

Keio University Syllabus and Timetable

INTRODUCTION TO CYBERSECURITY

Lecturer(s)	BANA, GERGELY I.
Credit(s)	2
Academic Year/Semester	2024 Fall
Day/Period	Fri.4
Campus	Mita
Classroom	436
Class Format	Face-to-face classes (conducted mainly in-person)
Registration Number	25535
Faculty/Graduate School	INTERNATIONAL CENTER
Year Level	2, 3, 4
Grade Type	S, A, B, C, D
K-Number	CIN-CO-90313-212-83

[▼ Detail](#)

Course Contents/Objectives/Teaching Method/Intended Learning Outcome

In this course we introduce the basic concepts of Cybersecurity. We talk about the challenges the interconnectedness of the cyberspace poses to computer networks, the concept of risk, typical patterns of vulnerabilities, attacks and mitigation strategies. We introduce, in a non-technical fashion, the basic concepts of cryptography, and the typical cryptographic building blocks: encryption, digital signatures, authentication codes, public key and secret key infrastructures. We talk about how these building blocks are used to construct secure networks. We also touch upon the legal frameworks handling cyber attacks. Finally we discuss cybersecurity in the context of Japan and East Asia.

Active Learning Methods [Description](#)

Discussions, Debates
Group work
Problem-based learning

Preparatory Study

Review of previous lectures - 1-2 hours
3 homework assignments
1 final take-home assignment

Course Plan

Lesson 1

Security in an Interconnected World

Lesson 2

Lesson 3

Cyberattacks and cybercrime

Lesson 4

Typical vulnerabilities

Lesson 5

Classical approaches to secure communication

Lesson 6

Modern cryptographic primitives: public key, secret key infrastructures

Lesson 7

Building secure systems from secure primitives

Lesson 8

Evolving cybersecurity: Blockchains, Quantum computing

Lesson 9

Cyber Laws and Forensics

Lesson 10

Personal Cybersecurity

Lesson 11

E-commerce and digital payments

Lesson 12

E-voting

Lesson 13

Social Media and Security

Lesson 14

Special cybersecurity challenges in Japan and East Asia

Other

Review and Conclusion

Method of Evaluation

3 homework assignments - 60%

1 take-home final exam - 30%

Class attendance - 10%

Reference Books

Robin Sharp: Introduction to Cybersecurity

Ajay Singh: Introduction to Cybersecurity