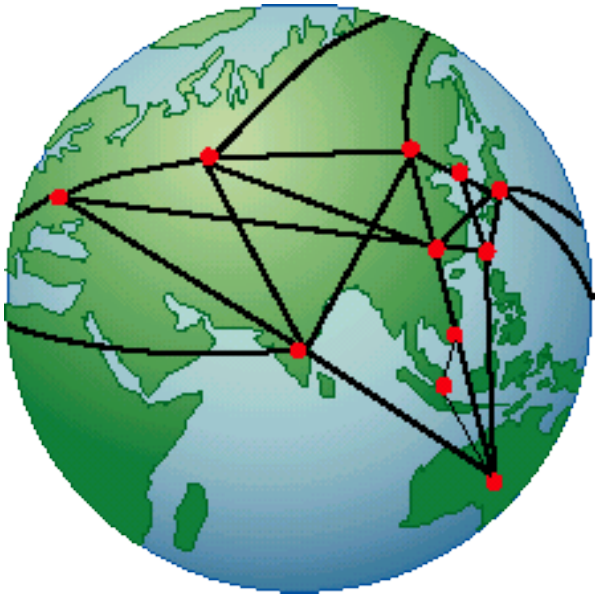
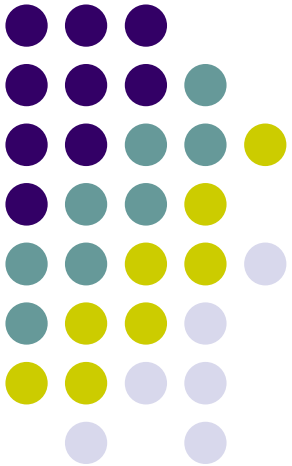
Computer Networks





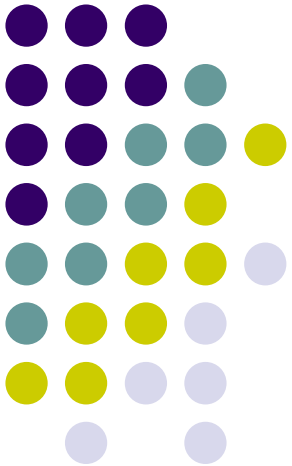
Computer Networks

Lin Weiguo **Prof.**

School of Computer Science & Cybersecurity

linwei@cuc.edu.cn

http://tlc.cuc.edu.cn



About

- Instructor:
  - Lin Weiguo, Prof. linwei@cuc.edu.cn
- TA:
  - N/A
- Class & Lab Hour:
  - MON 8:00-12:00(wk#1-9,11-17)
  - Class Room: 48#A101

Mail & Web

- Class mail

  forrest_lin@163.com

- Course Website

  http://tlc.cuc.edu.cn

  雨课堂

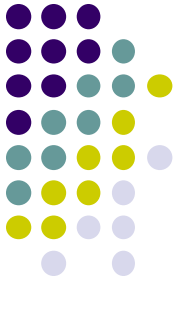
Syllabus

- Introduction: General concepts
- Physical Layer: copper, fiber, wireless…
- Data Link Layer: protocol principles, HDLC, and PPP
- Mac Sublayer: Ethernet(802.3) , and switching
- Network Layer: routing algorithms, congestion control,IPv4, and IPv6
- Transport Layer: UDP, TCP, RTP, and network performance
- Application Layer: e-mail, the Web …
- Review

What Is This Course All About

- Network Architecture
  - Principles and Concepts
  - General-Purpose Networks
- Network Protocols
  - Internet
  - LAN
- NOT for
  - Network Administration
  - Building up specialized networks
  - Survey of existing protocol standards
  - CISCO/Huawei certificate (CCNA,CCNP,CCIE/HCNA,HCNP,HCIE)

Roadmap



Introduction

Physical Layer

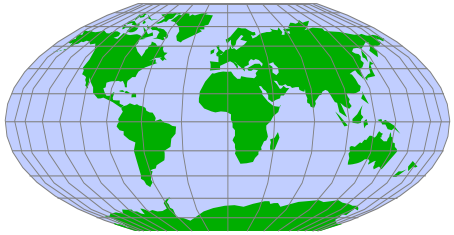
Data Link Layer

Medium Access Sublayer

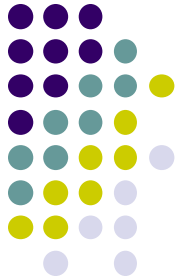
Network Layer

Transport Layer

Application Layer

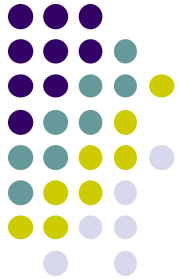


About the Final Exam



- Grasp the basic concepts, principles and methods of computer network.
- Master computer network architecture and typical network protocol, understand the composition of a typical network equipments and features, understand the working principle of network equipment.
- Be able to carry out the network system analysis, design and application by applying the basic concepts, principles and methods of computer networks.

Meeting Challenges

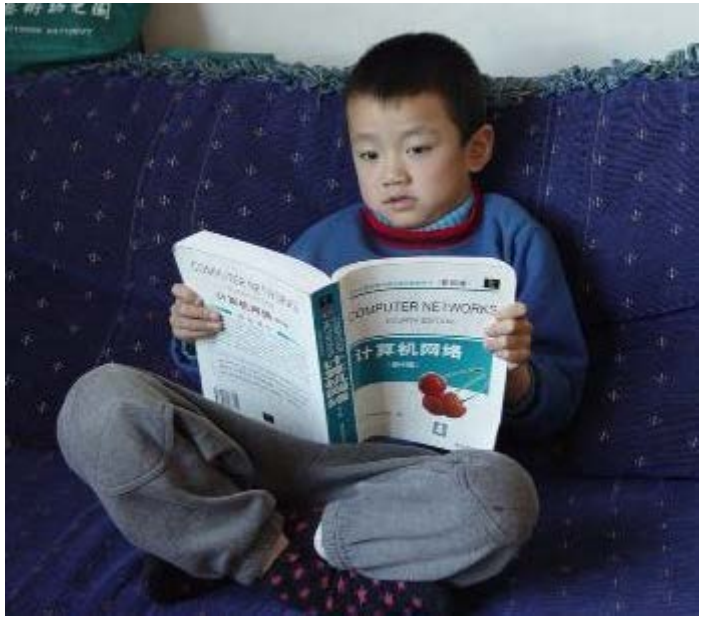


- Complexity in Network Systems
  - There is no single underlying theory

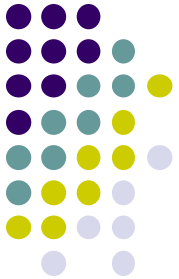
    Many technologies exist, many standards created by multiple organizations, many products and services created by many companies
- Mastering the Complexity
  - Avoid unnecessary details
  - Concentrate on understanding concepts

Target Audience

- Undergraduate students of CS or EE



Prerequisites



- Must:
  - Curiosity or Interest
- Optional:
  - Fundamental of Digital Communication
  - Fundamental of C/C++ Programming

Confucian Analects

- 子曰：

“知之者不如好之者，好之者不如乐之者”

- the Master said,

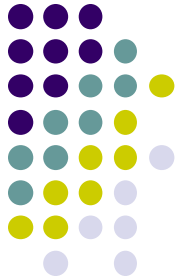
"They who know the truth are not equal to those who love it, and they who love it are not equal to those who delight in it.”

Grading

- Ordinary evaluation (40%)
  - Participation (8%)
  - Homework Assignments (16%)
  - Lab Reports (16%)
  - Attitude bonus
- Final exam(60%)

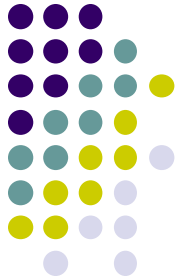
(Subject to change)

How to pass?



- Preview
  - Be familiar with strange English words
  - Be familiar with terms of computer networks
- Show up for class
- Submit assignments on time
- Submit lab reports on time
- Meet TA or Prof. if you have questions

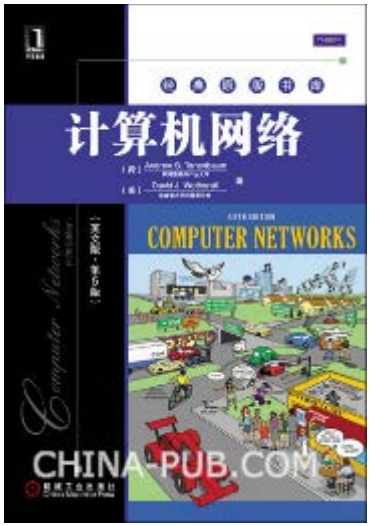
About bilingual teaching

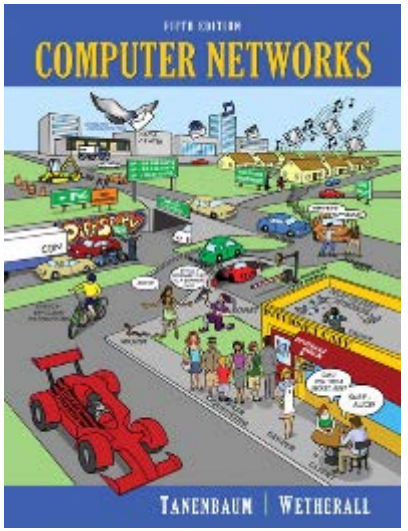


- Prof. speaks English 50% at least on class
  - But you may speak Chinese to answer or discuss questions on class
- All homework and labs are assigned in English 100%
  - But you may do homework or write lab reports in Chinese

Textbook

- Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks", 5th Edition, October, 2010, Prentice Hall

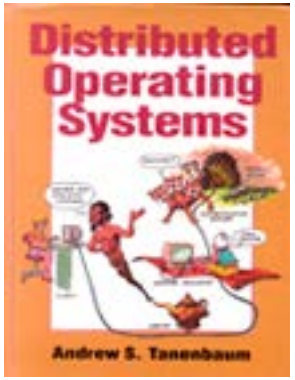


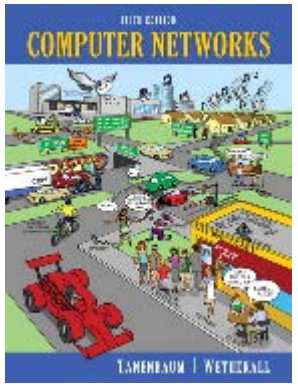


Andrew S. Tanenbaum

- **Andrew Stuart Tanenbaum** (born March 16, 1944)

  https://www.cs.vu.nl/~ast/

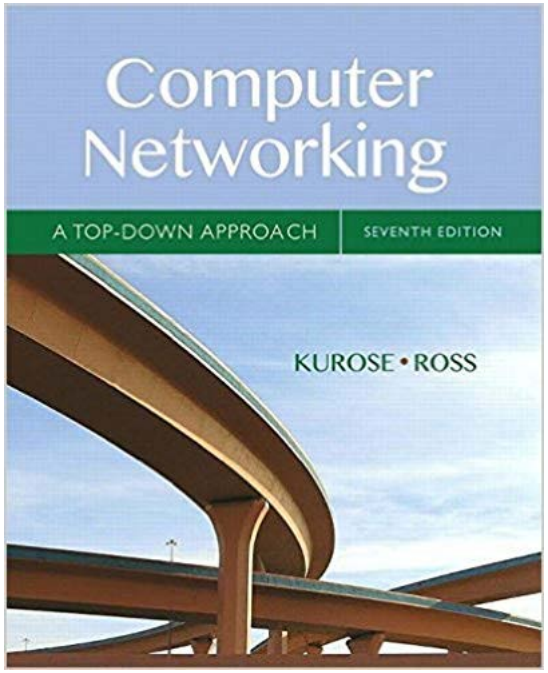


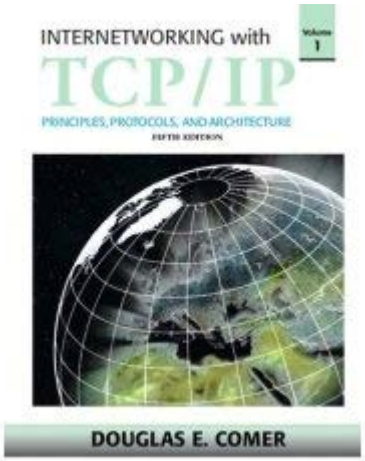


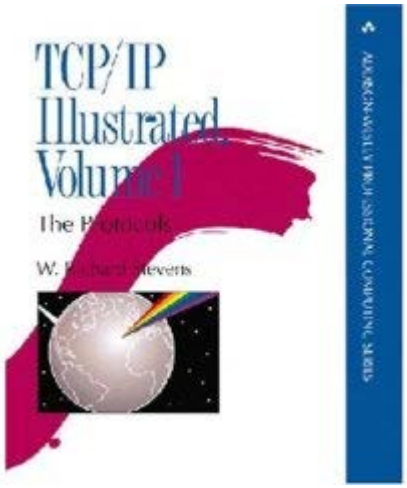
References

- *James F. Kurose & Keith W. Ross, Computer Networking: A Top-Down Approach Featuring the Internet, 7th edition, March,2016, Pearson Education*

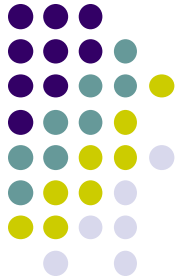
- *Douglas E. Comer, Internetworking with TCP/IP Volume I: Principles, Protocols, and Architecture, 5th Edition, Prentice Hall,2005*
- *W. Richard Stevens, TCP/IP Illustrated , Volume I: The Protocols, Addison-Wesley Professional;1994*


Computer
Networking
A TOP-DOWN APPROACH
SEVENTH EDITION
KUROSE • ROSS


INTERNETWORKING with
TCP/IP
PRINCIPLES, PROTOCOLS, AND ARCHITECTURE
DOUGLAS E. COMER


TCP/IP
Illustrated
Volume 1

Attention



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