COMP 2109 for Winter 2025 (Preliminary Version)

Introduction to Security and Privacy

Instructor: Jason Hinek
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Class Times: Mondays & Wednedsays, 11:35 -12:55 (see Carleton Central for location)

Course Website: Brightspace/Website TBA

Teaching Assistants: A list of teaching assistants and their contact times will be posted in Brightspace once the course starts.

Important dates and deadlines: Check the following website for fall/winder breaks, statutory holidays, etc. (https://carleton.ca/registrar/registration/dates/academic-dates/)

Note: Winter break is February 17-21 (there are no classes).

Carleton University acknowledges the location of its campus on the traditional, unceded territories of the Algonquin nation. In doing so, Carleton acknowledges it has a responsibility to the Algonquin people and a responsibility to adhere to Algonquin cultural protocols.

Course Calendar Description

A tour of Internet security and privacy. Societal impacts and case studies. Topics from: protection goals of stakeholders; history of public key cryptography; programming languages and security; security engineering and testing; cybercrime and malware; Internet privacy and anonymity; government surveillance; regulation; ethics; blockchain applications.

Prerequisites: (COMP 1006 or COMP 1406 or SYSC 2004) with a minimum grade of C-, and COMP 2401 with a minimum grade of C-.

Required Textbook(s) and Other Resources

There is one required textbook for the course:

- *Permanent Record*, by Edward Snowden.
- This book can be purchased in the Univervity Bookstore for $24. (Permanent Record: Carleton University).
- You will need a copy of the book that has page numbers.

- **ISBN:** 9781250772909
  Publisher: Picador
  Formats: PAPERBACK
  Copyright Year: 2020

Other resources will come from freely available content. One such resource will be
• *Computer Security and the Internet: Tools and Jewels from Malware to Bitcoin,* by Paul C. van Oorschot. 2021, Springer (https://people.scs.carleton.ca/~paulv/toolsjewels.html)
Note: this is also the textbook for COMP 4108 and COMP 2108.

Learning Modality: This is an in-person course**. All students are expected to attend all classes in person**. Students are expected to read any materials indicated on the updated course webpage (or sent out in announcements) prior to each class in order to contribute to their learning and their ability to ask relevant questions and contribute in class. Students are expected to participate in classroom discussions.

Assessment Scheme: Grades for this course will be determined as follows:

• 20% Midterm 1. In-class, Wednesday, February 5th
• 20% Midterm 2. In-class, Wednesday, March 12th
• 20% Summary Reflections (roughly weekly). Due on Fridays at 11:59pm.
• 20% Technical report on the book: *Permanent Record*. Due Friday, March 1 (11:59pm)
• 20% Final Exam, scheduled by the registrars office.

Details for the summaries and technical report will be posted when the course starts.

For technical report, a random set of students may be selected to meet with TAs or the instructor to discuss their submissions. Selected students must demonstrate an understanding of their submissions. Failure to do so convincingly will result in losing up to the full marks for the technical report.

Midterms: Two in-person midterm tests during class time and written in our classroom. These are closed book tests. The dates for the midterm exams will be

Learning Outcomes: Students will gain an overview understanding of security and privacy, and how its subareas fit together and relate to other CS courses, giving context for later studies. Students will gain technical understanding to be in a stronger position to independently evaluate or fact-check (against underlying technical realities) security content in general articles such as media and online reports. Students will gain English technical writing experience over two modest-length technical reports and eight short weekly reports.

A tentative schedule for the topics presented each week will be kept on the course webitse (which will be released when the semester starts)

Course Topics: A rough outline of topics for the semester (subject to change) is

- Security and privacy landscape (areas and subareas)
- Public key cryprography (history and impact on societ), Bitcoin
- Assets, protection goals, stakeholders
- Computer and Internet architecture relevant to threat models, security and privacy
- Privacy and anonymity, pseudonymity, linkability, partial identity
- Privacy regulation, governments, ethical issues
- Programming languages & software security
- Cibercrime and crimeware
- Software security (testing and development)

Academic Integrity

<TL;DR> Don't cheat.

This course has no group component, unless otherwise specified, and so all deliverables should be completed and submitted individually. Unless it is explicitly stated otherwise, the use of any A.I. systems will be considered academic misconduct. This includes, but is not limited to, chatbots (e.g., ChatGPT, Google Bard, Bing Chart), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc. Note that the above rule does not hold for automated grammar and punctuation checking tools (such as Grammarly).

To help enforce this policy, students may be randomly selected after each project to discuss and explain their submission.

In addition, sharing project or midterm specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is ALWAYS considered academic misconduct. You are NEVER permitted to post, share, or upload course materials without explicit permission from your instructor

For more information about academic integrity please see
https://science.carleton.ca/students/academic-integrity/

Important Dates

See the University Calendar for all important dates:
https://carleton.ca/registrar/registration/dates/academic-dates/#sect4

Undergraduate Academic Advisors

The Undergraduate Advisors for the School of Computer Science are available in Room 5302HP; or by email at scs.ug.advisor@cunet.carleton.ca. The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

SCS Computer Laboratory

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: https://carleton.ca/scs/tech-support/computer-laboratories/. All SCS computer lab and technical support information can be found at: https://carleton.ca/scs/tech-support/. Technical support staff may be contacted in-person or virtually, see this page for details: https://carleton.ca/scs/tech-support/contact-it-support/.

University Policies:

Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. Please review the academic accommodation available to students here: https://students.carleton.ca/course-outline/.

Academic Integrity

Student Academic Integrity Policy. Every student should be familiar with the Carleton University Student Academic Integrity policy. A student found in violation of academic integrity standards may be sanctioned with penalties which range from a reprimand to receiving a grade of F in the course, or even being suspended or expelled from the University. Examples of punishable offences include plagiarism and unauthorized collaboration. Any such reported offences will be reviewed by the office of the Dean of Science. More information on this policy may be found on the ODS Academic Integrity page: https://carleton.ca/registrar/academic-integrity/.

Plagiarism. As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science. More information and standard sanction guidelines can be found here: https://science.carleton.ca/students/academic-integrity/.

Unauthorized Collaboration. Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis".