

Course Overview

Cloud Security

CSE4059

Nice to meet you



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Education

Ph.D. in Seoul National University
B.S. in Seoul National University

Experience

Postdoc at University of Virginia
at Seoul National University

Expertise

Network security, Data-driven security analysis, ...

Course information

- Meet twice a week
 - Tuesday 16:00 – 17:30
 - Thursday 13:00 – 14:30
- No separate lab section
 - We may do some lab work during class, as needed
 - So you need to bring your own laptop
- Textbook
 - Not required
 - Lecture slides are provided (usually before the class starts)
 - LMS and the course website (<https://nestlab.hanyang.ac.kr/teachings/cloud-security/>)

Course policies

- Announcements
 - via LMS (Hanyang Univ. Portal)
 - Ex) class cancellation, makeup class, grade announcements, etc.
- Grading
 - Attendance: 15%
 - Quiz (1 or 2): 5%
 - Assignment: 10%
 - btw midterm and final
 - Midterm exam: 35%
 - Final exam: 35%

Course policies (cont'd)

- Attendance
 - You must attend at least 2/3 of all classes to be eligible to take the exams
 - Absence/tardiness still counts as attendance if you submit an OFFICIAL “**excused absence form (공결신청서)**” from the administration office
- Exams
 - Missing an exam or being caught cheating results in CANCELLATION of your grade
 - No leaving your seat during an exam, including for restroom use – Only allowed after submitting your answer sheet

Course etiquette

- Basic etiquette
 - Please refrain from eating during class
 - Water/drinks are fine, just don't let them disrupt class
 - You may use the restroom during class, but only when truly necessary and without disrupting others
 - Please refrain from non-class-related behavior (sleeping at your desk, chatting, etc.)
- On electronic device use
 - Use your phone only when truly necessary (take urgent calls outside)
 - Laptops/tablets may be used during class
 - Only for class-related purposes such as viewing lecture materials or taking notes
 - Please refrain from non-class use (games, videos, music, etc.)

Contact

- Email

- Instructor (Hyeonmin Lee): hyeonminlee@hanyang.ac.kr
- TA (Minjae Kang): minjae0110@hanyang.ac.kr

- Email policy

- Include [Cloud Security] in your email subject line
 - Example: “[Cloud Security] Question”
- In the body, introduce yourself (name/department/student ID) before getting to your question
- Otherwise, there might be cases that I couldn’t answer it (ex. your email can go to spam folder)

What this course covers

- Core security concepts, principles, and technologies for cloud computing environments
- First half: fundamentals
 - Ex) networks and naming, cryptography, TLS/PKI, DNS security, ...
- Second half: applying them
 - Ex) identity, cloud networks, applications, data, monitoring, ...
- AWS services used throughout as a representative, documented example
- Emphasis is on general cloud security principles
 - Not on memorizing one vendor's console!

Semester at a glance (Tentative)

Week

- 01. Course Overview
- 02. TCP/IP and DNS
- 03. Cryptography
- 04. TLS and PKI
- 05. DNS Security
- 06. Network Security
- 07. Identity and Access Management
- 08. Midterm Exam

Week

- 09. Cloud Network and Security
- 10. Application and API Security
- 11. Compute & Container Security
- 12. Detection and Incident Response
- 13. Security Governance and Architecture
- 14. Monitoring and Auditing
- 15. Final Exam
- 16. Make-up Class (if necessary)

Quick check-in: Your security background?

- Have you taken a course covering network or information security before?
- Please raise your hands
 - What course and what topics it covered?

Why Cloud Security Matters

The stakes have changed

- More of the systems we all rely on run on third-party cloud infrastructure than ever before
- That shift changes “WHO” is responsible for security
 - It is no longer only your own IT department
- It also changes HOW FAST a small mistake can become a large exposure
- A single misconfigured setting can now expose data to the entire internet, instantly

What this means for you

- Cloud security is now a core skill for security and IT roles
- This course gives you a working mental model for reasoning about cloud risk
 - Not just a list of AWS button-clicks to memorize

Summary

- This course
 - Covers cloud security concepts, hands-on AWS practice
 - Two classes a week (Tuesday 4pm, Thursday 1pm)
 - Room 201, Building 317
- Cloud security
 - Matters because more systems run in the cloud, and misconfiguration can cause real incidents