CS422: Computer Networks

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Spring 2025

Today's Agenda

- Do you need to drop CS422? (Syllabus)
  - Course overview
  - Grading: assignments, labs, exams
  - Course policy
  - Q&A
- Chapter 1

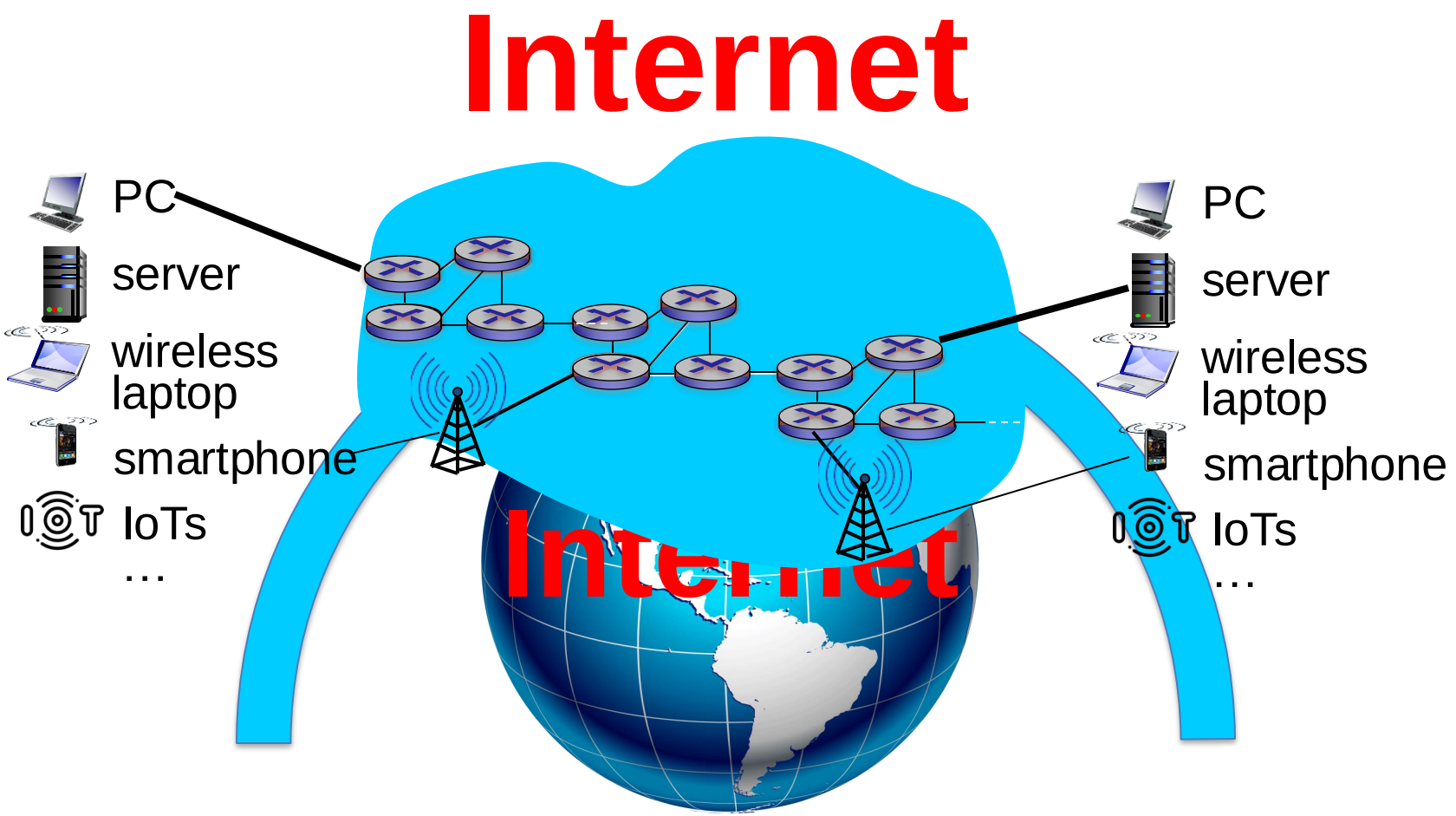
What is CS422 About?

ONE global, largest cyber infrastructure invented by humans to connect computers (machines) for data communication

You are NOT NEW to Internet

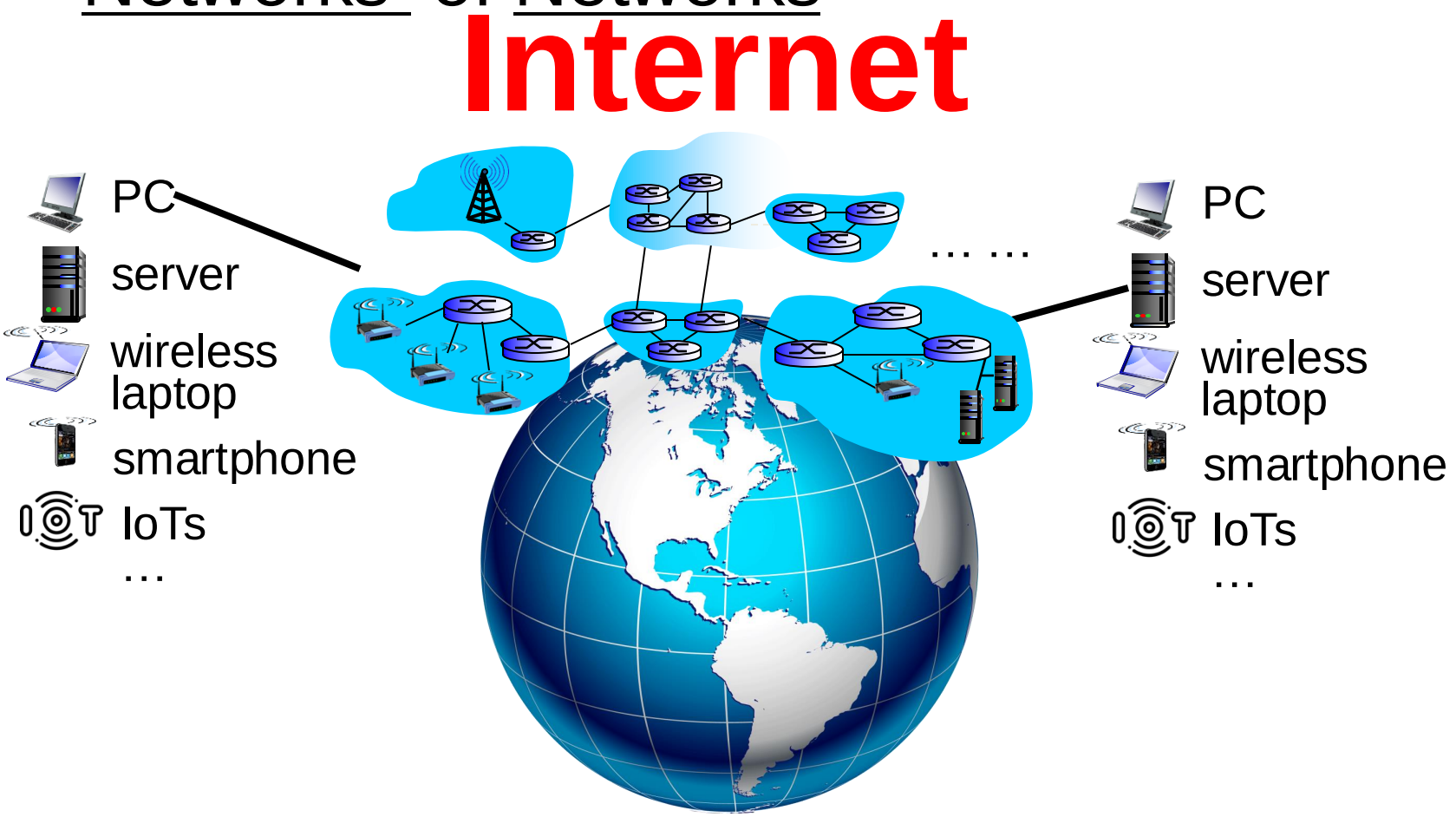
What is CS422 about?

- Networks for Computers



What is CS422 about?

- Networks for Computers
- Networks of Networks



What is CS422 About?

- From users to **Developers**
  - Learn **HOW** Internet was built
    - Hardware and **software (network protocols)**
  - Understand **WHY** (this way, not that way)
    - To innovate next-generation Internet
- A focus on **TCP/IP protocol suite** in today's Internet
  - Understand **basic concepts and principles** of computer networks: design and practice
  - Develop **network programming skills**

Course Homepage

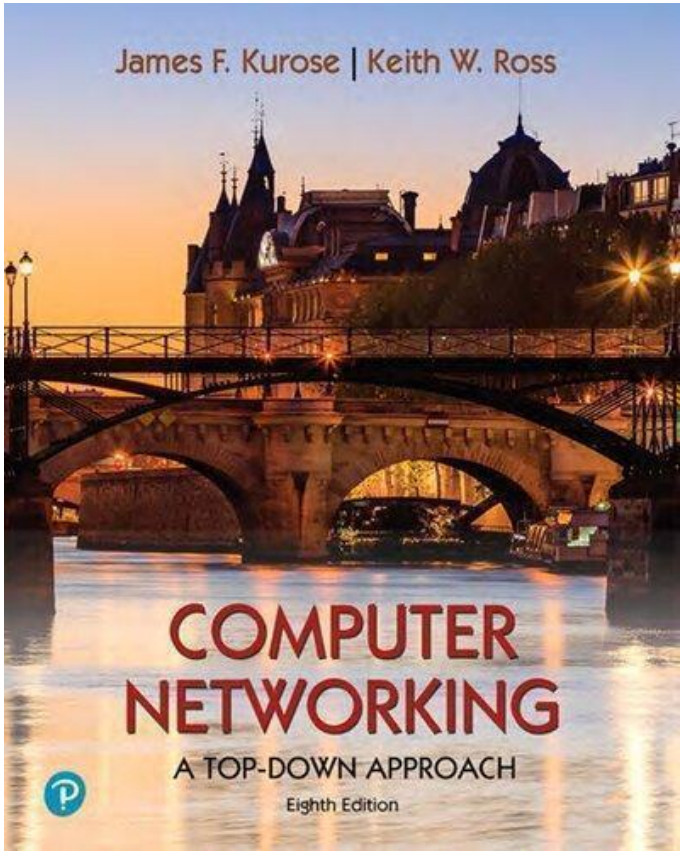
- Syllabus: https://www.cs.purdue.edu/homes/chunyi/teaching/cs422-sp25/cs422-sp25.html

- Lectures: to be added over time

Textbook

- J. Kurose & Keith Ross, "Computer Networking: A Top Down Approach," 8th edition, Addison Wesley

- Online lecture notes



Topics (Tentative)

- Chapter 1: overview
- Chapter 2 – 7
  - **Application layer (ch2)** : HTTP, DNS, socket programming
  - **Transport: layer (ch3)**: TCP, UDP, TCP congestion control
  - **Network layer (ch4 and ch5)**: data-plane (forwarding and NAT), control-plane (routing), routing algorithms and protocols, SDN
  - **Link layer (ch6)** : multiple access links and protocols, Ethernet, data center networking
  - **Wireless and Mobile Networks (ch7, partly)**: wireless link layer (multiple access for 802.11 and 2G/3G/4G/5G)

Prerequisites

- Coursework on (or experience with)
  - Operating Systems (e.g., thread, socket programming), **CS354** or equivalent
  - Algorithms (e.g., graph, dynamic programing), **CS251** or equivalent

- Programming skills in **Python & C**
  - Needed for your programming labs
  - CS252 and CS240 or equivalent

Online tools for CS422

- **Brightspace** (official grades)
  - Purdue login

- **Gradescope** (assignments: labs & homework)
  - https://www.gradescope.com/courses/936650
  - Entry Code:R7PZGD
- **Campuswire** (announcements, course materials, online Q&A and discussion …)
  - https://campuswire.com/p/GF2E523EE
  - Code: 5419
  - Join now!
  - Tip: please turn on the email notification (if not)

Office Hours & PSOs

- My office hour: DSAI 2142, Thur 13:30PM – 14:30PM (or by appointment)
- TAs (cs422-ta@cs.purdue.edu)
  - Shengqing Xia (Assistant Instructor)
  - Jingqi Huang
- PSO
  - No PSO in the first week
  - Wed 4:30 pm - 5:20 pm (ONLINE, Shengqing Xia)
  - Thu 11:30 am - 12:20 pm, HAAS 257 (Shengqing Xia)
  - Fri 9:30 am - 10:20 am, HAAS 257 (Jingqi Huang)
  - PSOs are optional but useful for assignments, Q&A
    - Contact us if you have concerns on attending PSOs

Grading Policy

- Homework: 20%
- Labs: 32%
  - Plus bonus parts (up to 40%)
- Exam: 48%
  - Midterm 1: 12%
  - Midterm 2: 12%
  - Final exam: 24%

Grading Policy (more)

- Homework (due in 1 week)
  - 5/6 assignments
- Lab (due in 1-2 weeks)
  - 4 labs (wireshark, application, transport, wireless)
  - Bonus points (mainly in the last lab)
- Exams: closed book, closed note
  - Midterm 1 (in class): Feb 27
  - Midterm 2 (in class): April 08??? (TBD)
  - Final: TBD

Other Course Policy

- https://www.cs.purdue.edu/homes/chunyi/teaching/cs422-sp25/cs422-sp25.html
- Participation in any form always encouraged
  - Attendance required
- **No misconduct tolerable**
  - No ChatGPT or AI used in class
  - Penalty to using/giving any code to other students
    - MOSS used
- Late policy (3 late days in total)
  - No late turn-in will be accepted for credits
- Regrading, No make-up exams
- **Emergency policy** (contact us ASAP)

Follows-up + Q&A

- Login & enroll at online tools
  - Brightspace
  - Gradescope: https://www.gradescope.com/courses/936650
    Entry Code:R7PZGD
  - Campuswire: https://campuswire.com/p/GF2E523EE
    Code: 5419
- Contact us (cs422-ta@cs.purdue.edu)
  - If questions, concerns and suggestions (Campuswire, PSO, office hours, emails)