COM-405 **Mobile networks**

Hubaux Jean-Pierre

Cursus	Sem.	Type
Communication systems minor	E	Opt.
Computer science	MA2	Opt.
Cyber security minor	E	Opt.
Electrical and Electronical Engineering	MA2, MA4	Opt.
Mineur STAS Chine	E	Opt.
SC master EPFL	MA2, MA4	Obl.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	**3 weekly**
Lecture	2 weekly
Exercises	1 weekly
Number of positions	

Summary

This course provides a detailed description of the organization and operating principles of mobile communication networks.

Content

Introduction to wireless networks
Organization of the MAC layer
Wireless Local Area Networks - WiFi
Cellular networks
Mobility at the network and transport layers
Security and privacy in mobile networks

Keywords

Communication networks, protocols, mobility

Learning Prerequisites

Required courses

Computer Networks

Recommended courses

Principles of Digital Communications
Network security

Important concepts to start the course

Operating principles of communication protocols and layer organization.

Learning Outcomes

By the end of the course, the student must be able to:

- Synthesize the way a mobile network operates
- Interpret the behavior of such networks
- Propose evolutions to existing protocols
- Identify weaknesses, bottlenecks and vulnerabilities

Teaching methods

Ex cathedra lectures
Weekly quizzes
Exercise sessions
Hands-on exercises

Expected student activities

Class participation, quizzes, homework, hands-on exercises

Assessment methods

Quizzes + final exam

Supervision

Office hours	No
Assistants	Yes
Forum	No
Others	The lecturer will be present at most of the exercise sessions.

Resources

Bibliography

Handouts, recommended books (see course URL)

Ressources en bibliothèque

- Fundamentals of Mobile Data Networks / Miao

Websites

- http://mobnet.epfl.ch/