CS118: Computer Network Fundamentals

- Instructor: Songwu Lu (slu@cs.ucla.edu)
  - Office hours: 2:00-3:00pm TuTh
    other times: appointment by email
  - Office: 396A Engineering VI

- Course homepage at CCLE: https://ccle.ucla.edu/
  - Use your UCLA account to log on

Why are you sitting in this class??

A few (good) reasons:

- "CS118 is a requirement for my degree"
- "I need four more units to graduate, and CS118 seems the less evil one among my options"
- "Probably useful for my job interview"
- "If Internet is so popular and useful, I want to learn something about the Internet"
- "I want to enter graduate school, and networking is one of my options"...

What can you learn from this course?

- Understand the basics of computer networks: design and practice
- Learn the basics of TCP/IP protocol suite in the current Internet
- Develop *network programming* skills

Course Information

- *Introductory* (first) course in computer networking

- Prerequisites:
  - Upper division standing
  - **CS111: strictly enforced!!**
  - Coursework on (or experience with) Algorithms, Computer Architecture, Programming Language is recommended but not required
  - programming skills/experiences

- Course materials:
  - Textbook: "*Computer Networking: A Top Down Approach Featuring the Internet*," 7th edition, J. Kurose & Keith Ross, Addison Wesley
    - Custom loose leaf version can be ordered at UCLA store if you want to buy locally
  - Online lecture notes

Course Information (more)

- Class WWW site at CCLE course website:
  https://ccle.ucla.edu/course/view/18W-COMSCI118-1
  - everything posted here (no paper copy distributed!)
  - check regularly for announcements

- Instructor information
  - Email: slu@cs.ucla.edu;
  - Office: 396A Engineering VI;
  - Tel: (310) 794-9289
  - Background
    - MS & PhD, UIUC
    - Research areas: wireless and mobile Internet, mobile systems, cloud computing, network security.

Course Workload

- Weekly homework assignment
- Two programming projects
- Midterm and final exams
- Reading assignment
  - mostly from textbook, occasionally materials posted on the course homepage
- Classroom participation

Course Grading and Policies

- Grading breakdown

  Homework 20%

  Projects 20%

  -(Project 1: 8%; Project 2: 12%)

  Midterm 30%

  Final exam 30%

- no late turn-in will be accepted for credit
- no make-up exams

no misconduct

need to sign and submit online "CS118 Academic Integrity Agreement" (posted online) to Gradescope this Friday

- Your TA will show you how to submit the signed form this Friday

Homework Assignments

- Weekly homeworks
  - Homeworks are given out on Tuesdays, and they are due 6:00pm next Wednesday.
    - They are distributed online via Gradescope & CCLE
    - Submissions are accepted on Gradescope only
    - Your TAs will show you how to use it this Friday
    - You should register an account on https://gradescope.com, and use Entry code: 9P5N5D to join the class website
  - You are expected to work out assignments *individually* !!
    - Collaboration is considered as "cheating"
  - Solutions will be available after 7pm each Tuesday.
    - So no late homework is accepted

Programming Projects

- Two programming projects
  - #1: A simple web server: introduction to network programming
  - #2: Developing a simple user-level "TCP"-like transport protocol
- Two-person group project
  - each group has *exactly* two students
  - start to find your project partner *immediately*!
  - Talk to your TA this Friday if you still have no partner by that time
- Work out your projects in C/C++ in Unix/Linux

Forum and Homepage

- Discussion Board/Forum
  - Post your questions to the Discussion Forum at the course website.
  - Do *NOT* post *detailed programming codes* onto the forum unless you get approval from me or the TAs!

- Course Web page at CCLE
  - No paper copies of the homework assignments will be distributed !
  - check out the assignments, lecture notes, etc. regularly
  - If you have other interesting resources (e.g., a useful network programming hyperlink), let us know

Important Dates for the Class

- Midterm:
  - Two-hour, in-class exam
  - **Tuesday, May 8, 2018.**
  - Covers Chapters 1, 2, 3 of the textbook (upto transport layer), project 1, homeworks, and lecture notes
- Final:
  - **Finals week: 11:30am-2:30pm, Thursday, June 14, 2018.**
  - covers everything, but the latter part after the midterm will carry more weights
- Projects:
  - **Project #1 due: Friday, April 27, 2018**
  - **Project #2 due: Friday, June 8, 2018**

Tentative Schedule (20 lectures):

Lectures:

Part 1: Introduction *(2 lectures, text: Chapter 1)*

Part 2: Application Layer *(2 lectures, text: Ch.2)*

-- introduction to socket programming is provided on Friday recitations

Part 3: Transport Layer *(4.5 lectures, text Ch. 3)*

**Project 1: April 27, Friday*

**Midterm exam (2-hour in-class exam for Parts 1,2,3):*

May 8, Tuesday

Part 4: Network Layer *(4 lectures, text: Ch. 4 and 5)*

Part 5: Link Layer, LANs *(3.5 lectures, text: Ch. 6)*

Part 6: Wireless and Mobile Networks *(2 lectures, text: Ch. 7)*

Part 8: Network Security (1 lecture: Ch. 8)

*Final exam: June 14, Thursday

*Project 2: June 8, Friday (signup for demo)