Summary
This course provides an introduction to computer networks. It describes the principles that underly modern network operation and illustrates them using the Internet as an example.

Content
• Overview of Internet operation (main components and protocols).
• Application layer (web, cookies, ads, email, peer to peer).
• Socket programming (how to write a very simple network application).
• Transport layer (UDP, TCP, congestion control).
• Network layer (IP forwarding and basic routing).
• Data link layer (switching and basic shared access protocols).
• Security (secure email, SSL, IPsec).

Keywords
• Computer networks
• Internet
• HTTP
• Peer-to-peer networks
• Sockets, TCP/IP, congestion control, routing, switching, network security.

Learning Prerequisites
Required courses
• CS 106 - Introduction to programming
• COM 101 - Information sciences

Learning Outcomes
By the end of the course, the student must be able to:
• Design simple network applications.
• Choose which functions to implement at each network layer.
• Compare different network protocols.
• Perform simple network troubleshooting.
• Use simple network monitoring tools.
• Implement simple client-server applications.
• Investigate simple network attacks.
• Explain how basic Internet applications work.
• Explain how TCP/IP works.

Teaching methods
• Lectures
• Reading assignments
• Homework problems
• Hands-on exercises

Expected student activities
The students are expected to:
• attend the lectures
• read the assigned book sections
• complete homework problems
• complete hands-on exercises.

Assessment methods
• Quizzes and short essay (bonus points that can contribute up to 10% of the grade).
• Midterm exam (40% of the grade).
• Final exam (60% of the grade).

Supervision
Office hours: Yes
Assistants: Yes
Forum: No

Resources
Bibliography

Ressources en bibliothèque
• Computer Networking / Kurose

Websites
• http://compnet.epfl.ch