

CS 360 Special Topics: Networking

Course Syllabus
Fall 2018

Introduction

This course is an introduction to Computer Networking covering basic networking architectures, algorithms, and protocols. In particular, it will focus on the OSI model and the TCP/IP reference model. This course will discuss, with respect to these models, how data is transferred across a network, how networking protocols allow for open networks and which piece of the model is responsible for each bit of functionality.

ACM Knowledge ACM Knowledge Topics

Knowledge Topics	Student Learning Outcomes
NC/Introduction	Describe the layered structure of a typical networked architecture.
NC/Networked Applications	List the differences and the relations between names and addresses in a network.
NC/Reliable Data Delivery	Describe the operation of reliable delivery protocols.
Major Student Learning Outcomes	
Apply knowledge through the design and implementation of a large scale computer application.	Apply strategies for abstract problem solving

Specific Topics

Network Programming with C and Linux	BSD Socket Interface
OSI Model	Internetworking
TCP/IP Model	Application Protocols (HTTP/SMTP/DNS/DHCP)
TCP Protocol	Internet Protocol (IP)
Routing Algorithms	User Datagram Protocol (UDP)
Congestion Control	The End-to-end Principle

Grade Breakdown

		92-100	A	90-92	A-
88-90	B+	82-88	B	80-82	B-
78-80	C+	72-78	C	70-72	C-
68-70	D+	60-68	D		
		0-60	F		

Percent Breakdown

Midterm 1	15%
Midterm 2	15%
Final Exam	25%
Quizzes	5%
Projects	40%

Programming Projects

This course will contain a set of labs and programming projects to allow students to gain experience interacting with Linux command line networking tools as well as using the networking API available in Linux and to understand how the TCP/IP protocol works.

You must program on Linux (a VM will be provided), All projects and labs are **individual** assignments unless otherwise specified, do not allow any other student see your source code.

Academic Misconduct Policy

Pacific University has no tolerance for academic misconduct/cheating. It is university policy that all acts of misconduct and dishonesty be reported to the Associate Dean for Student Academic Affairs. Sanctions that may be imposed for such misconduct range from an "F" for the assignment, an "F" for the course, and suspension or dismissal from the university. Forms of academic misconduct include but are not limited to plagiarism, fabrication, cheating, tampering with grades, forging signatures, and using electronic information resources in violation of acceptable use policies.

Source code is not to exchange hands in any form or by any medium (this includes posting your code on public forums such as GitHub or GitLab) except when sending your solutions to the instructor. It is OK to share high level ideas during the design phase, share information dealing with OS issues, debugger issues, in general, development issues that do not involve code writing.

Specific solutions to homework problems should not be discussed with any other students. The solutions should be an individual effort unless otherwise specified on the assignment. As with coding, high level concepts can be discussed. However, **do not discuss specific homework problems or solutions.**

If you have any question as to whether or not what you are about to do constitutes cheating, ask the instructor.

Version Control

When you use version control, your master repository must not be publicly available. You are welcome to host an SVN or Git repository on your personal account on Zeus or to use a private repository on GitLab or GitHub. If you use a private repository on GitLab or GitHub, you must allow only yourself and the instructor (chaddcw) access to your repository.

Course Policies

- **Assignments** are to be submitted, electronically and as a hard copy, by 11:59 pm on the day in which they are due (unless otherwise specified). Late assignments will not be accepted. Start your assignments early. This course will cover a good deal of new material and writing and debugging the projects will take much longer than you think. You may turn each assignment exactly once.
- A program that does not successfully compile or produces no output loses 70% of the assignment grade.
- **Grade Complaints:** If you have a complaint regarding a grade on an assignment, exam, or homework, write a one paragraph description of why you feel the grade is incorrect and deliver it to the instructor. The paragraph must be delivered to the instructor within **one calendar week** of when the graded material is returned to the student.
- **Quizzes:** A number of unannounced, open-notes quizzes will be given during the semester.
- No early or late exams/finals will be given.
- No incompletes will be given.
- Neither computer failure, software failure, nor lack of computer access are accepted as excuses for late programs; therefore, start work on the programs as soon as they are assigned, don't put them off until the last minute. Further, corruption of programs due to bad disk media is also not accepted as an excuse for late programs; therefore, always keep a current backup of all programs on a separate disk.
- The instructor reserves the right to raise or lower a student's grade based on class participation and attendance. Specifically, participation can raise or lower your final grade by 1/3 of a grade. Further, your final grade may be lowered by 1/3 of a grade for each day (or portion thereof) of class missed. Please notify me **PRIOR** to class if you must miss class for any reason. Only legitimate reasons will be accepted as excuses for missing class.
- I do not want to hear any electronic devices go off during lecture; therefore, make sure you silence these devices before lecture starts.
- **Class starts promptly at 2:45 pm.** Your attendance is expected at each class meeting. It is in your own best interest to attend class, as your grade will almost certainly suffer indirectly if you choose not to attend. In addition, I reserve the right to consider attendance in instances of borderline grade assignments. Of course, excused absences (sickness, family emergencies, varsity athletic participation) will not be held against you. Scheduled absences should be communicated to me well in advance. If you must miss a class, be sure to check with me or another student to get what you missed. Exams will be given in class on the day scheduled and may not be made up. The material in the course is, by necessity, cumulative. Be warned that if you fall behind, you will not be able to catch up easily.

Instructor Details

Professor Chadd Williams

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Office Strain 202

Phone (503) 352-3041

Office Hours MWF 11-noon
TTh 1-2pm

Course Basics

Course Title CS360 Special Topics: Networking

Meeting Times TTh 2:45-4:20pm

Location Scott 204

Textbook Computer Networking, 6th Edition, Kurose, Ross

Website <http://zeus.cs.pacificu.edu/chadd/cs360f18>

Exams

Midterms	Oct 4	Nov 6
Final Exam	Tuesday Dec 11, 830am - 11am	

Acknowledgements

This class has benefited from networking classes taught at other universities:

- [CS417](#) University of Maryland, Jeff Hollingsworth
- [CS465](#) Colgate University, Jamie Spacco (web link is deprecated)

University Required content

- ***Learning Support Services for Students with Disabilities***

If you have documented challenges that will impede your learning in any way, please contact our LSS office in Clark Hall (ext.2717; lss@pacificu.edu). LSS staff will meet with students, review the documentation of their disabilities, and discuss the services that Pacific offers and any appropriate ADA accommodations for specific courses.

- ***Tutoring and Learning Center (TLC)***

The TLC is located in Scott Hall, 1st-floor. The center focuses on delivering one-on-one and group tutoring services for foreign languages, math and science courses and writing skills in all subjects. Students should consult with the center's director for information on tutoring available for other subjects. Day and evening hours; walk-ins welcome!

- ***Unauthorized Recordings***

Students are prohibited from making audio and/or visual recordings of lectures or presentations without prior consent of the instructor or presenter.