CS422:
Computer Networks

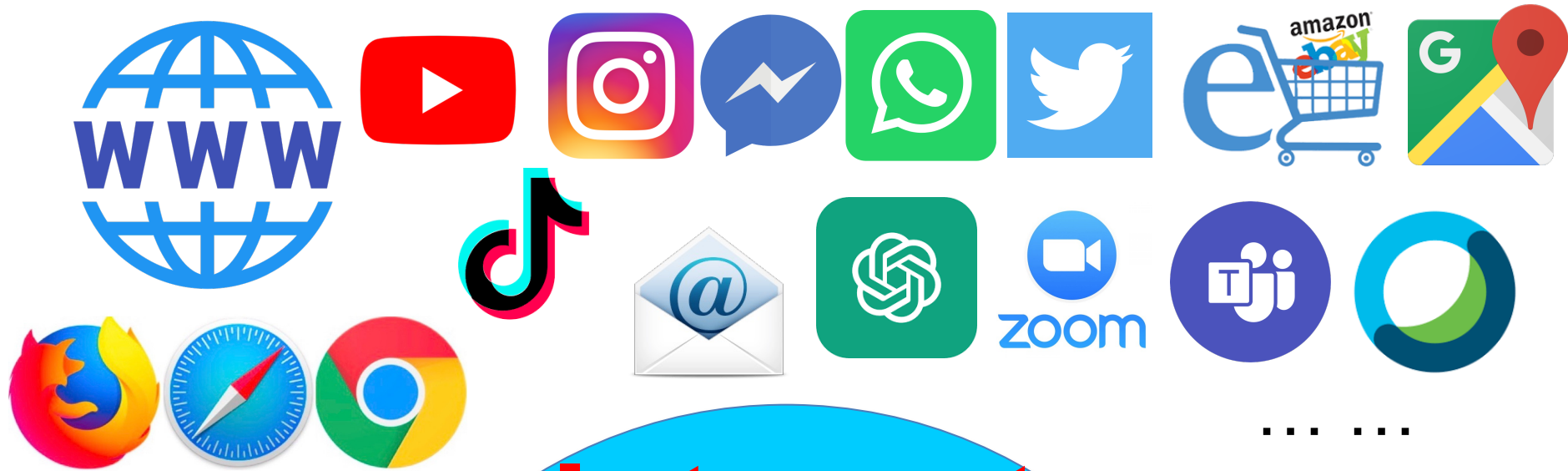Chunyi Peng

Spring 2024

Today's Agenda

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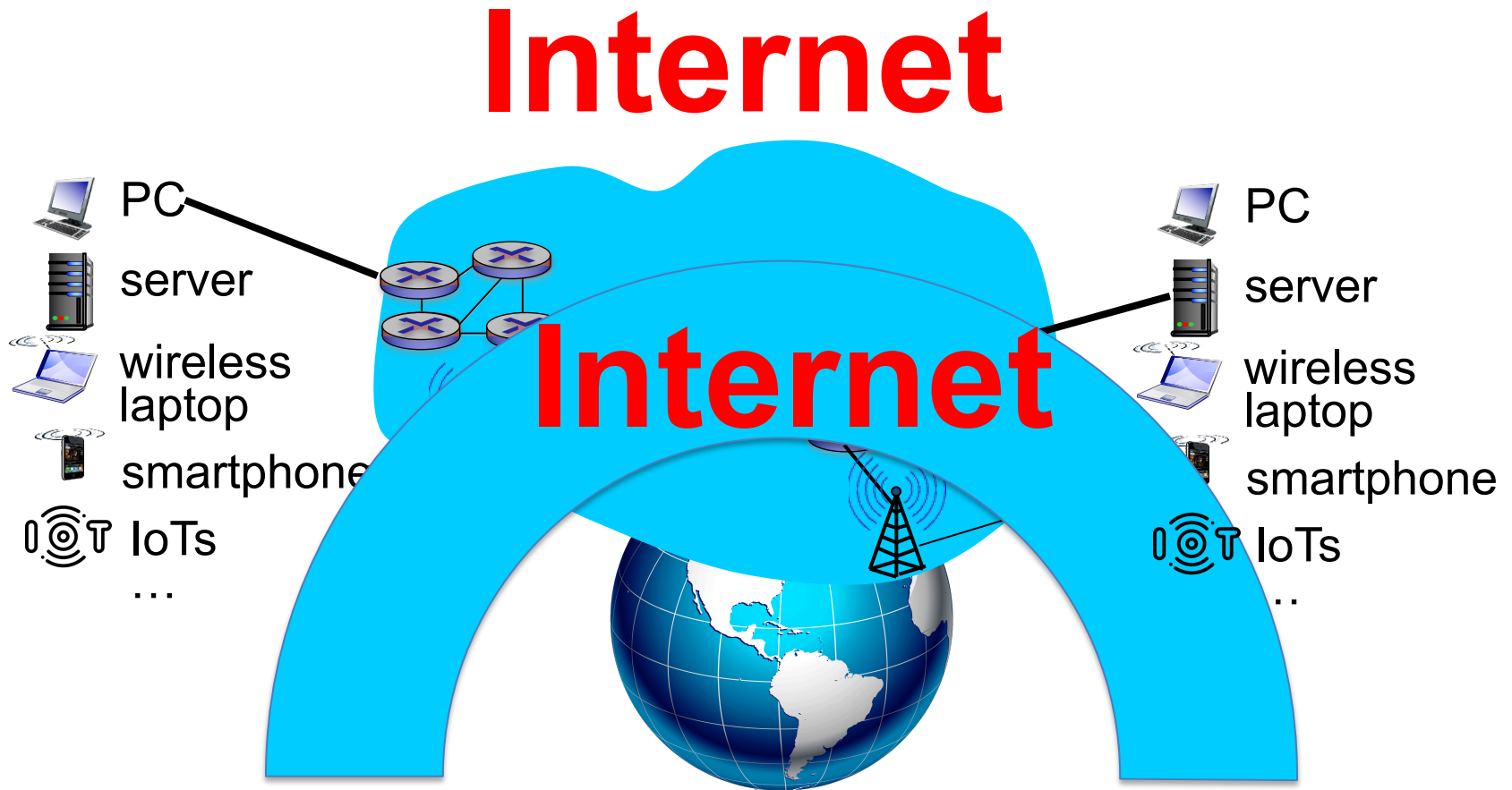 - Course policy
  - Q&A

- Chapter 1

What is CS422 About?

Internet

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

You are NOT NEW to Internet
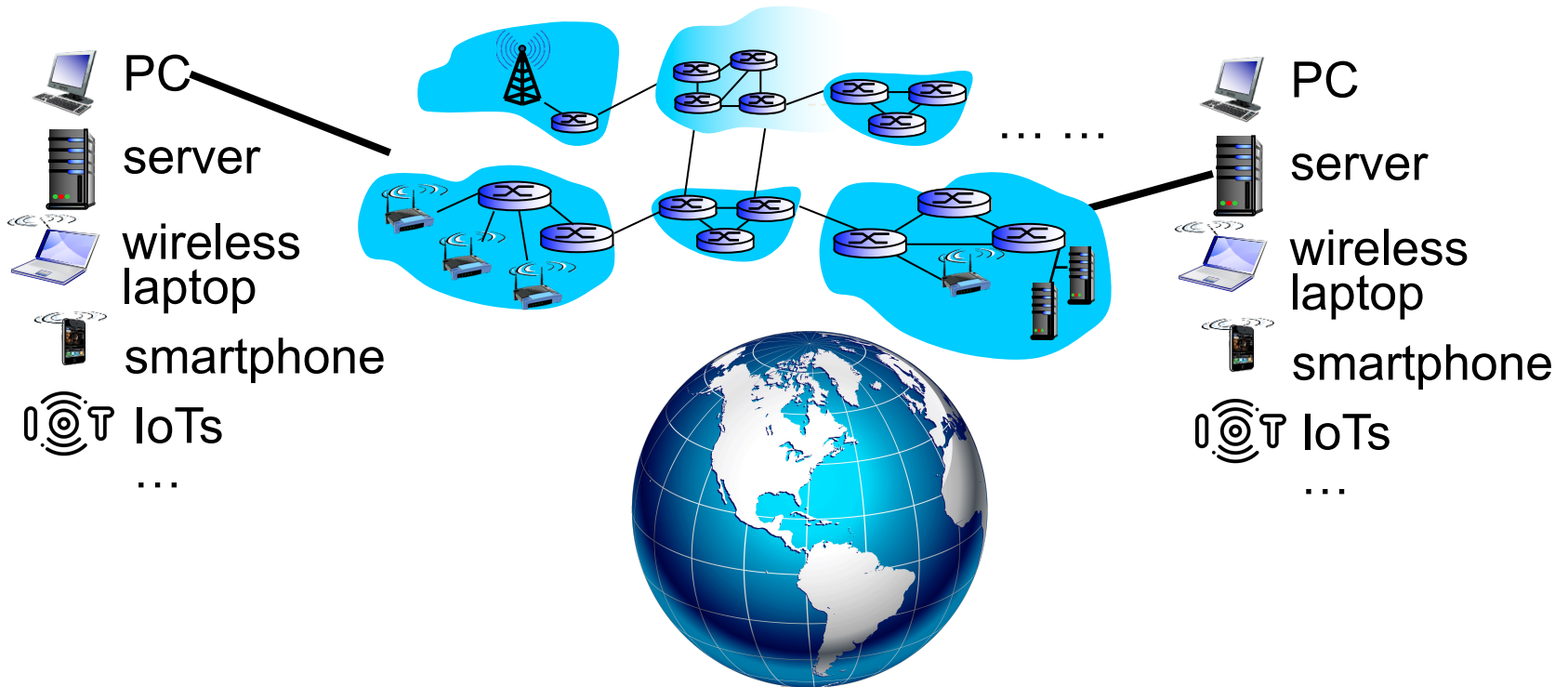

Internet

What is CS422 about?

- <u>Networks</u> for <u>Computers</u>

Internet

PC

server

wireless
laptop

smartphone

IoTs

…

Internet

PC

server

wireless
laptop

smartphone

IoTs

…

What is CS422 about?

- <u>Networks</u> for <u>Computers</u>
- <u>Networks</u> of <u>Networks</u>

Internet

PC

server

wireless laptop

smartphone

IoTs

…

… …

PC

server

wireless laptop

smartphone

IoTs

…

What is CS422 About?

- From users to **Developers**
  - Learn **HOW** Internet was built
    - Hardware and **software (protocols)**
  - Understand **WHY** (this way, not that way) and how 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**
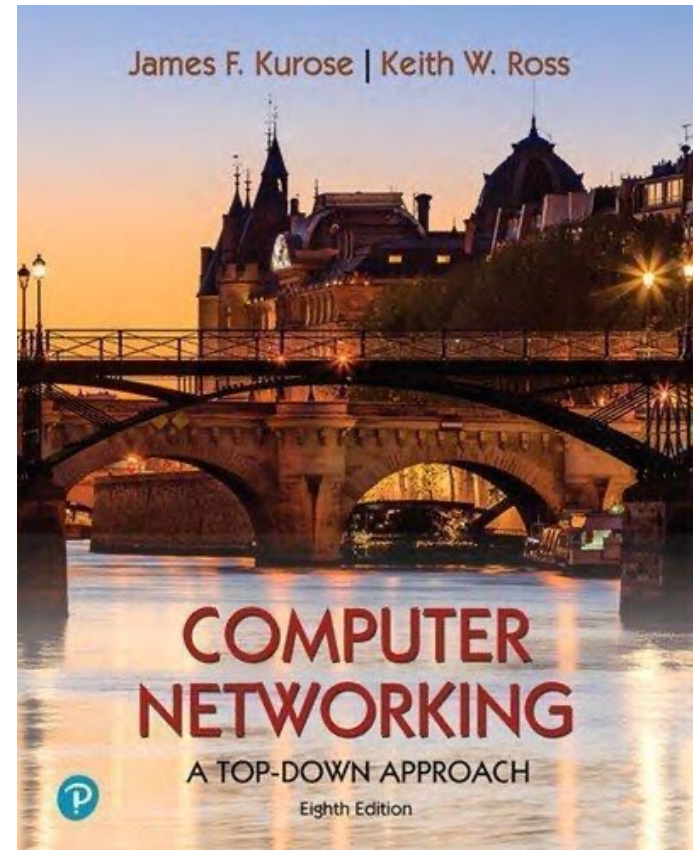
Course Homepage

- Syllabus: https://www.cs.purdue.edu/homes/chunyi/teaching/cs422-sp24/cs422-sp24.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, P2P, 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)**: 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

Tools to use at CS422

- **Campuswire** (online discussion, announcements)
  - https://campuswire.com/c/G1A797DE8/
  - CODE: 6686
  - Join now! Tip: please turn on the email notification (the default is off)

- **Gradescope** (assignments, labs)
  - https://www.gradescope.com/courses/698222

- **Brightspace** (official grades)

Office Hours & PSOs

- My office hour: Thur 10:00AM – 10:45AM
- Two TAs:
  - Chen Peng
  - Jingqi Huang
  - Contact us: cs422-ta@cs.purdue.edu
- **PSOs**
  - No PSOs in the first week
  - PSOs updated shortly at homepage
    - PSOs are optional but useful for homework, labs, and exams
    - Contact TAs if you have concerns on attending PSOs

Grading Policy

- Homework: 15%
- Labs: 30%
- Mid-term exam: 25%
- Final exam: 30%

Grading Policy (more)

- Homework (due in 1 week)
  - 4/5 assignments
- Lab (due in 1-2 weeks)
  - 5 labs (wireshark, network tools, C/python programming)
  - Bonus points
- Exams: closed book, closed note
  - Midterm (evening): 20:00PM -21:30PM, Feb 27, WTHR 172
  - Final: TBD

Other Course Policy

- https://www.cs.purdue.edu/homes/chunyi/teaching/cs422-sp24/cs422-sp24.html
- Participation in any form always encouraged
  - Attendance required
- **Emergency policy** (contact us as soon as you can)
- Late policy
  - No late turn-in will be accepted for credits
  - 3 late days in total
- Regrading
- No make-up exams
- **No misconduct tolerable**
  - Using/giving any code to other students
  - MOSS used

Follows-up + Q&A

- Login Brightspace and Gradescope
- Enroll at Campuswire
  - https://campuswire.com/c/G1A797DE8/
  - CODE: 6686

- Contact us (cs422-ta@cs.purdue.edu)
  - If your concerns and suggestions (Campuswire, PSO, office hours, emails)