Lecture 1:
Course Introduction

CSE 123: Computer Networks
Alex C. Snoeren

First Discussion Monday 10/13
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 Tuesdays 9-10am or by appointment
  ◆ EBU3B 3114

● Project TAs: Alex Breslow & Bilal Mahmood
  ◆ Office hours Thu 3-5pm/Fri 2-4pm EBU3B B260A

● Homework TA: Gautam Akiwate
  ◆ Office hours Mon 4-5pm in EBU3B B250A
Prereqs

- **CSE120**
  - I will approve enrollment for students currently taking it,
  - But, several parts of the course will be especially challenging
    » You are responsible for doing the extra reading on your own

- **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.
Pretest/Consent Form

- Help you and the department gauge preparation
  - Part of HW 1; submitted electronically

- Need to fill out a pre-class survey
  - Only one per student regardless of number of classes
  - https://www.surveymonkey.com/s/LQ66JLZ

- Everyone needs to fill out the consent form
  - One per student per class, no matter what
  - https://www.surveymonkey.com/s/CRRMQWN
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.

- 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 class lectures, textbook readings, and discussion sections
- Course assignments are
  - Homework questions (based on lecture)
  - Two substantial programming projects
- Discussion sections are a forum for asking questions
  - Help you get started on the projects
  - Lecture material and homework
  - Additional networking topics
- Discussion board (Piazza.com)
  - The place to ask questions about lecture, hw, projects, etc.
Textbook

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, walk home, and 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 two programming projects
  - You will have four weeks to complete each of them
  - The first will be assigned NEXT FRIDAY

- The projects must be completed in C/C++
  - We will prove skeleton code for you to use
  - Your job is to fill in the interesting/hard parts
  - The TAs will be available to help with coding

- The projects are INDIVIDUAL assignments
  - All code must be your own
  - OK to discuss design ideas, NOT OK to share/look at code
Espresso Prize
Computer Labs

- You are welcome to use any Linux machine in the labs in the basement of the CSE/EBU3B building
  - Linux running on Intel machines

- You can also use your home 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, November 7th
  - Covers first half of class

- Final
  - Friday, December 19th
  - Covers second half of class + selected material from first part
    » I will be explicit about the material covered

- No makeup exams
  - Unless dire circumstances (we all want to start vacation early)

- Closed book with crib sheet
  - You can bring one double-sided 8.5x11” page of notes to each exam to assist you in answering the questions
  - Not a substitute for thinking
Grading

- Homeworks: 20%
  - Think of these collectively as a take-home midterm
- Midterm: 15%
- Final: 25%
- Projects: 40%
  - Each project is 20% of your final grade
How Not To Pass CSE 123

- Do not come to lecture / discussion
  - It’s nice out, class is early, the slides are online, 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 20% of the grade
  - Excellent practice for the exams, and some homework problems are exercises for helping with the project
  - 20% is actually a significant fraction of your grade (difference between an A and a C)
How *Not To Pass* (2)

- Do not ask questions in lecture, office hours, or email
  - 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 email will help with 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
Class Web Page

http://www.cs.ucsd.edu/classes/fa14/cse123-a/

- Serves many roles...
  - Course syllabus and schedule (updated as quarter progresses)
    » Lecture slides
  - Announcements
  - Homework handouts
  - Project information
Questions

- Before we start the material, any questions about the class structure, contents, etc.?
This Class in One Slide

- Protocols & Layering
  - Manage complexity by decomposing the tasks
  - Standardizing syntax and semantics to support interoperability

- Naming
  - Agreeing on how to describe a host, application, network, etc.

- Switching & Routing
  - Deciding how to get from here to there
  - Forwarding messages across multiple physical components

- Resource Allocation
  - Figuring out how to share finite bandwidth, memory, etc.
A “Simple” Task

- Send information from one computer to another

- Endpoints are called **hosts**
  - Could be computer, iPod, iPhone, etc.

- The plumbing is called a **link**
  - We don’t care what the physical technology is: Ethernet, wireless, cellular, etc.

CSE 123 – Lecture 1: Course Introduction
Actually Quite Complicated

- ROUGHLY, what happens when I click on a Web page from UCSD?

My computer

www.google.com
For Next Class...

- Browse the course web
  - http://www.cs.ucsd.edu/classes/sp14/cse123-a/

- Read Chapter 1 and start Chapter 2 (up to 2.2)

- Drop now or plan to stick it out!
  - Come see me if you are not yet officially enrolled

- Have a great weekend!