

COM-301

**Computer security**

Troncoso Carmela

Cursus	Sem.	Type
Communication systems minor	H	Opt.
Communication systems	BA5	Obl.
Computer science minor	H	Opt.
Computer science	BA5	Obl.
Cyber security minor	H	Opt.
UNIL - Sciences forensiques	H	Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
<b>Hours</b>	<b>4 weekly</b>
Courses	2 weekly
Exercises	1 weekly
TP	1 weekly
<b>Number of positions</b>	

**Summary**

This is an introductory course to computer security and privacy. Its goal is to provide students with means to reason about security and privacy problems, and provide them with tools to confront them.

**Content**

The goal of this course is to introduce students to security engineering. The course will help students to think as an adversary so that they can analyse systems and establish security policies. We will cover a number of common security mechanisms at all layers, and learn their properties and limitations.

Core topics:

- Security design principles
- Access control
- Authentication mechanisms
- Applied cryptography
- Software and Network security
- Privacy

**Keywords**

Security Privacy

**Learning Prerequisites****Recommended courses**

CS-233a or CS-233b Introduction to Machine Learning (for programming)

COM-208 Computer Networks

CS-323 Operative systems

**Important concepts to start the course**

Basic notions TCP/IP

Basic notions programming

**Learning Outcomes**

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

- Analyze systems for security
- Decide on security mechanisms to apply
- Establish a security policy

### Teaching methods

Pre-recorded lectures

Practical assignments interactively resolved in class using the concepts learned in the lectures

Written exercises to reaffirm the learning of the course

Practical programming homeworks to develop attacks and defenses

### Expected student activities

Attending lectures, solving exercises, reading and demonstrating understanding of provided materials.

### Assessment methods

- Take home exams (80%)
- Practical homeworks (20%)

### Supervision

Office hours	Yes
Assistants	Yes
Forum	Yes

### Resources

#### Bibliography

Computer security by Dieter Gollmann

Security Engineering by Ross Anderson

Computer Security: Principles and Practice by Stallings and Brown

#### Ressources en bibliothèque

- [Security Engineering by Ross Anderson](#)
- [Computer security by Dieter Gollmann](#)
- [Computer Security: Principles and Practice by Stallings and Brown](#)

### Prerequisite for

- COM-402 Information security and privacy
- CS-523 Advanced topics on privacy enhancing technologies