Computer Networks
Ankit Singla
Course organization
Your instructors

Adrian Perrig

Ankit Singla

Supported by a great team of knowledgable TAs!
Course Web site: keep a close eye on it!

https://ndal.ethz.ch/courses/networks.html
Grading and feedback

- Grade: 100% from exam
- Up to 15% **bonus** marks from 2 coding projects
  - Exams are hard, you can hedge your risk :)
- 2-4 online quizzes
  - Only for feedback **(not graded)**
  - Keep track of how you are doing
Communication: we’ll use Slack

• Ask instructors and TAs questions
• Learn from fellow classmates
• Discuss class topics, and exciting networking news and developments

But also raise questions and discuss in class!
Slack: register with your real name

https://net-eth.slack.com/signup

Web, smartphone and desktop clients available
Textbook: Kurose-Ross, 7th edition

Ok to use 5th or 6th edition, but:
- at your own risk
- we’ll only list section numbers for 7th ed
- missing one or two newer topics
Standing on the shoulders of giants ...

- Brighten Godfrey
- Jennifer Rexford
- Scott Shenker
- Laurent Vanbever
- David Wetherall

Many thanks to them all for slides, materials, and inspiration!
Exercise sessions

Tue 15-17
Group A: CAB G 56
Group B: CHN F 46

Thur 13-15
Group C: CHN C 14

Ask questions, build on learnings from lectures, practice for exams …
Classroom etiquette

• Engage fully with the class
• Don’t use phones, laptops, tablets
  - Or sit in the back rows
• Questions encouraged at all times!

Lectures are being recorded and will be available online
Plagiarism & cheating

• Zero tolerance policy
• Discussion of general approach is OK
• Do not copy / share code from anywhere
• Do not consult others’ code, solutions
• Do not post solutions publicly online
• When in doubt, ask!
First iteration of a massive course

Help fix errors, problems!
Learning goals
You will learn ...

• ... how the Internet works
• ... how to think about networking
  - abstractions, layering, indirection
  - design, implementation, measurement
• ... how to make networks
  - reliable
  - efficient
  - secure
Example concepts you will learn

Naming    Layering    Routing    Reliability    Sharing
How do you address computers, services, protocols?
How do you manage complexity?
How do you go from A to B?
How do you communicate reliably using unreliable mediums?
Naming  Layering  Routing  Reliability  Sharing

How do you divide scarce resources among competing parties?
Two part, top-down structure

How to move data from A to B?
How does your ISP deal with others?
Physical data transmission
Security

Overview, abstractions, principles
How do YouTube, Facebook work?
How much data can I transmit now?
Algorithmic lens on networking

Adrian Perrig

Ankit Singla
I will teach module 1, ~12 lectures

Part 1: Overview & Principles

Part 2: Applications

Part 3: Transport

Part 4: Algorithms

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How do YouTube, Facebook work?
How much data can I transmit now?
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