SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

# Computer Networks

## CS 158A

Fall 2026 Section 03 In Person 3 Unit(s) 08/19/2026 to 12/07/2026 Modified 08/13/2026

## Contact Information


### Dr. Genya Ishigaki

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### Office Hours

Monday, Wednesday, 2:45 PM to 3:45 PM, MH 215

## Course Description and Requisites

Introduction to computer networks, including network layered architectures, local and wide area networks, mobile wireless networks, Internet TCP/IP protocol suite, network resource management, network programming, network performance, network security, network applications.

Prerequisite(s): CS 146 and CS 47 (with a grade of "C-" or better). Computer Science or Software Engineering majors only, or instructor consent.

Letter Graded

## Classroom Protocols

### Communication with the instructor

Students are requested to use **the Canvas message function** to contact the instructor. Private messages sent to the instructor's email address get lost due to the large volume of emails received.

The instructor does not write messages after normal business hours, on weekends, or holidays.

Reviewing code for the homework and technical troubleshooting should be done during office hours. Please do not send your entire code for an assignment to the instructor. The instructor will not fix all the bugs in your code.

## AI Use Policy

Students are permitted to use AI tools in this course, provided all usage is fully and clearly disclosed within each submission (specify the tool used, the purpose, and the sections of the submission where it was applied). Regardless of AI involvement, every submission must be verified and understood by the student. At any point, students may be asked without prior notice to explain any part of their work. Inability to provide a consistent and coherent explanation will be treated as inappropriate AI use, resulting in grade deductions or, in egregious cases, a report of academic dishonesty.

# Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

# Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

- Understand the network layers and their roles.
- Understand how IP addresses and routing work.
- Understand the difference between TCP and UDP and when to use each of them.
- Understand security risks of computer networks.
- Understand the basis of emerging network technologies.
- Understand how to use a packet capturing software.
- Develop applications using both TCP and UDP.

# Course Materials

## Textbooks

- "Computer Networking: A Top-Down Approach" by Jim Kurose and Keith Ross
- "Computer Networks: A Systems Approach" by Larry Peterson and Bruce Davie [Officially available online: https://book.systemsapproach.org/ (https://book.systemsapproach.org/)]

## Software

- Python
- Wireshark https://www.wireshark.org/ (https://www.wireshark.org/)

# ✓ Grading Information

| Item | Percentage |
| --- | --- |
| Wednesday Quiz 1 - 8 (wq) | 10% (The worst three will be dropped. 2% Each) |
| Programming Assignments 1 - 3 (pa) | 24% (8% Each) |
| Exam 1 | 25% |
| Exam 2 | 25% |
| Final Project | 16% |

### Extra-credits and Reworks

No extra-credit assignments or rework opportunities will be given.

### Late Submission

No late submissions will be accepted.

### Missed Assignments or Exams

When students need to miss an assignment deadline or exam due to health conditions or any other emergency, it should be reported within ONE week after the due date.

### Final Grade Table

| Total Grade | Letter Grade |
| --- | --- |
| 97% and above | A plus |
| 93% to 96% | A |
| 90% to 92% | A minus |
| 87% to 89% | B plus |
| 83% to 86% | B |
| 80% to 82% | B minus |
| 77% to 79% | C plus |
| 73% to 76% | C |

| | |
|---|---|
| 70% to 72% | C minus |
| 67% to 69% | D plus |
| 65% to 66% | D |
| 60% to 64% | D minus |
| 59% and below | F |

# University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

# Course Schedule

| Date | Topic | Note |
|---|---|---|
| 8/19 | Overview | |
| 8/24 | Communicaiton networks (01) | |
| 8/26 | Network performance and TCP/IP model (01) | wq1 |
| 8/31 | Wireshark (01), Socket (02) | PA1 due |
| 9/2 | Socket Programming (02) | wq2 |
| 9/7 | Labor Day - No class. | |
| 9/9 | Web, Email, and DNS (02) | wq3 |
| 9/14 | P2P and CDN (02) | |
| 9/16 | Socket Programming lab 1, Threaded Server | PA2 due, wq4 |
| 9/21 | Transport (03) | |
| 9/23 | rdt (03) | wq5 |
| 9/28 | TCP (03) | |

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|---|---|---|
| 9/30 | Exam Review | |
| 10/5 | Exam 1 | |
| 10/7 | Socket Programming lab 2 | PA3 due |
| 10/12 | Congestion Control (03) | |
| 10/14 | Congestion Control (03) | wq6 |
| 10/19 | Project discussion | |
| 10/21 | Data Plane (04) | wq7 |
| 10/26 | Data Plane (04) | |
| 10/28 | Intra-domain (05) | wq8 |
| 11/2 | Inter-domain (05) | |
| 11/4 | MAC and LAN (06) | |
| 11/9 | Switching, VLAN, and DC (06) | |
| 11/11 | Veteran's Day - No class. | |
| 11/16 | Wireshark lab | |
| 11/18 | Advanced Topics in Network Communicaitons | |
| 11/23 | Exam Review | |
| 11/25 | Fall break - No class. | |
| 11/30 | Exam 2 | |
| 12/2 | Project discussion | |
| 12/7 | Project presentation | Project due |