CS536: Data Communication & Computer Networks

Chunyi Peng
Fall 2023
Agenda

- CS536 Syllabus and basic course info

- Chapter 1
About Me

  - 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](mailto: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](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  

<table>
<thead>
<tr>
<th>Application</th>
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<tbody>
<tr>
<td>transport</td>
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<tr>
<td>network</td>
</tr>
<tr>
<td>link</td>
</tr>
<tr>
<td>physical</td>
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Congestion Control  
Routing
What is your C programming level?

<table>
<thead>
<tr>
<th>Level</th>
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<tbody>
<tr>
<td>Never/rarely used</td>
</tr>
<tr>
<td>&lt; 3 times (&lt; 200 lines) used in my courses</td>
</tr>
<tr>
<td>&gt; 3 times or &gt;500 lines used in my courses</td>
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<tr>
<td>Often used (beyond my course projects)</td>
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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?

Internet
What is the course about?

Billions of connected computing devices (end systems/hosts)
What is the course about?

Billions of connected computing devices (end systems/hosts)

Core network (Internet backbone)

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


- 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:

- 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

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<tr>
<th></th>
<th>Homework</th>
<th>Programming Labs</th>
<th>Final Project</th>
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<tbody>
<tr>
<td>Difficulty</td>
<td>Easy</td>
<td>Medium</td>
<td>Hard</td>
</tr>
<tr>
<td>Credit-per-Hour</td>
<td>★★★★★</td>
<td>★★★★</td>
<td>★★★</td>
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<table>
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<tr>
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<th>Part I: basic</th>
<th>Part II: advanced</th>
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<tbody>
<tr>
<td>Effort</td>
<td>60 – 70%</td>
<td>30 – 40%</td>
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<tr>
<td>Credit</td>
<td>&gt; 80%</td>
<td>&lt; 20%</td>
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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