UIC UNIVERSITY OF ILLINOIS AT CHICAGO Department of Computer Science COLLEGE OF ENGINEERING

CS450 – Introduction to Networking

Lecture 1 - Course Overview

Phu Phung

January 12, 2015

About this course

Introductory course in computer networking

- learn principles of computer networking
  - How computer networks and the Internet work
- learn practice of computer networking
  - How networked applications work

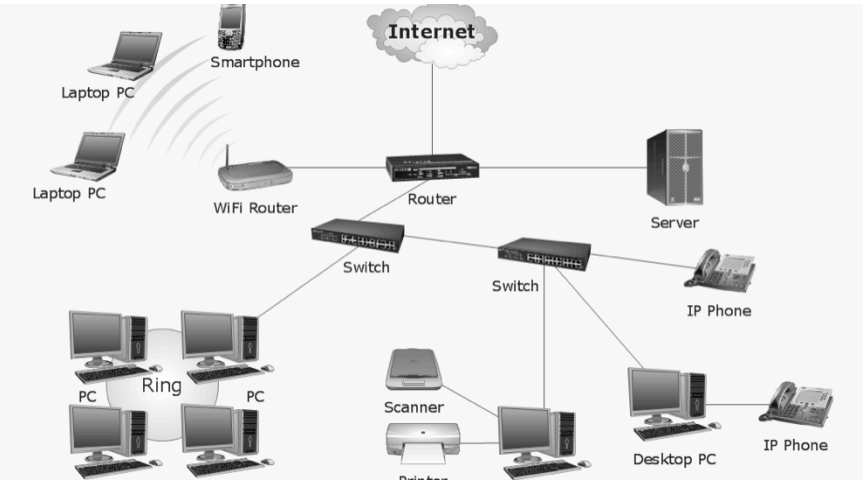
About this course

Hands-on experiences in computer networking

- How to write programs that communicate over networks
  - 6 programming assignments

"Tell me and I forget. Show me and I remember. Involve me and I understand."
Chinese proverb

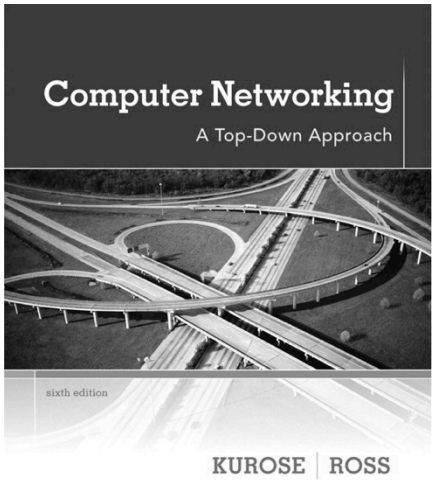
About this course



Instructor: Phu Phung

- Postdoctoral Research Associate
- Research areas: Software security, web security, cloud computing, mobile computing security
  - I am happy to chat offline with you about these
- Homepage: http://www.cs.uic.edu/~phu
- Office: SEO 1216
- Office hours: 2 – 3 PM Mondays & Wednesdays

Textbook (required)



Computer Networking: A Top Down Approach
6th edition
Jim Kurose, Keith Ross
Addison-Wesley
March 2012

Links to PDF version and Slides are on course's homepage

Resources

- Course's homepage (up-to-date information): http://www.cs.uic.edu/~phu/teaching/cs450
- UIC Blackboard
  - Official announcements
  - Slides
  - Assignments
  - Grades
  - Discussion forums

Prerequisites

- CS 361 – Systems
  - Low-level C programming
- Talk to me if you concern about these

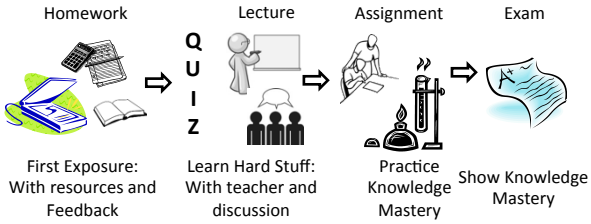
Q & A

- Use the discussion forum on Blackboard to ask/answer questions (please no email)
  - Your classmates might benefit from your questions
  - Your classmates can answer your questions
  - You will get credits for good questions/answers
- Questions are responded within 24 hours by the instructor (me) or TA

Peer Instruction: What and Why

- What?
  - Class is centered around you
  - Class is interactive with a lot of group discussions, requiring your participation (will be credited and graded)
- Why?
  - Active class participation, more interesting
  - Chance to think, to discuss with your peers
  - Research shows that PI promotes effective learning than traditional lecture

Peer Instruction-Based Design



- Greater opportunity for expert feedback!
- Research on how people learn:
  - Everyone constructs their own understanding
    - I can't dump understanding into your brain
  - To learn YOU must actively work with a problem and construct your own understanding of it

Peer instruction: How

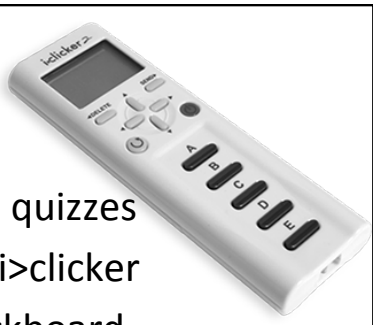
- Before class:
  - students prepare the assigned reading to understand concepts
- During class:
  - Short quiz on the concepts
  - Mini lectures
  - ConcepTest
    1. Answer individually
    2. Discuss with your peer in a group
    3. Answer by group
    4. Possible class discussion

Group forming

- Three students each
- You have to sign-up in a group in Blackboard by noon Thursday Jan 15
  - Tools -> Groups -> Peer discussion group
  - Find your partner today!! Or use course's forum to form your group
- I will assign you in a group randomly if you do not form yourself

Let's form your temporary peer group of 3 for now

i>clicker



- Used to answer multi-choice quizzes
- Every student must have an i>clicker
- Register your iclicker on Blackboard
  - Tools -> i>clicker Student Registration

i>clicker Test

How many courses you took use iClicker?

A. >3

B. 3

C. 2

D. 1

E. 0

Peer Instruction flowchart

- Individual vote
- Peer discussion in a group
  - Room should be LOUD
- Group vote
  - All members in a group must vote the same to get points
- Class discussion

Learning with Peer Instruction, I feel..

A. Very comfortable

B. Somewhat comfortable

C. Only a little comfortable

D. Not at all comfortable

E. I don't know / others

Assignments

- Exams might include questions on assignments
- 6 programming assignments
  - Skeleton program is provided in C language (You can use a language of your choice - except Ruby, Python, Scalar - but no skeleton provided)
- Distribution/submission through Blackboard
  - **Blackboard does not allow to submit if deadline passed**
  - If you have an *"acceptable"* reason that you think you cannot make the deadline, email me 36 hours in advance

Recommended environment for programming assignments

- Work on a virtual machine
  - VirtualBoxVM https://www.virtualbox.org/
- Ubuntu 14.04.1 LTS
  - http://www.ubuntu.com/download/desktop (ubuntu-14.04.1-desktop-amd64.iso)

  (Install the Guest Additions for fullscreen display in VirtualBox)
- Work on your own physical computer is not recommended

Assignments

1. A simple web client
2. Multi-thread web server
3. Network traffic
4. Recursive DNS resolver
5. Reliable Communication
6. High-performance transport over an unreliable link

Tentative Schedule

- See the course's homepage http://www.cs.uic.edu/~phu/teaching/cs450
  - The schedule is subject to change 24 hours in advance
- 2 weeks for a programming assignment
  - First programming assignment has been released today
  - There are two assignments that students should work in pair
  - Start installing the virtual machine today!!

Tentative Schedule

- Midterm exam (in class)
  - Monday March 9th 1 PM 238 SES (**subject to change** – before Spring break)
  - Written
  - One-sheet document
- Final exam: TBA

Assesements

- 5% reading quizzes
- 5% class participation
  - 0-5% bonus for active discussions in class/online
- 36% programming assignments
  - 0-6% bonus for early submission 36 hours in advance
- 25% midterm exam
- 30% final exam

Total = 101-112% ☺

Administrative questions?

- Course score cut-offs for an A, B, C … will be set after all assessments
  - Different between undergrads & grads
- Office hours
- Discussion forums