Computer Networks

Instructor: Chen Qian <cqian12 at ucsc.edu>, Office: E2-231

Class meeting time: MWF 09:20AM-10:25AM

Classroom: Engineer 2 194

This is an in-person class. There is no remote option.

Office hours: (in person) after class or by appointment

Teaching Assistant: Yi Liu <yliu634@ucsc.edu>, by email appointment.

Grading Rubric

Category	Percent
Course Project	25%
Midterm	25%
Reading reports	20%
Survey study	30%
Course evaluation	2% bonus if more than 70% responses

Project:

(https://canvas.ucsc.edu/courses/88788/pages/course-project)

There is one programming assignment. Details can be found here. (https://canvas.ucsc.edu/courses/88788/pages/course-project)

Midterm Exam:

A midterm exam will be in class on 2/18. It will be open notes. No electronic device is allowed other than calculators.

Reading Reports.

Paper list to read (https://canvas.ucsc.edu/courses/88788/pages/paper-reading-list)

Instructions of reading reports. (https://canvas.ucsc.edu/courses/88788/pages/reading-reports)

Survey paper

Instructions of the survey paper. (https://canvas.ucsc.edu/courses/88788/pages/survey-paper)

Schedule (Tentative)

Some slides are revised from the ones by Kurose/Ross and Simon Lam.

Paper list to read (https://canvas.ucsc.edu/courses/88788/pages/paper-reading-list)

Lecture Videos of my CSE80N course in case you want to review the undergrad networking material. (https://canvas.ucsc.edu/courses/88788/pages/videos-of-undergrad-networking-course)

Dates	Topics	Slides	Paper rea
	Introduction Application	slides (https://canvas.ucsc.edu/courses/88788/files/11963149?wrap=1)	

1/5, 1/7, 1/9	layer	(https://canvas.ucsc.edu/courses/88788/files/11963149/download?download_frd=1)	
1/12, 1/14, 1/16	DHT Virtual coordinates	slides (https://canvas.ucsc.edu/courses/88788/files/11963150?wrap=1) ↓ (https://canvas.ucsc.edu/courses/88788/files/11963150/download?download_frd=1) slides (https://canvas.ucsc.edu/courses/88788/files/11974614?wrap=1) ↓ (https://canvas.ucsc.edu/courses/88788/files/11974614/download?download_frd=1) slides (https://canvas.ucsc.edu/courses/88788/files/11974615?wrap=1) ↓ (https://canvas.ucsc.edu/courses/88788/files/11974615/download?download_frd=1)	paper [1] stoica.pdf paper [2] (https://pe paper [3] (https://pd
1/21, 1/23 1/19 is a holiday	Network layer, Routing, Link layer		
1/26, 1/30 (No class on 1/28 due to duty for National Science Foundation)	Data center networks, VM placement and Jellyfish		paper [4] paper [6] (https://wv
2/2, 2/4, 2/6	Wireless networking, Wireless		paper [8] karp-kung

	sensor routing		paper [10
2/9, 2/11, 2/13	Network security and WEP		paper [1
2/18, 2/20 (2/16 is a holiday)	2/18: Midterm Exam Quantum Networks		paper [13
2/23, 2/25, 2/27	Quantum cloud Bloom filters		paper [14
3/2, 3/4, 3/6	Cuckoo hashing, CRLite / Othello		
3/9, 3/11, 3/13	Ludo hashing, Distributed learning		
3/15	**Course project due**		

3/20	**Survey paper due**			

Course Focus

This course provides an overview and study of graduate-level computer networking topics, Includes network models and switching techniques; medium access control protocols and local area networks; error control and retransmission strategies; routing algorithms and protocols; congestion control mechanisms and end-to-end protocols; application-level protocols; and application of concepts to wireless and wireline networks, with emphasis on both the Internet and emerging types of networks.

Course Prerequisites

Undergraduate Computer Network course (CSE150 or equivalence)

Textbook (Recommended)

Computer Networking: A Top-Down Approach (https://www.pearsonhighered.com/product/Kurose-Computer-Networking-A-Top-Down-Approach-6th-Edition/9780132856201.html)

Additional research papers will be used as reading material

Academic Honesty And Integrity

In recent years, there has been an increased number of academic integrity violation incidents in many UC campuses, and unfortunately, UCSC is no exception. The School of Engineering has a zero tolerance policy for any incident of academic dishonesty. If cheating occurs, they will result in academic sanctions in the context of the course, and in addition, every case of academic dishonesty is referred to the students' college Provost, who then sets the disciplinary sanctions. **Cheating in any part of the course may lead to failing the course and suspension or dismissal from the University.**

What is cheating? In short, it is presenting someone else's work as your own. Examples would include copying another student's written or electronic homework assignment, or allowing your own work to be copied. Although you may discuss problems with fellow students, when you submit an assignment with your name on it, it is assumed it is your own work. **If you use ideas or text from others, you MUST cite your sources and give credit to whoever contributed to your work.**

If there are any questions on what constitutes academic integrity violations, please make sure to talk to the instructor and/or the TAs for clarification. You are also referred to **www.ucsc.edu/academics/academic_integrity/ (http://www.ucsc.edu/academics/academic_integrity/)** for additional information on UCSC's academic integrity policies and UC Santa Cruz Academic Misconduct Policy for Undergraduates, **https://www.ue.ucsc.edu/academic_misconduct (https://www.ue.ucsc.edu/academic_misconduct)**.

Disability Resource Center (DRC) Resource

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by appointment, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089, or by email at **drc@ucsc.edu (mailto:drc@ucsc.edu)**.

Course Summary:

Date	Details	Due
	Reading report 01 (https://canvas.ucsc.edu/courses/88788/assignments/804164)	
	Reading report 02 (https://canvas.ucsc.edu/courses/88788/assignments/804165)	
	Reading report 03 (https://canvas.ucsc.edu/courses/88788/assignments/804763)	

Reading report 04
(https://canvas.ucsc.edu/courses/88788/assignments/804764)

Reading report 05
(https://canvas.ucsc.edu/courses/88788/assignments/804765)

Reading report 06
(https://canvas.ucsc.edu/courses/88788/assignments/804766)

Reading report 07
(https://canvas.ucsc.edu/courses/88788/assignments/804767)

Reading report 08
(https://canvas.ucsc.edu/courses/88788/assignments/804768)

Reading report 09
(https://canvas.ucsc.edu/courses/88788/assignments/804769)

Reading report 10
(https://canvas.ucsc.edu/courses/88788/assignments/804770)