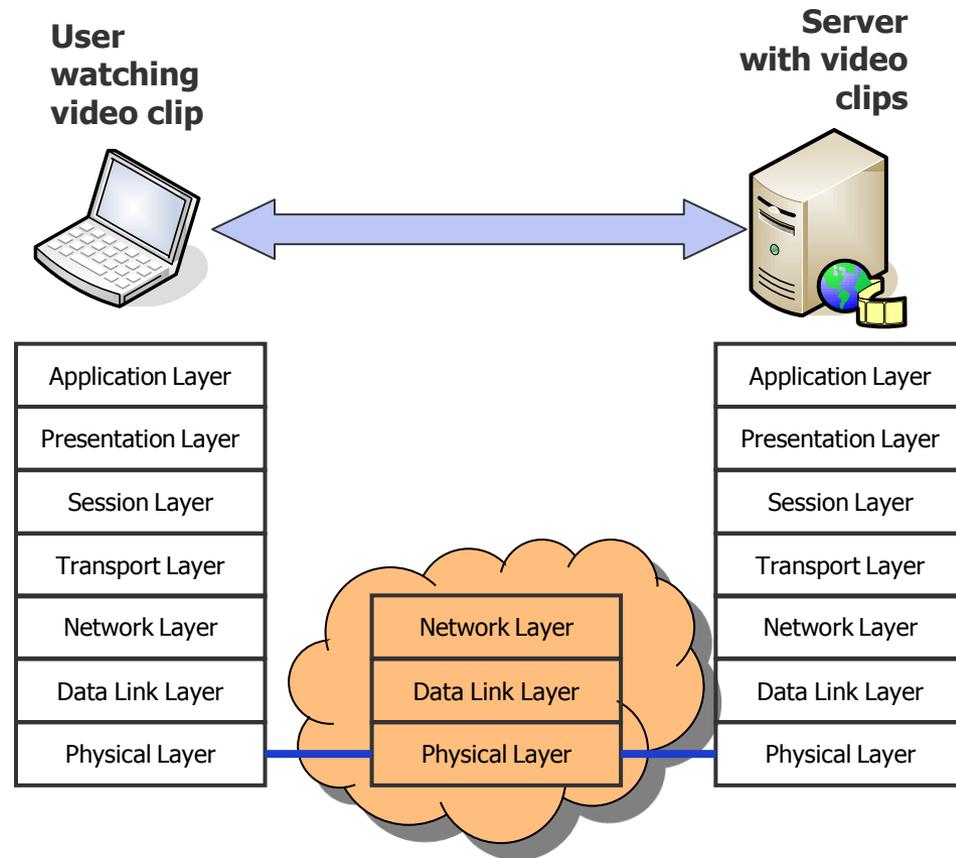


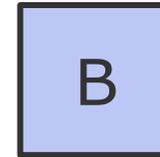
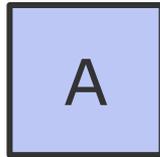
# Telematics

## Chapter 0: Organizational

Univ.-Prof. Dr.-Ing. Jochen H. Schiller  
 Computer Systems and Telematics (CST)  
 Institute of Computer Science  
 Freie Universität Berlin  
<http://cst.mi.fu-berlin.de>

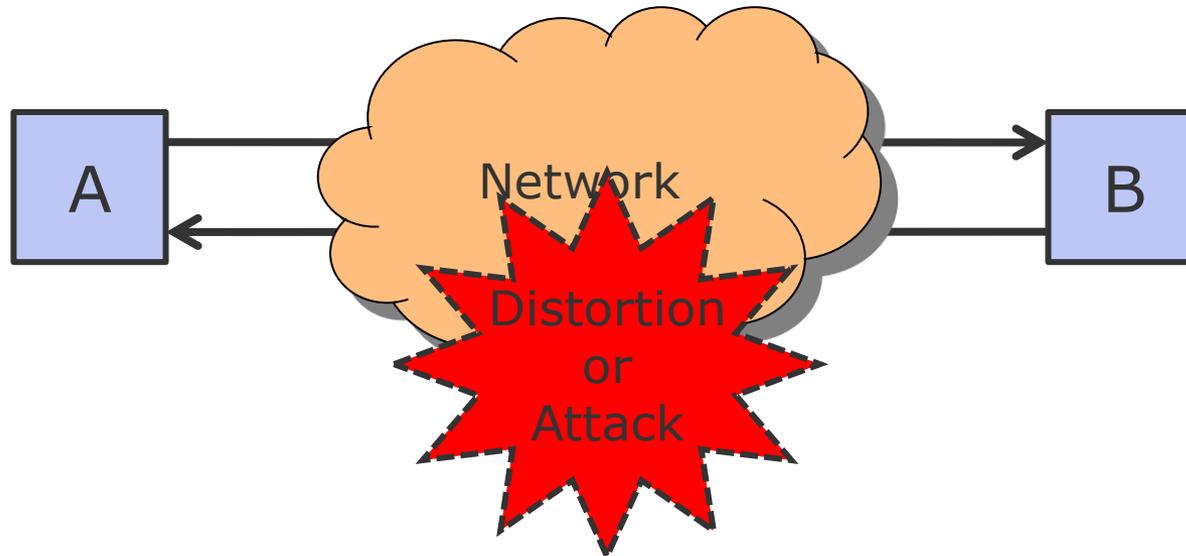


# Topics of this Course



- Question 1
  - What are A and B?
- Question 2
  - What is the communication between A and B?
  - How is the communication between A and B realized?
- Question 3
  - What is the distortion/attack?

# Topics of this Course



- Question 1
  - What are A and B?
- Question 2
  - What is the communication between A and B?
  - How is the communication between A and B realized?
- Question 3
  - What is the distortion/attack?

# The Term “Telematics”

## Telematics: Telecommunications + Informatics

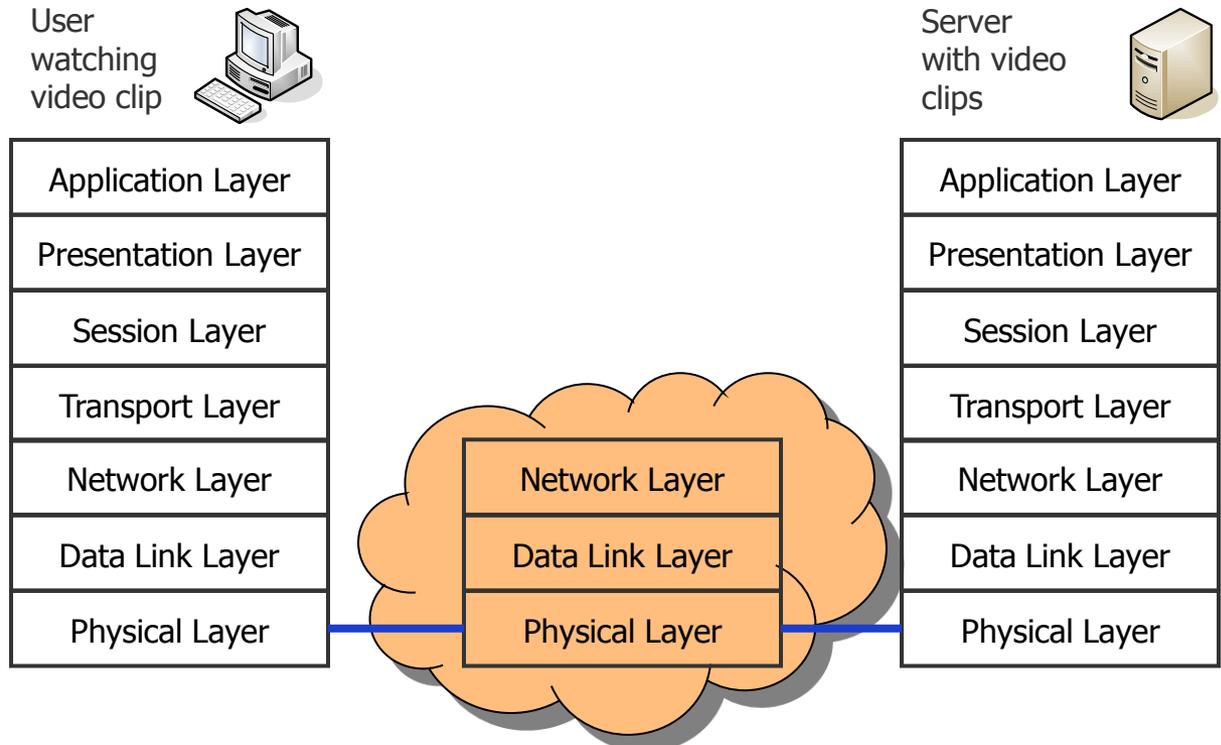
The integrated use of telecommunications and informatics. This is also known as Information and Communication Technology (ICT).

This course deals mainly with **data communication** and **computer networks**.

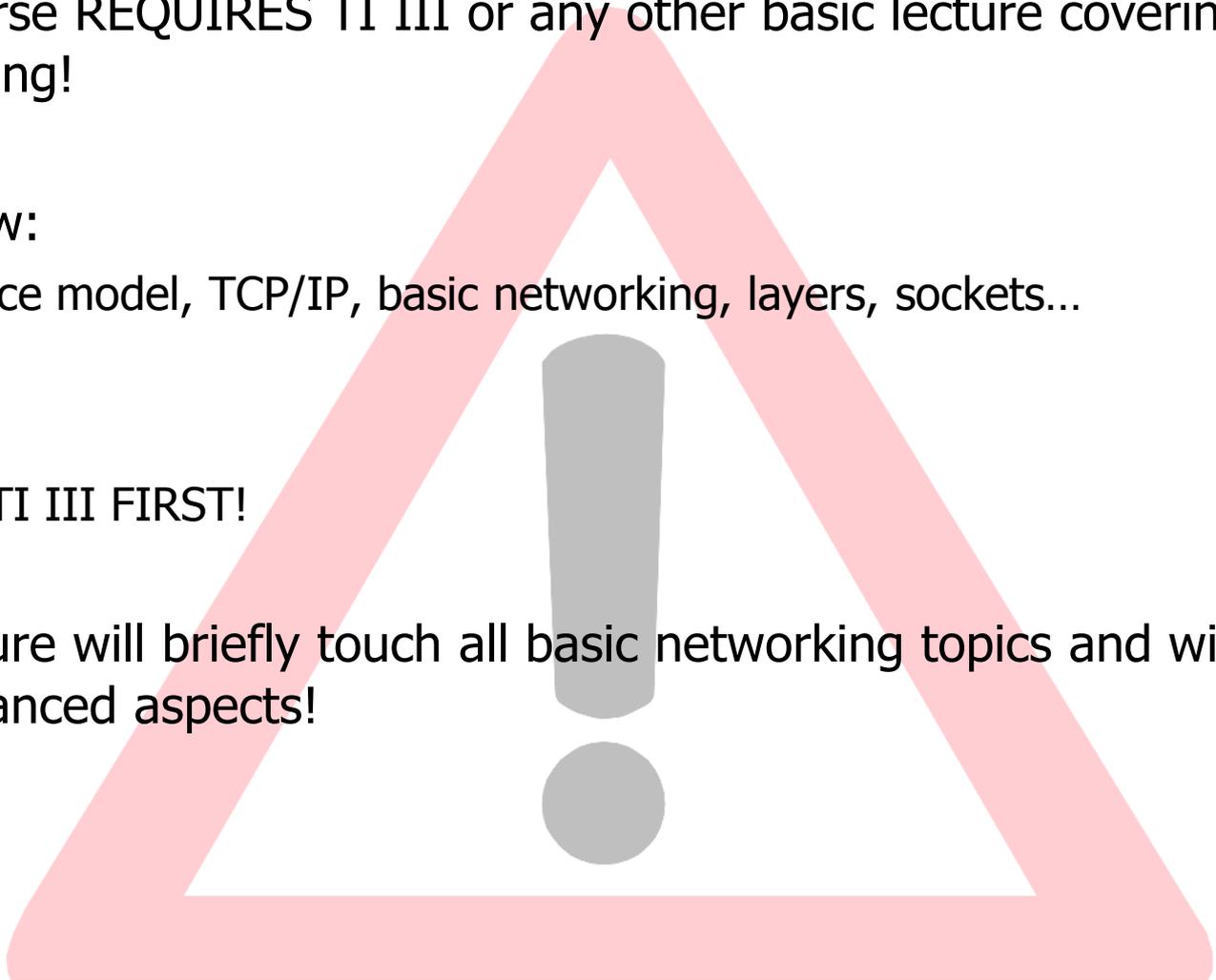
- Telematics in respect to applications
  - Telematics and Traffic      ➡ Teletraffic
    - Computer aided traffic systems
  - Telematics and Medicine      ➡ Telemedicine
    - Remote diagnosis, Patient observation
  - Telematics and Teaching      ➡ Teleteaching
    - Computer aided learning and teaching?
    - Participating in remote classes

# Topics of this Course

- Introduction
- Physical Layer
- Data Link Layer
- Medium Access Control
- Network Layer
- Transport Layer
- Application Layer
- Multimedia Comm.
- P2P Applications
- Security



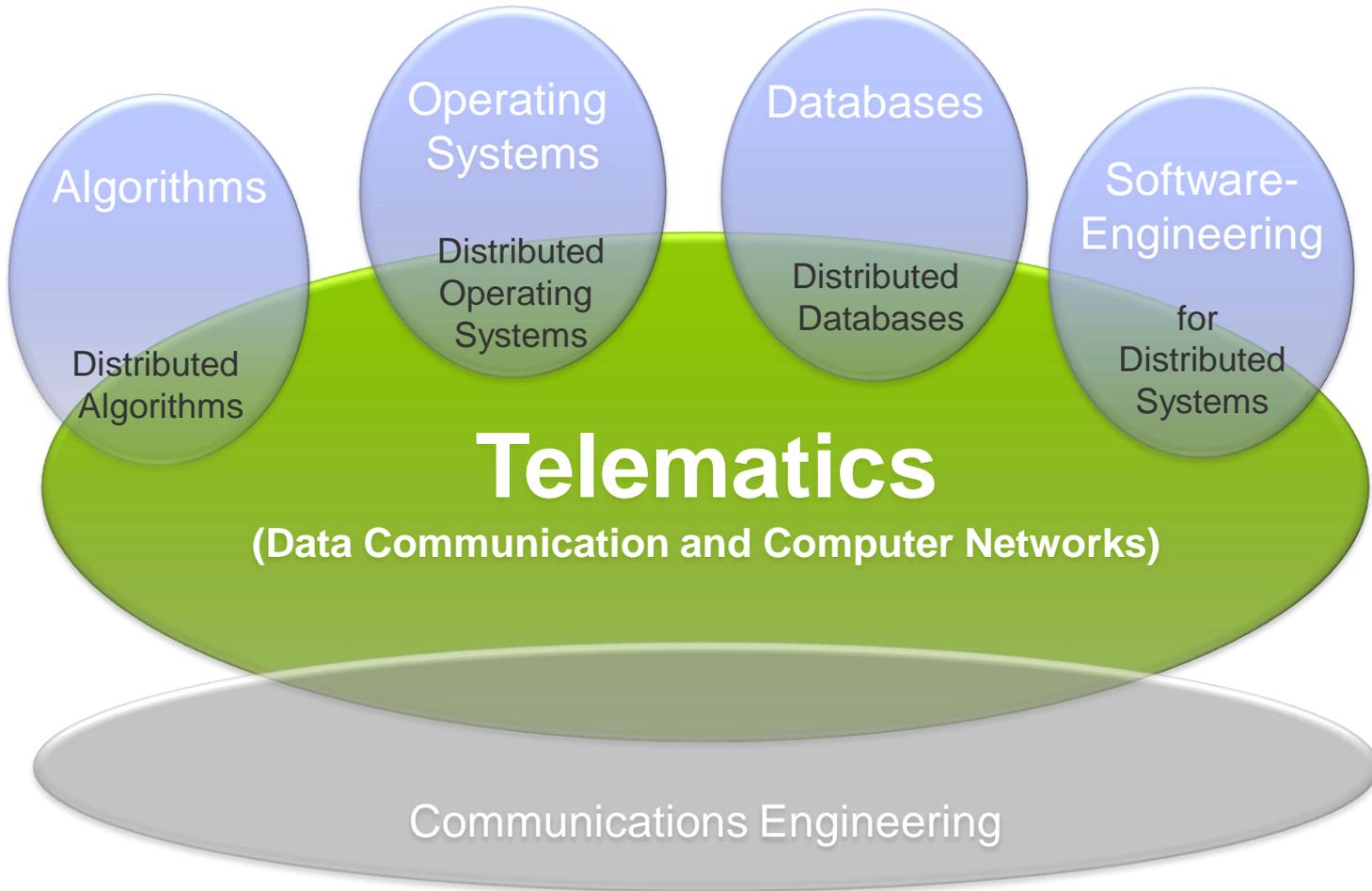
# BE AWARE!!!

- This course **REQUIRES** TI III or any other basic lecture covering Networking!
  - You know:
    - Reference model, TCP/IP, basic networking, layers, sockets...
  - If not:
    - Attend TI III **FIRST!**
  - The lecture will briefly touch all basic networking topics and will then go into advanced aspects!
- 
- A large, light red warning triangle with a thick border and a large grey exclamation mark in the center, serving as a background for the text.

# Topics of this Course

- At the end of this course, you should ...
  - know what is meant with Telematics and Computer Networking
  - know how networks in general are organized
  - know what the Internet could be or is
  - understand how wired (and wireless, cf. Mobile Communications) networks work
  - understand why ISO/OSI is used in theory and TCP/IP in real world
  - understand how e-mails, videos arrive you
  - understand how operators operate real, big networks
  - understand the cooperation of web browsers with web servers
  - think about security issues when you surf the web
  - be familiar with acronyms like: ALOHA, ARP, ATM, BGP, CDMA, CDN, CIDR, CSMA, DHCP, ETSI, FDM, FDMA, FTP, HDLC, HTTP, ICMP, IEEE, IETF, IP, IMAP, ISP, ITU, ISO/OSI, LAN, LTE, MAC, MAN, MPLS, MTU, NAT, NTP, PCM, POTS, PPP, PSTN, P2P, RARP, SCTP, SMTP, SNMP, TCP, TDM, TDMA, UDP, UMTS, VPN, WAN, ...

# Telematics vs. other Computer Science Classes



# Organizational

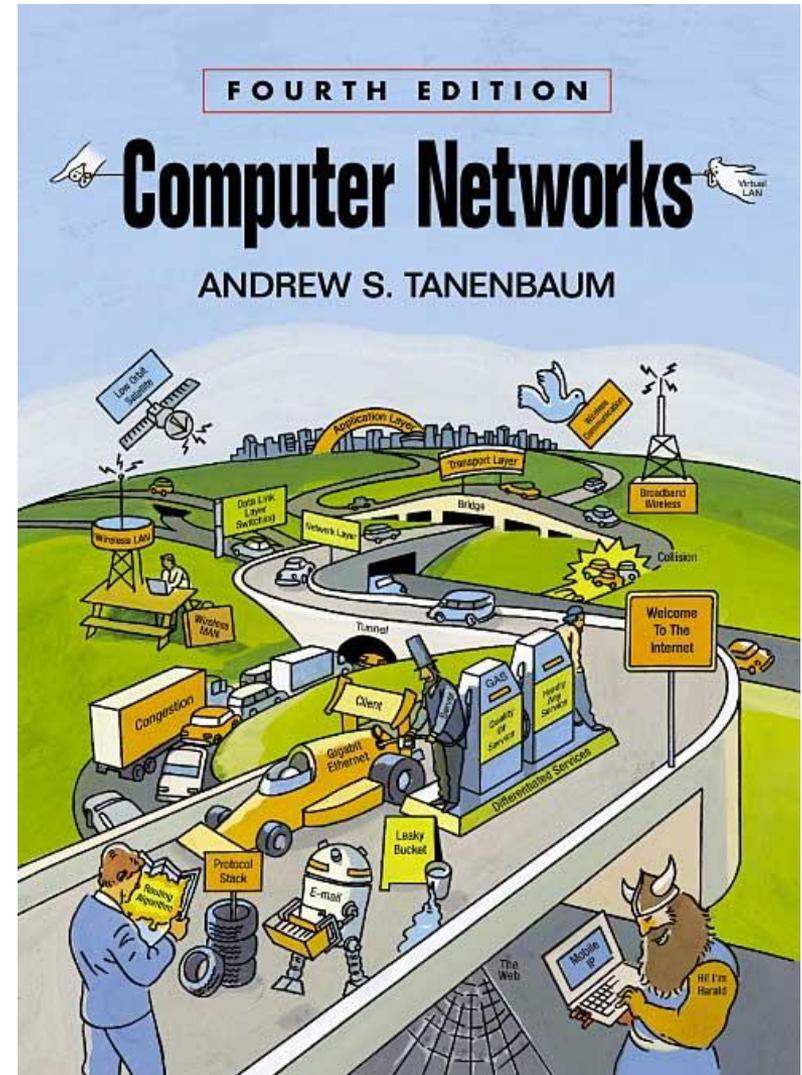
- Lecture
  - Tuesday, 10:00 – 12:00, Hörsaal, Start of class at 10:15
  - Thursday, 08:00 – 10:00, Hörsaal, Start of class at 08:30
- Exercise
  - Thursday 14 - 16 Uhr, Takustraße 9, SR 053
  - Thursday 16 - 18 Uhr, Takustraße 9, SR 055
  - Friday 12 - 14 Uhr, Takustraße 9, SR 005
- Written Exam (Klausur Telematik)
  - Tuesday, 21.02.2012, 10 – 12, Arnimallee 22 HS Großer Hörsaal
  - TBA

# Organizational

- Prof. Dr.-Ing. Jochen Schiller
  - Consulting hours: Tuesday, 14-15
  - Takustr. 9, Room 156
  - [jochen.schiller@fu-berlin.de](mailto:jochen.schiller@fu-berlin.de)
- Ask your tutor!
- Literature and Materials
  - Website of the class  
<http://cst.mi.fu-berlin.de/teaching/WS1112/19531-V-Telematics/index.html>
  - Literature and References
  - Exercise sheets – typ. available one week in advance
  - Slides as PDF documents ➔ Only accessible within FUB network

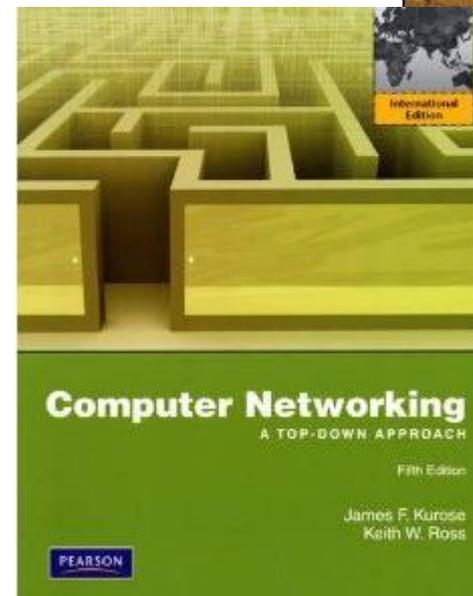
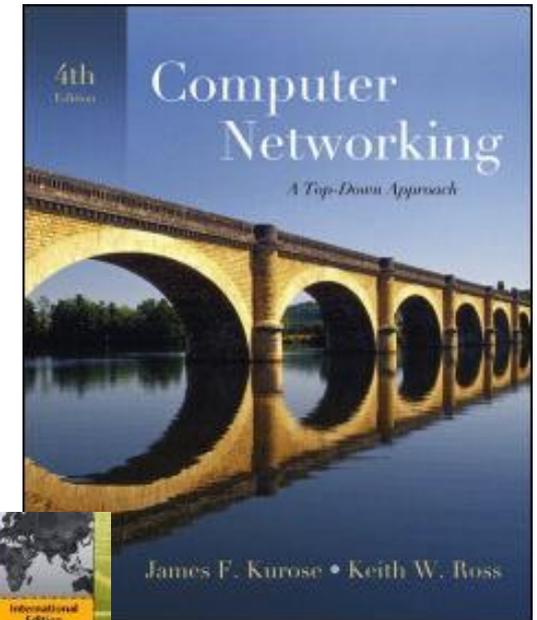
# Literature

- Andrew S. Tanenbaum: *Computer Networks*, 4th Edition, Pearson Education International, 2002 ISBN 0130661023
  - General introduction to computer networks
  - Bottom-up approach
  - Discusses many aspects of data communication and networking in detail
  - The classic book for teaching computer networks
  - NOT enough for this course, does not go into more advanced details!



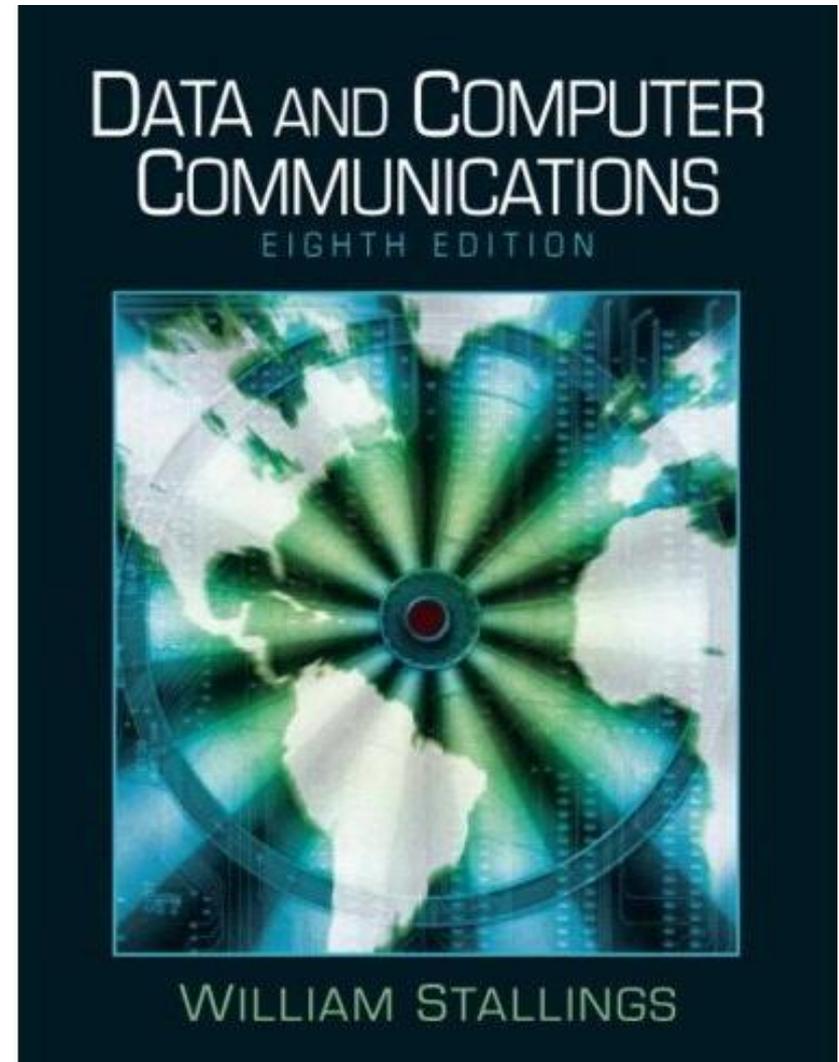
# Literature

- James F. Kurose, Keith W. Ross:  
*Computer Networking – A Top-Down Approach*, 4th Edition,  
2007, Addison Wesley,  
ISBN 0321497708
  - General introduction to computer networks
  - Top-down approach
  - Currently one of the most popular teaching books
  
- New Edition
  - *Computer Networking*, 5/e, 2009  
ISBN: 0-13-607967-9



# Literature

- William Stallings: *Data and Computer Communications*, Prentice Hall, 8th Edition, 2006, ISBN 0132433109
  - General introduction to computer networks
  - Discusses many communication issues in detail



# Literature

- Goralski Walter J.: *The Illustrated Network, How TCP/IP Works in a Modern Network*, Elsevier Science & Technology, 2008, ISBN 0123745411
  - Focus is on Internet protocols
  - All protocols are discussed based on one network configuration

