CS301: Computer Networks

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WHAT DO YOU EXPECT TO
LEARN FROM THIS COURSE?

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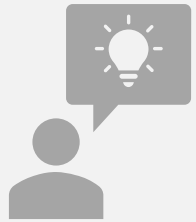


HOW DO YOU THINK IT WILL BE USEFUL TO YOU?

Goal of the Course

Understand how two computer on the Internet interact with each other

Basics of network **a**rchitecture **& protocols**

See the packets in the network

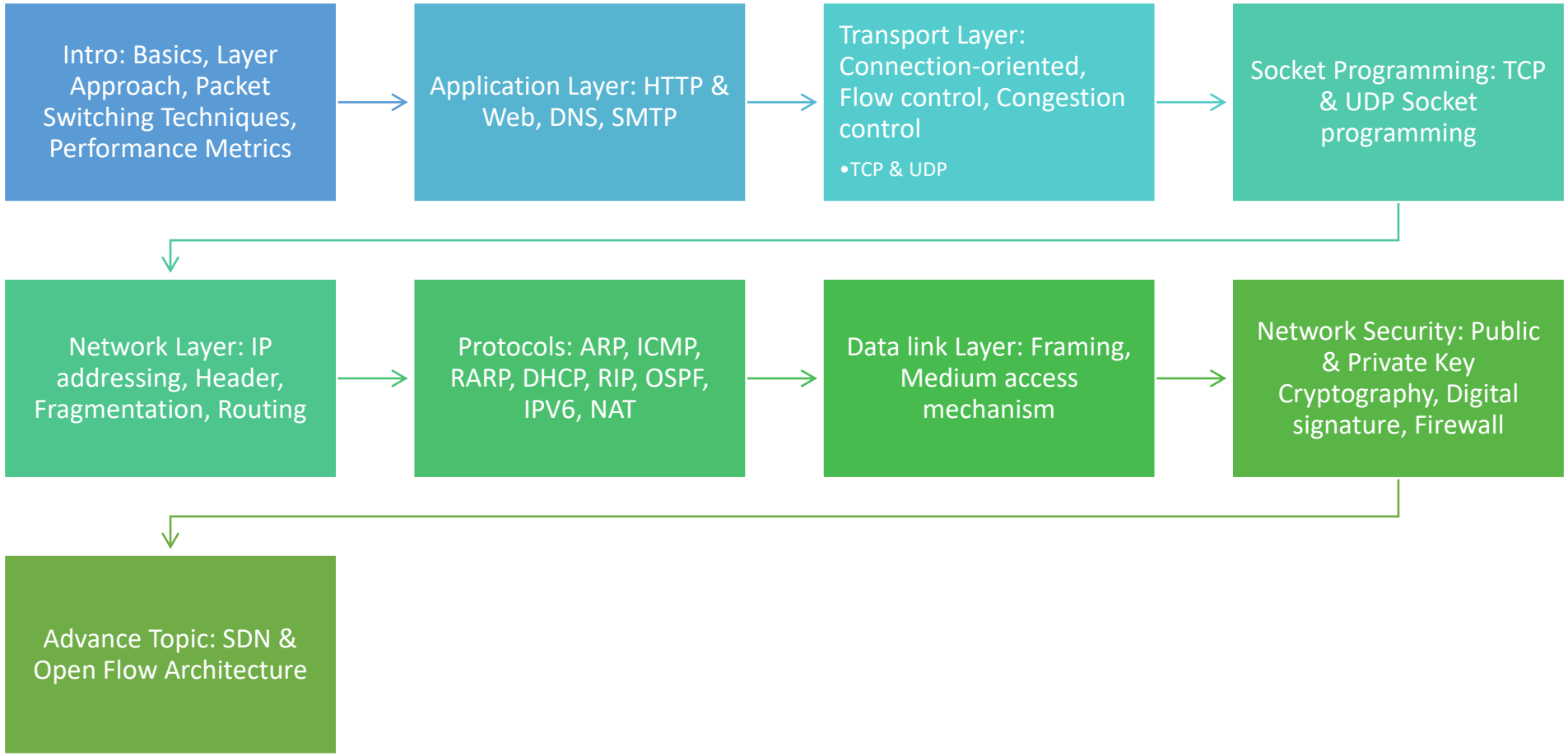
Packet analyzer tools (Wireshark/Tshark/tcpdump)

Program the network for communication

To **t**rain you towards research in networking field

To become familiar with the field of Computer networking

Tentative Syllabus



Administration

Course management through Google Classroom

- Register for CS301 at https://classroom.google.com/ by using code: c63mvob
- Slides, Assignments, URLs, news, Reading material, discussions posted here

Teaching Slot

- Slot-C (Monday, Tuesday, Thursday 10.30 to 11.25AM)

TAs for the Course

- Mr. Aman Khan (PhD-CSE)
- Mr. Nikhil Gumasthi (M.Tech-CSE)
- TBD

Tentative Grading Policy

- Assignments: 30%
- Exams: 55% (Mid Sem (25%) + End Sem(30%))
- (Surprise) Quiz: 8%
- Class Assessment: 7%

Assignment Policy:

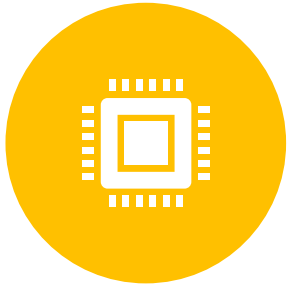
- Individual Assignment
- **Deliverables:** Design document/Report, README, Code files, test files in a tar ball and submit to google classroom.
- Submitted work should be your own
- If found guilty of copying assignments (high similarity in submitted assignments) → gets 0 Marks/FR grade
- No extension of deadlines

- Late Policy:
  - Flexible slip dates
  - 5 days for whole course
  - 10% off per day after exhausting slip dates

Reference Book/Material

“Computer Networking: A Top Down Approach” by Ross and Kuros **[Primary book to follow]**

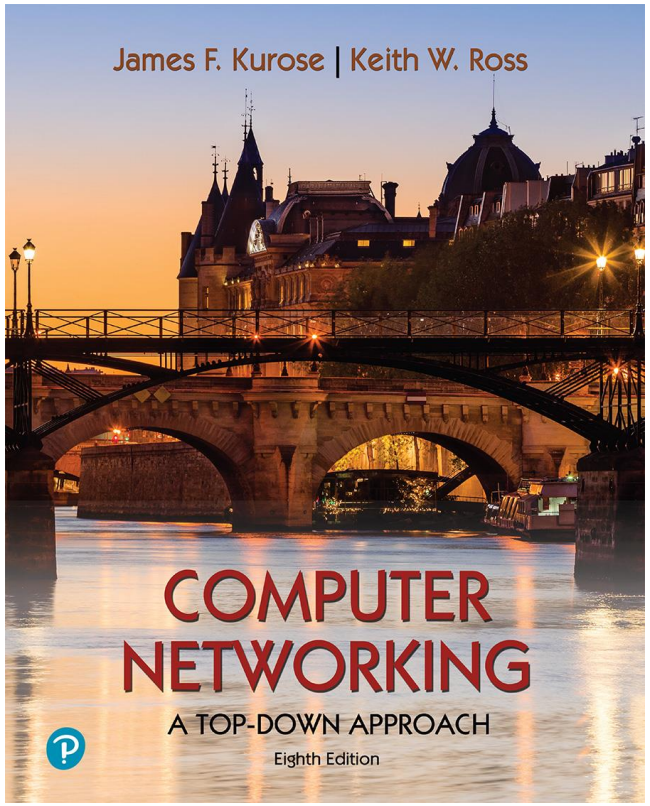
“Computer Networks” by Tanenbaum



“TCP/IP Protocol Stack” by Forouzan

Online resources and research papers àannounced through Google Classroom course page time-to-time

Chapter 1 Introduction



Computer Networking: A Top-Down Approach
8th edition
Jim Kurose, Keith Ross
Pearson, 2020

Chapter 1: introduction

Chapter goal:

- Get “feel,” “big picture,” introduction to terminology
  - more depth, detail *later* in course
- Approach:
  - use Internet as example

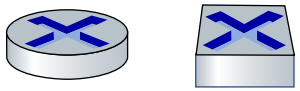
Overview/roadmap:

- What *is* the Internet?
- What *is* a protocol?
- Network edge: hosts, access network, physical media
- Network core: packet/circuit switching, internet structure
- Performance: loss, delay, throughput
- Security
- Protocol layers, service models

The Internet: a “nuts and bolts” view

Billions of connected computing *devices*:

- *hosts = end systems*
- running *network apps* at Internet’s “edge”



Packet switches: forward packets (chunks of data)

- *routers, switches*

Communication links

- fiber, copper, radio, satellite
- transmission rate: *bandwidth*

Networks

- collection of devices, routers, links: managed by an organization