

Lecture 1:

Course Introduction

CSE 123: Computer Networks
Alex C. Snoeren





Lecture 1 Overview

- Class overview
 - ◆ Expected outcomes
 - ◆ Structure of the course
 - ◆ Policies and procedures
- A brief overview of Computer Networking
 - ◆ High-level concepts
 - ◆ An end-to-end example



Personnel

- Instructor: [Alex C. Snoeren](#)
 - ◆ Office hours Mondays 3:30-4:30pm or by appointment
- Project TAs: [Shreyas Anantha-Ramaprasad \(P1\)](#), [Aritra Basu \(P2\)](#)
 - ◆ P1 Office hours Thu 5-7pm
 - ◆ P2 Office hours Wed 11:30-12:30; Thu 4-5pm
- Homework TA: [Harsh Gondaliya](#)
 - ◆ Office hours Mon 5-7pm (and Wed 5-7pm the weeks HWs are due)
- Project coding TA: [Brian Li](#)
 - ◆ Standing office hours Tue 1:30-6:30pm and Fri 10-3pm
 - ◆ In person in the basement (B270A on Tue, B260a on Fri); Zoom while remote



Prereqs

- CSE30, CSE101, and CSE110
 - ◆ Undergrads can't enroll without them
 - ◆ We expect it (or equivalent) even for grad students
- Programming experience
 - ◆ We will be assigning programming projects in C/C++
 - ◆ This course will not teach you C. The TAs will help, but you need to learn it on your own if you don't already know it.



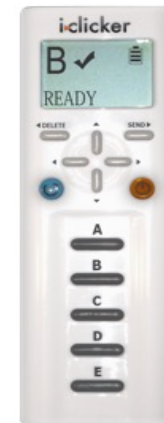
Expected Outcomes

- This course *will* teach you the *fundamentals* of computer networks:
 - ◆ Layering, signaling, framing, MAC, switching, routing, naming, Internetworking, congestion control, router design, etc.
 - ◆ At the end of this course you should completely understand what's actually happening when you view a Web page
- This course *will not* teach you signals and coding
 - ◆ Take an EE course to learn about modulation, encoding, etc. on different hardware technologies
- Similarly, we will not cover Internet apps/services
 - ◆ CSE124 covers application layer protocols, Web, etc.
 - ◆ You *will be able to* pick this up on your own with Google

CSE 123 Class Overview



- Course material taught through *interactive* class lectures, textbook readings, and discussion sections
- Course assignments are
 - ◆ Homework questions (based on lecture)
 - ◆ Two substantial programming projects (in four parts)
- Discussion section ([Tue 8pm WLH2005/Zoom](#))
 - ◆ Help you get started on the projects
 - ◆ Lecture material and homework
 - ◆ Additional networking topics
- Discussion board ([Piazza](#))
 - ◆ The place to ask questions about lecture, hw, projects, etc.



Peer Instruction



- Studies have shown it helps both with understanding and retention.
- Means you need to come to class prepared, have a clicker, and adhere to a slightly unusual class etiquette.

You must attend class

You must prepare for class

You must participate in class



iClickers: You must bring (only) yours

- Two options
 - ◆ Buy an iClicker at the Bookstore (or ebay), in person only
 - ◆ Download the iClicker Student app (subscription required)
- Register it following instructions in the Syllabus
- **REGISTER iCLICKERs ON CANVAS.**
- **We will use Zoom polls when remote**



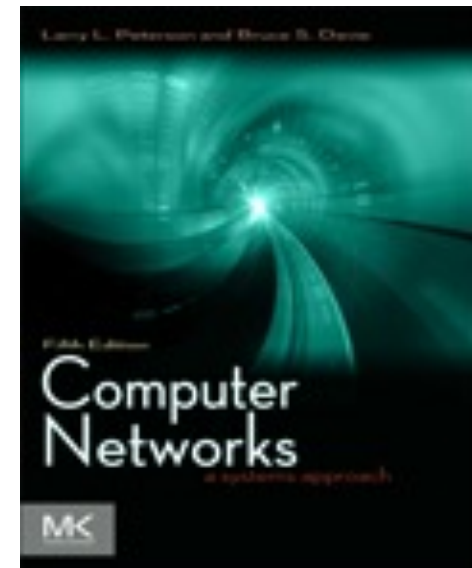
Textbook



- Peterson and Davie, *Computer Networks: A systems Approach*, Morgan Kaufmann, 5th Edition, ISBN 978-0-12-385059-1



PDF, eBook, HTML, and source! available at:
<https://github.com/SystemsApproach/book>





Homeworks

- There will be 4 homeworks throughout the quarter
 - ♦ Reinforce lecture material...no better practice
- Collaboration vs. cheating
 - ♦ You *should* discuss homework problems with others
 - » You can learn a lot from each other
 - ♦ But there is a distinction between collaboration and cheating
 - ♦ Rule of thumb: Discuss together ~~in library~~ over Zoom, ~~walk home~~ hang up, and only afterwards write up answers independently
 - ♦ Cheating is copying from other student's homeworks or solution sets, searching for answers on the Web, etc.
 - ♦ Suspicious homeworks will be flagged for review

Projects



- There will be four programming projects (really two, each split in half)
 - ◆ You will have approximately two weeks to complete each
 - ◆ The first is assigned TODAY, discussed TOMORROW
- The projects must be completed in C/C++
 - ◆ We will provide skeleton code for you to use
 - ◆ Your job is to fill in the interesting/hard parts
 - ◆ The TA and tutors will be available to help with coding
- The projects are INDIVIDUAL assignments
 - ◆ All code must be your own (not copied from github!)
 - ◆ OK to discuss design ideas, NOT OK to share/look at code
 - ◆ Projects assigned AND SUBMITTED via private GitHub repo



Computer Labs

- You are welcome to ssh into ieng6
 - ◆ Linux running on Intel machines
- You can also use your own machine
 - ◆ The project source will work on Windows/OS X (with caveats)
 - ◆ Graders will test on ieng6 machines
 - ◆ Be sure to test your projects there as well

Exams



- Midterm
 - ◆ Friday, February 4th
 - ◆ Covers first half of class
- Final
 - ◆ Monday, March 14th (8:00-11:00am)
 - ◆ Covers second half of class + selected material from first part
 - » I will be explicit about the material covered
- No makeup exams
 - ◆ Unless dire circumstances (e.g., COVID)
- Exams will be in-person unless UCSD is on-line only at the time

Grading



- Participation: 4%
 - ◆ Based on Clicker/Zoom responses; you can miss up to three days w/o penalty
 - ◆ Graded participation starts next Monday, January 10th
- Homeworks: 8%
- Midterm: 21%
- Final: 25%
- Projects: 42%
 - ◆ Divided evenly among the projects



A Few Class Policies

- Regardless of modality, this class is "live"
 - ◆ Synchronous participation is part of your grade; will remain so even if on-line only
 - ◆ In-person lectures podcast, Zoom recordings on Canvas for review
- Discussion attendance is strongly encouraged
 - ◆ Zoom recording/podcasts may be available on a week-by-week basis at TA's discretion
- Office hours are NOT RECORDED
 - ◆ Please turn your camera on when interacting with TAs/Tutors
- No late assignments
 - ◆ HWs submitted via GradeScope, Projects via GitHub



How *Not* To Pass CSE 123

- Do not attend lecture / discussion
 - ◆ Class is early, podcast is available, and the material is in the book anyway
 - ◆ Lecture material is the basis for exams and directly relates to the projects
 - ◆ Besides, the professor thinks he's funny
- Do not do the homework
 - ◆ It's only 8% of the grade
 - ◆ Excellent practice for the exams, and some homework problems are exercises for helping with the project
 - ◆ 8% is actually a significant fraction of your grade (easily the difference between an A and a B)



How *Not* To Pass (2)

- Do not ask questions in lecture, office hours, or Piazza
 - ◆ Professor is scary, I don't want to embarrass myself
 - ◆ Asking questions is the best way to clarify lecture material at the time it is being presented
 - ◆ Office hours and Piazza will be invaluable for homeworks, projects
- Wait until the last couple of days to start a project
 - ◆ We'll have to do the crunch anyways, why do it early?
 - ◆ The projects cannot be done in the last couple of days
 - ◆ Repeat: The projects cannot be done in the last couple of days



How *Not* To Pass (3)

A	B	C	D	F	P	NP
29	43	11	7	6	1	0
30 %	44 %	11 %	7 %	6 %	1 %	0 %

A	B	C	D	F	P	NP
20	29	10	1	7	1	1
29 %	42 %	14 %	1 %	10 %	1 %	1 %

A	B	C	D	F	P	NP
35	34	12	0	1	1	0
42 %	41 %	14 %	0 %	1 %	1 %	0 %

A	B	C	D	F	P	NP
30	17	18	5	7	0	1
38 %	22 %	23 %	6 %	9 %	0 %	1 %

A	B	C	D	F	P	NP
27	36	9	2	25	0	1
27 %	36 %	9 %	2 %	25 %	0 %	1 %

A	B	C	D	F	P	NP
22	16	12	4	7	0	0
36 %	26 %	20 %	7 %	11 %	0 %	0 %



Class Web Page

- All Zoom links are on Canvas, everything else is here

<http://www.cs.ucsd.edu/classes/wi22/cse123-a/>

- ◆ Course syllabus and schedule (updated as quarter progresses)
- ◆ Announcements
- ◆ Homework handouts
- ◆ Project information
- Class will be podcast
 - ◆ Lecture slides posted to website immediately after class
 - ◆ Podcast is for review, not intended as a substitute for lecture/Zoom

Questions



- Before we start the material, any questions about the class structure, contents, etc.?



For Next Class...

- Browse the course website on Canvas
 - ◆ <http://www.cs.ucsd.edu/classes/wi22/cse123-a/>
- Read Chapter 1.3 and 2.3
- Wednesday: Layers and Framing
- Drop now or plan to stick it out!