Course Syllabus

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San José State University

Science/Computer Science
SE/CS 158A, Computer Networks, Section 1, Spring 2020

Course and Contact Information

Instructor:	Ben Reed
Office Location:	MH 213
Telephone:	(408) 924-5174
Email:	ben.reed@sjsu.edu
Office Hours:	1-2PM, 5:45-6:45PM Monday & Wednesday 3-5PM Tuesday 10-12 Thursday TBD in Chicanx/Latinx Student Success Center Diaz Compean Student Union 1340 (across from Jamba Juice)
Class Days/Time:	Monday & Wednesday/ 3:00-4:15
Classroom:	MH 225
Prerequisites:	CS 146 and CS 147 (with a grade of "C-" or better)

Course Description

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

Course Learning Outcomes (CLO)

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

1. Understand the different networks layers and how they work together.
2. Understand how to use IPv4 and IPv6.
3. Understand how to use DNS to resolve addresses.
4. Understand the difference between TCP and UDP and when to use each of them.
5. Develop applications using both TCP and UDP.
6. Develop secure applications using TLS.
7. Identify and reason about ethical issues surrounding network protocols.

Required Texts/Readings

Textbook

An Introduction to Computer Networks: **http://intronetworks.cs.luc.edu/** **(http://intronetworks.cs.luc.edu/)**
This is a free and comprehensive textbook. We will only be covering a portion of it.

Other technology requirements / equipment / material

Programming assignments will be a significant part of this course, so access to a computer is required. The programming projects will be done in Java, so a Java development environment is also required.

Course Requirements and Assignments

Homework will be given, but will not be graded. It is intended for self-evaluation and will be the basis for future exams. I encourage students to work on homework in groups and discuss possible solutions together. We will take time at the beginning of each class to discuss any difficulties students have completing the homework.

Along with technical questions in the homework, we will also discuss ethical issues related to networks. We want you to understand that along with technical choices come moral implications, and we want to be able to identify and reason about them. There will be 2 written (1 page) assignments to discuss contemporary ethical issues in networks today.

We will be using iClicker to make sure everyone is up to speed. To encourage participation 1% of your final grade will come from your participation. Each iClicker poll that you participate in will count for 1 point and each answer you get correct will be another point. At the end of the semester the points you will receive 100% if you get at least 70% of the total possible points. Anything under 70% will be prorated.

I do not grade on a curve. The exams and projects measure what you are expected to have learned. There aren't many opportunities for extra credit, but there are bonus questions on exams.

We will be doing individual programming assignments. Late submissions less than 24 hours late will have 10 points deducted from the final score. Submissions over 24 hours late will have 20 points deducted.

Submissions over 2 days late will not be accepted. **Individual programming assignments are not group projects.** If students get help on assignments, even to resolve a stupid problem, it must be documented in the code with the name of the person rendering the help and a brief description of the help provided. Extensive help on a project will result in a reduced grade. Failure to document help, or any other forms of cheating will result in a failing grade on the assignment at a minimum and may result in failure of the course. All incidents will be reported to the Office of Student Conduct & Ethical Development. See **http://info.sjsu.edu/static/schedules/integrity.html (http://info.sjsu.edu/static/schedules/integrity.html)** for more information. Even in open source, you cannot copy code from one open source project to another without attribution. Sharing solutions with other students, even if it is indirectly through public source repositories, falls under "aiding and abetting".

The University Policy S16-9 **(http://www.sjsu.edu/senate/docs/S16-9.pdf)**, Course Syllabi (http://www.sjsu.edu/senate/docs/S16-9.pdf) requires the following language to be included in the syllabus:

“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.”

Final Examination or Evaluation

This course will have a cumulative final exam given during exam week.

There will be three in class exams given in the semester (the last being the final exam :)). The second exam will have two questions derived from the previous exam, and the final exam will have two questions derived from the first exam and two questions derived from the second exam.

Grading Information

Determination of Grades

Grades will be calculated by averaging the percentages of the average of group project grades, the individual project grades, the two mid-semester exams, and the final. Thus, the grade distribution is 23% individual projects, 21% exam 1, 21% exam 2, 24% final exam, 10% ethic projects, and 1% participation via (iClicker).

Percentage	**Grade**
97 and above	A+
92-96	A

90-91	A-
88-89	B+
82-87	B
80-81	B-
78-79	C+
72-77	C
70-71	C-
68-69	D+
62-67	D
60-61	D-
59 and below	F

Classroom Protocol

This is your class. Please ask questions. Please come prepared. Do not engage in activity that may distract other students.

I do not take attendance except for the first two classes. Students not attending either of the first two classes will be dropped to make room for students on the waiting list. Attempting to get marked as present (by have someone else attend in your place or using technological deceptions) will be considered academic dishonesty and at a minimum will result in you getting dropped from the course.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs'

Syllabus Information web page **(http://www.sjsu.edu/gup/syllabusinfo/)** at http://www.sjsu.edu/gup/syllabusinfo/" Make sure to review these policies and resources.

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Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	1/27/2020	Intro to Networks (using nc)
1	1/29/2020	Network Programming Assignment 1: TCP Hello given in class and due in the same class.
2	2/3/2020	UDP
2	2/5/2020	Packets
2	2/9/2020	Assignment 2: UDP Hello
3	2/10/2020	Packets
3	2/12/2020	IPv4
4	2/17/2020	IPv4 multi-cast
4	2/19/2020	IPv4
4	2/23/2020	Assignment 3: Multicast Hello

5	2/24/2020	IPv6
5	2/26/2020	IPv6
6	3/2/2020	exam 1
6	3/4/2020	Abstract Sliding Windows
6	3/8/2020	Assignment 4: Web client
7	3/9/2020	Abstract Sliding Windows
7	3/11/2020	TCP
8	3/16/2020	TCP
8	3/18/2020	TCP
8	3/22/2020	Assignment 5: TCP Hello server
9	3/23/2020	Security
9	3/25/2020	Security
10	3/30/2020	spring break
10	4/1/2020	spring break
10	4/5/2020	Assignment 6: Secure Hello
11	4/6/2020	Security
11	4/8/2020	Protobufs
12	4/13/2020	Exam 2
12	4/15/2020	Talk protocol

12	4/19/2020	Assignment 7: Protobuf Hello
13	4/20/2020	Ethernet
13	4/22/2020	Ethernet
14	4/27/2020	Ethernet
14	4/29/2020	Other LAN
14	5/3/2020	Assignment 8: Talk protocol
15	5/4/2020	Other LAN
15	5/6/2020	Other LAN
16	5/11/2020	review
Final Exam	5/13/2020	from 12:15-14:30

Course Summary:

Date	Details
	intro ungraded hw (https://sjsu.instructure.com/courses/1361863/assignments/5183011)