lectures will be presented in person. It is expected that students attend class in-person and email the instructor and TA prior to missing any classes. In-person assessments compose a large component of the overall grade, and these are not possible to take without being present in class. Live questions are highly encouraged.

Lectures may be recorded and be made available later as a study aid. I plan to release lecture recordings a week before exams, but there are no guarantees of recording quality or completeness. Lectures will *not* be livestreamed, so live questions can only be asked in person.

Students are free to decide their best practices for engaging in the lecture. Personally, I encourage you to put away your phones and laptops and to take notes in a format with minimal potential for distractions. I understand that there are legitimate reasons for having laptops out, but in most cases I expect you will learn better and enjoy the lectures more if you can minimize distractions. I do ask that if you are on your phone or laptop frequently that you sit further back in the lecture hall so as to minimally distract the students who would otherwise be behind you.

Grading

Component	Weight
Syllabus Quiz	1%
Participation	4%
Homework Assignments ($4 \times 6\%$)	24%
Programming Assignments ($2 \times 10\%$)	20%
Pop Quizzes ($4 \times 4\%$)	16%
Midterm (in-class, June 29)	15%
Final Exam (Aug 3, 2:40 PM)	20%
Total	100%

Class Policies

Deliverables

The course has four homework assignments and two programming assignments. All assignments must be completed individually and submitted via Gradescope by 11:59 pm on the specified date. Regrade requests must be submitted within one week of grades being released.

Exams

There are two exams. The midterm will be held in class on **June 29th**. The final will be held on **August 3rd, 2:40 to 5:30 PM**. Both exams are conducted in-person. The duration of each exam may be shorter than its time slot.

Late Policy

A one-time 48-hour extension will be granted automatically for any one single assignment over the course of the semester. To use your extension, email the instructor and TA with the subject line [CS3251: Auto-Extension]. No additional extensions will be granted.

Additionally, there is a one-hour grace period after any deadline with no penalty. After that, students can submit up to 24 hours later with a 20% reduction. Assignments received over 24 hours after the due date will receive a 0.

Collaboration Policy

Students are encouraged to ask and answer questions on Ed Discussion. However, all submitted work must be written individually by the student. The following are **not** permitted:

- Copying, with or without modification, another student's work that is not meant to be publicly accessible.
- Submitting material substantially identical to that of another person without proper attribution (plagiarism).

Any public material used (open-source software, web resources, textbook help, AI output, substantial help from a peer, etc.) must be acknowledged explicitly in your submission. When in doubt, ask.

Grading Policies

- The course will initially not be graded on a curve. The instructor reserves the right to adjust cutoffs to bring grade distributions to a more appropriate level.
- Incomplete (I) grades are only given for non-academic reasons.
- Please do not ask for "extra work" to raise your grade; this would be unfair to other students.

AI-Based Assistance Policy

We treat AI-based assistance (e.g., ChatGPT, Claude, Copilot) the same way we treat collaboration with other people. You are welcome to discuss ideas with AI assistants and work with other people.

However, all work you submit must be your own. You should never include in your assignment anything that was not written directly by you without proper citation (including quotation marks and in-line citation for direct quotes). If your entire assignment is attributed to a source other than yourself, you will not get a good grade.

Including anything you did not write in your assignment without proper citation will be treated as an academic misconduct case. If you are unsure where the line is between collaborating with AI and copying AI, we recommend the following heuristics:

1. **Never hit “Copy” in your AI conversation.** Use the interaction as a learning experience, then let your assignment reflect your improved understanding.
2. **Do not have your assignment and an AI agent open at the same time.** Close the AI session before writing your submission.

This heuristic includes avoiding using AI directly integrated into your composition environment: just as you should not let a classmate write content or code directly into your submission, so also you should avoid using tools that directly add content to your submission.

Deviating from these heuristics does not automatically qualify as academic misconduct; however, following these heuristics makes it significantly less likely that your collaboration will not cross the line into misconduct.

Academic Integrity

Integrity, honor, and dignity are fundamental characteristics of the engineering profession. Engineers strive to exhibit these characteristics while using their knowledge, skills and experience to improve the world around them.

The standard of conduct in this class is the [GT Academic Honor Code](#). Violations including plagiarism, copying, and other breaches of the Georgia Tech Academic Honor Code will be treated extremely seriously and will be reported. Violations will also result in a zero on the assignment and likely a failing grade in the course.

Exam Makeup Requests

Makeup exam requests are considered on a case-by-case basis. Documented illness, a note from the Dean of Students, or established ODS accommodation is generally required.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404) 894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also email me as soon as possible in order to set up a time to discuss your learning needs.

Student Support

I am committed to fostering a supportive environment; please let me know how I can improve the effectiveness of this course for you and your fellow students. The further ahead you communicate how I can support you, the more I will be able to do to help. As per Georgia Tech’s [Approved](#)

[Absences Policy](#), if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

Georgia Tech offers a range of student support resources, many of which are now housed under the [Arts, Belonging, and Community Center](#). Additional resources include [tutoring and academic support](#), the [Writing and Communication Center](#), [CARE mental health resources](#), [STAR material assistance](#), and [Veterans resources](#). Please let me know how I can improve the effectiveness of this course for you.

Student-Faculty Expectations

Expectations should follow from the [GT Student-Faculty Expectations document](#). Above all, we will strive for mutual respect and care while upholding the high standards expected of those at Georgia Tech.

Land Acknowledgement

This land acknowledgment is pulled from a combination of sources, including [GT's Serve-Learn-Sustain](#) and [Emory University](#):

We acknowledge the Muscogee land we stand on today. In 1820s and 30s, the United States federal government forced the Muscogee to relinquish this land. We recognize the sustained oppression, land dispossession, and involuntary removals of the Muscogee and Cherokee peoples from Georgia and the Southeast. We seek to honor the Muscogee Nation and other Indigenous caretakers of this land by humbly seeking knowledge of their histories and committing to respectful stewardship of the land.

We acknowledge the enslaved people who were brought to this land against their will. We remember and honor the lives, work, culture, traditions, fortitude, ingenuity, faith, and strength of these ancestors. We also honor their resistance.

Here in Atlanta, one of the birthplaces of the Civil Rights Movement, we give gratitude for the courage and sacrifice of the Movement's elders, children, laborers, students, and organizers - some whose names we know well and some we'll never know, who worked behind the scenes to pave the way for us to be here today.

We acknowledge the deep and rich history that surrounds us and we celebrate the just, flourishing, and healed world that we are striving to build together.

Course Schedule (Tentative)

#	Date	Layer	Topic	K&R	Assigned	Due
1	Mon May 18	—	Course Logistics and Introduction	1.1–1.5		
2	Wed May 20	Network	Network Layer Services	4.1–4.2		
3	Mon May 25	—	<i>No class — Memorial Day</i>			
4	Wed May 27	Network	Data Plane / IP	4.2–4.4	HW1	

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#	Date	Layer	Topic	K&R	Assigned	Due
5	Mon Jun 1	Network	Control Plane / Routing: Fundamentals and Inter-Domain	5.2, 5.4, 5.6		
6	Wed Jun 3	Network	IPv6 / NAT / DHCP / ICMP	4.3, 5.6	PA1	HW1
7	Mon Jun 8	Network	Generalized Forwarding and SDN	4.4, 5.5		
8	Wed Jun 10	Transport	Transport Layer Intro and Sockets	3.1, 3.2, 2.7		PA1 check-in
9	Mon Jun 15	Transport	UDP / TCP Basics and Intro to TCP Reliability	3.3, 3.4, 3.5		
10	Wed Jun 17	Transport	TCP Reliability	3.4, 3.5	HW2	PA1
11	Mon Jun 22	Transport	TCP Implementation and Congestion Control	3.4, 3.6, 3.7		
12	Wed Jun 24	—	Midterm Review			HW2
13	Mon Jun 29	—	Midterm Exam			
14	Wed Jul 1	Special	TBD			
15	Mon Jul 6	App.	Application Layer Principles, HTTP, and DNS	2.1, 2.2, 2.4		
16	Wed Jul 8	App.	CDN and Video Streaming	2.4, 2.6	HW3, PA2	
17	Mon Jul 13	Link	Overview and Medium Access Control	6.1, 6.3		
18	Wed Jul 15	Link	Switched LANs	6.4, 6.7	HW4	HW3
19	Mon Jul 20	Link	WiFi MAC	7.1, 7.2, 7.3		PA2 check-in
20	Wed Jul 22	Physical	Overview			HW4
21	Mon Jul 27	—	Final Exam Review			PA2
—	Mon Aug 3, 2:40–5:30 pm		Final Exam			

* this syllabus is based on Professor Josiah Hester’s CS 3251 syllabus from Fall 2025. AI was used in the drafting of this document.