

# Rechnernetze 1

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# Goals of the lecture

- ❑ Understanding the design and implementation of
  - Computer communication **networks**
  - Computer communication **protocols**
  - Computer communication **services**
  - Computer communication **applications**
- ❑ Theory as well as practice
  - Hand-on experience

# People

## □ Prof:

- Anja Feldmann ([feldmann@cs.uni-sb.de](mailto:feldmann@cs.uni-sb.de))

## □ Assistent:

- Ralf König ([ralf.koenig@ifi.lmu.de](mailto:ralf.koenig@ifi.lmu.de))
- Vitalian Danciu ([danciu@nm.ifi.lmu.de](mailto:danciu@nm.ifi.lmu.de))

# Course Mechanics

## □ Lecture:

- Mo: 11:15-13:45, MI HS 2, N1190

## □ Sprechstunde:

- Please send email

## □ Prerequisites:

- Programming experience
- Basic understanding of OS

## □ Web page via:

<http://www.net.in.tum.de/>

- Slides will be available from ~ 10:30 am onward on the day of the lecture

# Grading

## □ Recitation Sessions:

- See web site

## □ Grading

- Homeworks
- Written exam

# Course materials

## □ Book

- Computer Networking: a top down approach  
Jim Kurose and Keith Ross  
(The first edition is available online)

## □ Additional books

- Library

## □ On-line

- Web: [www.net.in.tum.de/](http://www.net.in.tum.de/)
- Book: login: **student** password: **quarter24**
- Lecture slides
- Homeworks
- ...

# Course outline

## □ Introduction

- networks, network applications
- layered network architecture
- brief history

## □ Network Applications

- applications and their requirements

## □ Network applications programming

- socket programming

## □ The presentation layer

- the representation problem

# Course outline (cont.)

- The transport layer
  - multiplexing
  - setting up connections
  - congestion and flow control
  - case studies: UDP, TCP
- The network layer
  - routing principles
  - Intradomain/interdomain routing
  - IP, ICMP
  - switching

# Course outline (cont.)

- ❑ Data link layer
  - e.g. Ethernet, Wavelan, ...
  - address resolution
  - bridges, hubs
- ❑ Physical layer
  - characteristics of different physical media
- ❑ Putting it all together
- ❑ Network management
- ❑ Security
- ❑ Future directions