



Course Outline

Winter 2025 CIS*6510 (Cybersecurity and Defence-in-Depth)

Welcome to the Winter'25 offering of Cybersecurity and Defence-in-Depth. This course covers foundations in computer systems security and teaches practical defenses. The topics covered include adversarial modeling, threat modeling, risk assessment, security policies, cryptographic building blocks, identity and access management, operating systems security, software security, malicious software, network security, web security, firewalls, tunnels and intrusion detection systems.

Instructor:	Hassan Khan
Email:	hassan.khan@uoguelph.ca
Office location:	150 Research Lane
Office hours:	Tue 12:00 PM-1:00 PM (150 Research Lane)
Lectures:	Tue 9:00 AM - 11:50 AM (150 Research Lane)
Labs:	None

Required Text

- Computer Security and the Internet: Tools and Jewels, 2nd edition, Paul C. van Oorschot, 2021.

Other Resources

- Security Engineering: A Guide to Building Dependable Distributed Systems, 3rd edition, Ross J. Anderson, Wiley Publishing, 2020.
- Schneier on Security. A blog covering current computer security and privacy issues.

Outline

- Introduction to Cybersecurity
- Cryptographic Building Blocks
- Identity and Access Management
- Operating System Security
- Software Security
- Malicious Software
- Network Security
- Firewalls, Tunnels and Intrusion Detection
- Web Security

Prerequisites

Computer Networks and Operating Systems

Grading Policy

- Assignments (3 x 20%)
- Quizzes (2 x 20%)

Reappraisal Policy

If you have an assignment that you would like to have reappraised, please follow the instructions given on CourseLink to submit your request. Please include a justification for your claims. The appeals deadline is one week after the respective graded item is first made available. Note that for an assignment the entire grade will be remarked, and the assigned grade may go up or down as a result. If your appeal is concerned with a simple calculation error, please see the instructor during their office hours.

Academic Misconduct

The University of Guelph takes a very serious view of Academic Misconduct. Included in this category are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with the section on Academic Misconduct in the Undergraduate Calendar, and should be aware that expulsion from the University is a possible penalty. If an instructor suspects that academic misconduct has occurred, that instructor has the right to examine students orally on the content or any other facet of submitted work. Moreover, it is expected that unless a student is explicitly given a collaborative project, all submitted work will have been done independently.

Course Schedule

Module	Lecture Number	Date	Textbook Sections	Other Resources	Upcoming Events
Introduction to Computer Security	Lecture 1	Jan 07	1.1 - 1.7		
Cryptographic Building Blocks	Lecture 2	Jan 14	2.1 - 2.6	AES stick fig.	A1 release
	Lecture 3	Jan 21		ECC Primer	
Identity and Access Management	Lecture 4	Feb 04	3.1 - 3.5		
Operating System Security	Lecture 5	Feb 11	5.1 - 5.3, 5.7		A1 due
					A2 release
Winter Study Break. No classes					
Software Security	Lecture 6	Feb 25	6.1 - 6.3, 6.6		Quiz 1
Malicious Software	Lecture 7	Mar 04	7.1 - 7.6		A2 due
					A3 release
Network Security	Lecture 8	Mar 11	11.2 - 11.4		A3 release
Firewalls, Tunnels and IDS	Lecture 9	Mar 18	10.1 - 10.4, 11.1		
Web Security	Lecture 10	Mar 25	9.1, 9.3 - 9.5		A3 due

Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

For information on current safety protocols, follow these links: <https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/>

<https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.

Illness and medical notes

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g.. final exam or major assignment).