

Computer Network Management Section 01

CS 158B

Spring 2025 In Person 3 Unit(s) 01/23/2025 to 05/12/2025 Modified 01/25/2025

Contact Information

Instructor: Dr. Arun Saha

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Course Information

On Campus

MW 1930 - 2045

MH 222

Course Description and Requisites

Principles and technologies of network management: reference models, functions (fault, configuration, performance, security and accounting management), management information, communication protocols, integration, and assessment. Network security and cyber defense: cryptography, key distribution, authentication protocols, network attacks, access control, and example systems.

Prerequisite(s): CS 158A or CMPE 148 (with a grade of "C-" or better); Allowed Majors: Computer Science, Software Engineering or Forensic Science: Digital Evidence; or instructor consent.

Letter Graded

Classroom Protocols

Be kind and respectful.

Follow **all** the SJSU academic integrity guidelines.

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 Goals

Introduction to Network Management with contemporary tools and security overview

Course Learning Outcomes (CLOs)

Upon successful completion of this course, a student is expected to have learned the following.

1. Fundamentals of Network Management
2. The SNMP ecosystem (SNMPv1, SNMPv2, SNMPv3, RMON1, RMON2)
3. An overview of Security and Network Security.
4. An overview of Software Defined Networking
5. An overview of network monitoring with some hands-on experience.

Course Materials

There is no textbook.

The content of each class will be provided as a slide deck and shared to all the students via Canvas.

Course Requirements and Assignments

Project

The students would need a Linux programming environment (recent Ubuntu).

Tests

The midterms and the final will be in person in classroom via Canvas using the Lockdown browser.

Grading Information

The final credit would consist of the following items along with their corresponding weighting.

- Midterm 1 = 20%
- Midterm 2 = 20%
- Project = 30%
- Final = 30%

Score curving, *if any*, would be at the *END* of the course, combining all of the above.

The final grade would be according to the SJSU Undergraduate Classes Grading Scale at <https://ischool.sjsu.edu/grading-policies>

University Policies

Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/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) (<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

CS158B Spring 2025 Class **TENTATIVE** Schedule

(This schedule is tentative, the actual schedule will be discussed in the class and Canvas.)

Class #	Date	DoW	Tentative Topic
1	Jan 27	M	Introduction, Network Management System,
2	Jan 29	W	Network Architectures, Network Management Framework,
3	Feb 3	M	Recap Layer 2 Switching, Layer 3 Routing
4	Feb 5	W	SNMPv1 (Introduction, MIB-2, Data Types)
5	Feb 10	M	SNMPv1 (Tables)
6	Feb 12	W	SNMPv1 (Community, GetNext)
	Feb 17	M	President's day, No class
7	Feb 19	W	SNMPv1 (Message Format)

8	Feb 24	M	RMON 1
9	Feb 26	W	RMON 2
10	Mar 3	M	Midterm 1 Review
11	Mar 5	W	Midterm 1
12	Mar 10	M	Midterm discussion, Prometheus 1, Project Announcement
13	Mar 12	W	Prometheus 2
14	Mar 17	M	Prometheus 3
15	Mar 19	W	SNMPv2
16	Mar 24	M	Security 1
17	Mar 26	W	Security 2
18	Mar 31	M	Security 3
	Apr 2	W	Spring break
	Apr 7	M	Spring break
19	Apr 9	W	Security 4
20	Apr 14	M	Midterm 2 review
21	Apr 16	W	Midterm 2
22	Apr 21	M	Midterm discussion, SNMPv3
23	Apr 23	W	SNMPv3

24	Apr 28	M	SDN 1
25	Apr 30	W	SDN 2
26	May 5	M	SDN 3
27	May 7	W	SDN 4
28	May 12	M	Final Review
29	May ?	?	Final