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/