CS536: Data Communication & Computer Networks

Chunyi Peng

Fall 2023

Agenda

- CS536 Syllabus and basic course info https://www.cs.purdue.edu/homes/chunyi/teaching/cs536-fall23/cs536-fall23.html

- Chapter 1

About Me

- Chunyi Peng (https://www.cs.purdue.edu/homes/chunyi/)
  - 2013, PhD, UCLA
  - 2013 – 2017, Assistant Prof, Ohio State University
  - 2017 – 2020, Assistant Prof, Purdue University
  - 2020 – Present: Associate Professor
- Research Areas:
  - Mobile networks (5G/6G): AI for Network
  - 5G/IoT security
  - Mobile edge computing (mainly for drones and robots)
- Office Hour: 11:00AM - 12:00PM Tue, LWSN 2142E

About Three TAs

- Contact us: cs536-ta@cs.purdue.edu
  - Junpeng Guo
  - Chen Peng
  - Shilong Lei
- **PSOs and Office Hours**
  - No PSOs in the first week
    - Tue 1:30p - 2:20p, ONLINE, Shilong Lei
    - Wed 11:30a - 12:20p, HAAS G050 , Chen Peng
    - Friday 9:30a - 10:20a, HAAS G050 , Junpeng Guo
  - PSOs are optional but encouraged for homework, labs and exams
  - Campuswire used for Q&A online
  - Check your PSO schedule and contact us if you have concerns on attending PSOs

About You

- Attendee Survey: https://forms.gle/1PBHc4eGbq2zvemNA
- Your information
- Why do you take this course?
- What are your expectations with CS536?
- What you know about computer networks (any prior experience)?
- What else do you want to share about CS536?
- …
- Any other questions or concerns?

In-Class Survey

- Your department: CS and non-CS
- Your program: PhD/MS/Bachelor

- Why do you take this course?
  - **To meet my core course requirement**
  - Interest (no need to meet a core course requirement)

- What is the minimal grade you need and expect?

  A/A+ A- B+ B N/A

How much do you know about CS536?

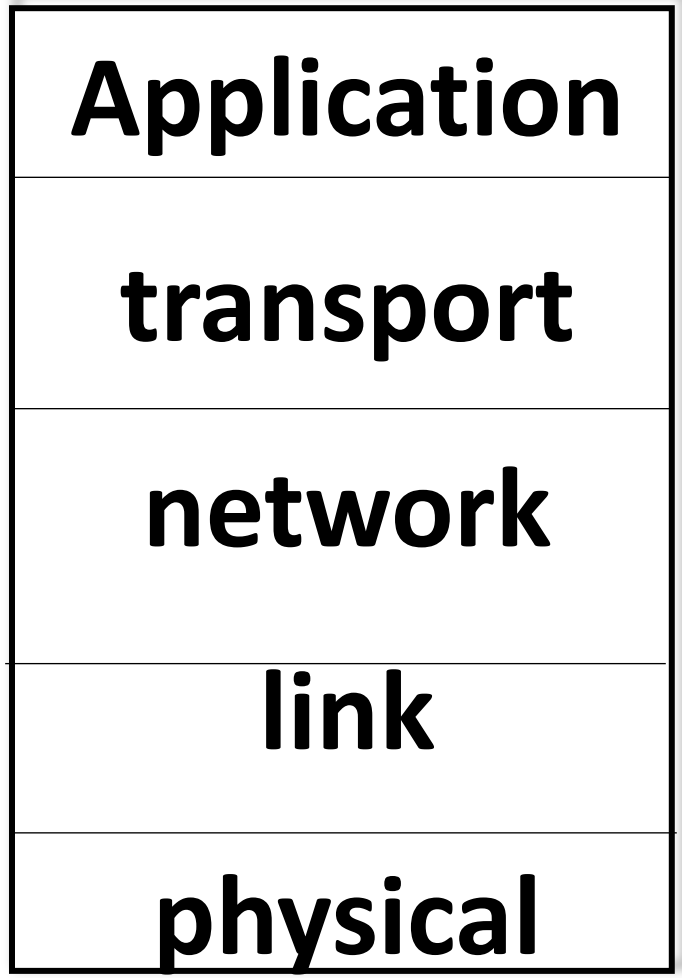
Internet

TCP/IP

End Hosts

Access Network

Core Network



Congestion Control

Routing

BGP

SDN

MAC

Handover

WiFi 7

5G

DASH

ARP

LEO

Edge Computing

Serverless Computing

What is your C programming level?

Never/rarely used

< 3 times (< 200 lines) used in my courses

> 3 times or >500 lines used in my courses

Often used (beyond my course projects)

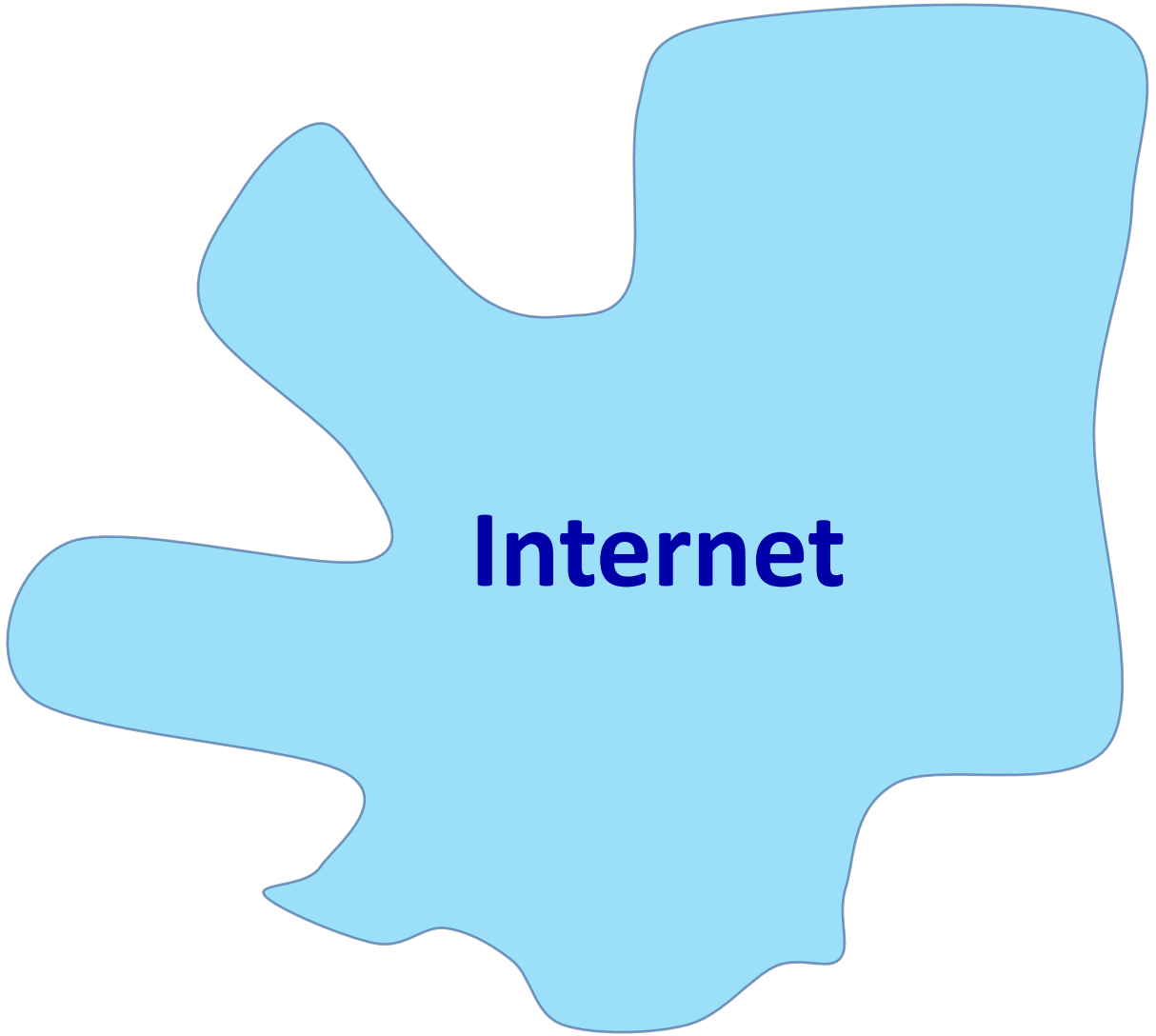
Why this survey?

- **Be interactive**

- Your feedback will be used to tune how to teach CS536
  Scope: balance between Part I and Part II
  - **Difficulty levels**: from basic to advanced
  - **Assignments:** labs and homework
  - **Quizzes and exams**

- Your feedback are welcome anytime

What is the course about?



What is the course about?

Billions of connected computing devices (end systems/hosts)

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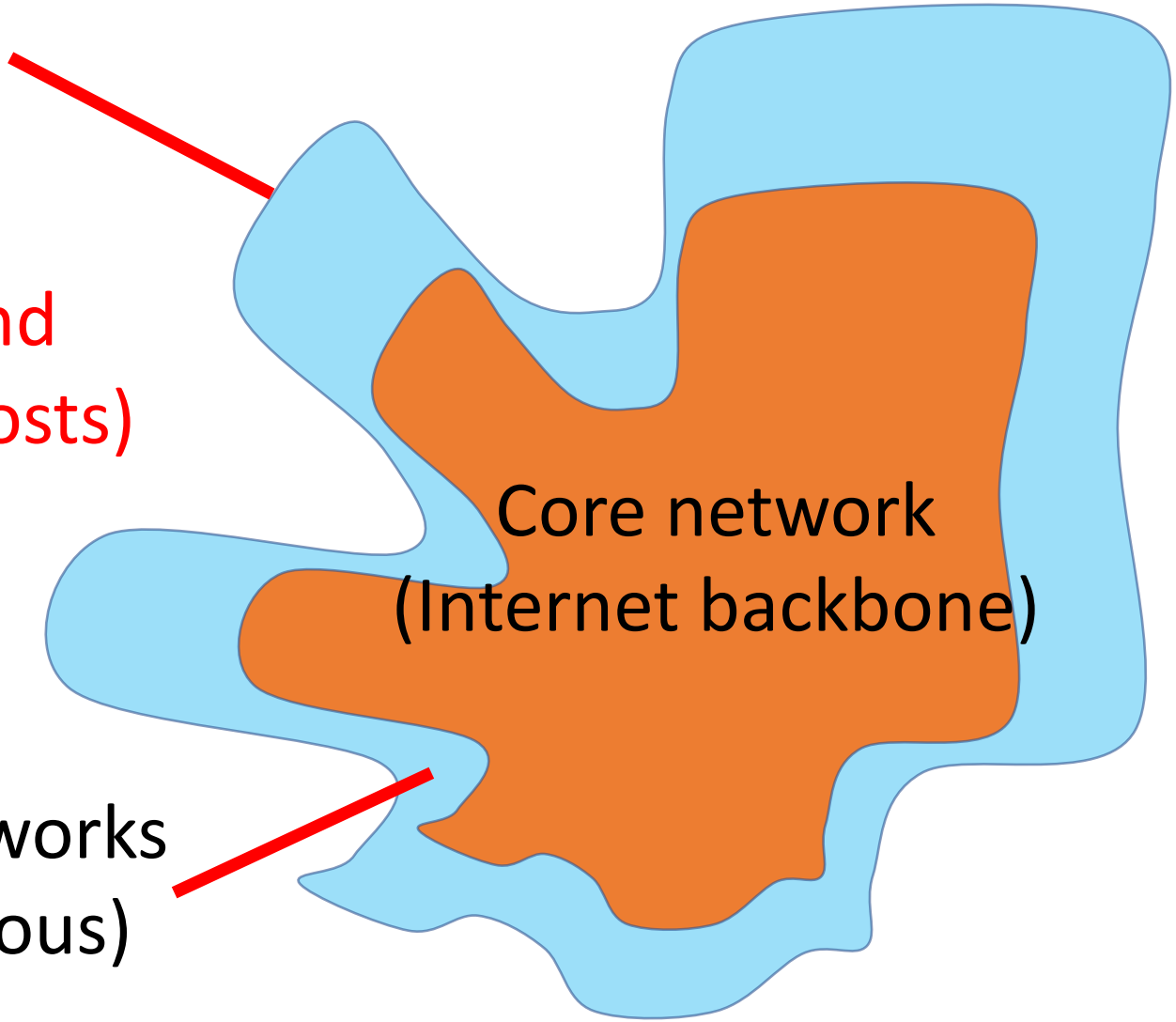


Access networks (heterogenous)

What is the course about?

Part I: Basic topics (Internet in the Past)

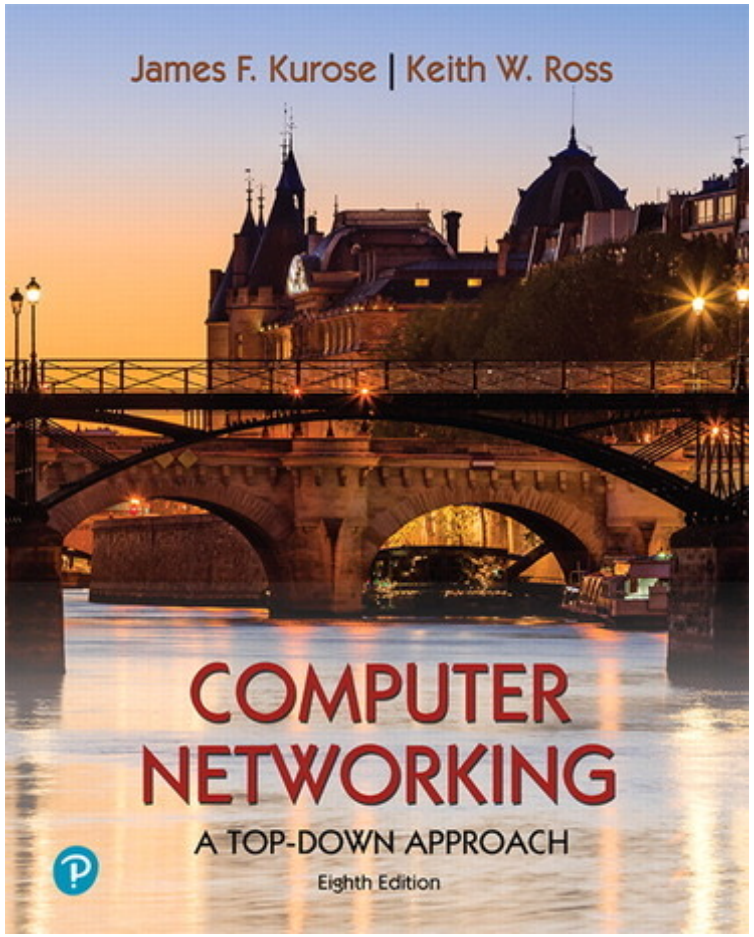
- A focus on TCP/IP protocols
- Understand principles, concepts and main protocols
- Develop basic network programming skills

Part II: Advanced topics (Internet today and in the future)

- A focus on wireless and mobile networks
- Topics: Internet of Things, AI for Net, edge computing …

Textbook

- James F. Kurose & Keith W. Ross, "Computer Networking: A Top Down Approach," 8th edition,



- Online lecture notes
- Additional readings

Topics (tentative)

Part I: Basic topics (Internet in the Past)

Chapter 1 – Chapter 6

Application → Transport → Networking → Link (Ethernet)

Part II: Advanced topics (Internet today and in the future)

Chapter 7, Chapter 8 and additional materials

Wireless → Security → IoT, Edge computing

Grading Policy

Syllabus:
https://www.cs.purdue.edu/homes/chunyi/teaching/cs536-fall23/cs536-fall23.html

- Exam 1: 23%
- Exam 2: 23%
- Pop-up Quiz: 4% (top-4 out of 5 counted)

- Homework: 15%
- Programming labs: 20%
- Final Project: 15%

More Details

- 3 late days
- 5 Quizzes (top-4 counted)
- Exam-1: in-class (16:30 PM – 17:45PM on Thur Oct 5)
- Exam-2: in-class (16:30 PM – 17:45PM on Thur Nov 30)
- 5-6 homework assignments
- Programming labs in C (individual)
- Final course project: a team up to THREE students; project topics released soon (much harder than any lab).

Another Perspective

- Easy to learn the basic; Hard to excel

	Homework	Programming Labs	Final Project
	15%	20%	15%
Difficulty	Easy	Medium	Hard
Credit-per-Hour	★★★★★	★★★★	★★★

	Part I: basic	Part II: advanced
Effort	60 – 70%	30 – 40%
Credit	> 80%	< 20%

Any Questions?

- Please sign in **Campuswire & Gradescope**
  - https://campuswire.com/c/G6F1FC7BA
  - https://www.gradescope.com/courses/558671
- Please finish attendee survey
  - https://forms.gle/1PBHc4eGbq2zvemNA
- Contact me right away if you have concerns/questions
- Contact TAs and me: cs536-ta@cs.purdue.edu