

COMP 4108 (Winter 2022)

Computer Systems Security

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Calendar Description

Introduction to information security in computer and communications systems, including network, operating systems, web and software security; Passwords, authentication applications, privacy, data integrity, anonymity, secure email, IP security, security infrastructures, firewalls, viruses, intrusion detection, network attacks.

Overview

- Prerequisites: (COMP 3000 or SYSC 4001) and COMP 3109. Precludes additional credit for SYSC 4810.
- Lectures (online): Tuesdays and Thursdays from 14:35-15:55
- Dates: Jan 11 - Apr 12 (excl. Feb 22 and Feb 24)
- Instructor: David Barrera (davidbarrera@cunet)
- TA: Chris Bellman (chris.bellman@email)
- Office hours: TBD or by appointment.
- TA office hours: TBD
- Required textbook: Computer Security and the Internet: Tools and Jewels from Malware to Bitcoin by P.C. van Oorschot (2021, second edition, Springer). Available in hardcopy from bookstores, softcopy via university library, PDFs for personal use from author's website. Students seeking supplementary resources may consider books listed on this page.

Learning Modality

The course will be *delivered entirely online and synchronously*, so students are highly encouraged to join all scheduled meetings. Class lecture videos will be posted following each class.

Grading Scheme

- 60% Individual assignments: Assignments should be worked on and submitted individually (not group work). Assignment details and due dates will be posted on Brightspace. Please contact TAs directly with questions/support relating to these assignments.
 - A1: Race conditions and access control
 - A2: Rootkits
 - A3: Public keys and certificates
 - A4: Web security
 - A5: Network security
- 40% Individual written projects: Knowledge and understanding of course textbook will be required for these projects.
 - P1: Report relating to book chapters 5-7
 - P2: Report relating to book chapters 8-12

Late submission policy: All deliverables will be penalized 10 points per day late (each 24 hour period following the deadline counts as one day. If you require an extension, please ask!

Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP; by telephone at 520-2600, ext. 4364; or by email at undergraduate_advisor@scs.carleton.ca. The undergraduate advisor can assist with information about prerequisites and preclusions, course substitutions/equivalences, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisor will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

Academic Integrity violations within the Faculty of Science

Students found in violation of the Student Academic Integrity Policy (below) in Computer Science (COMP) courses are subject to severe penalties, as detailed at the Office of the Dean of Science (ODS) page: <https://science.carleton.ca/academic-integrity>. If you are unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with lab- or class-mates is appropriate), ASK your instructor or the head TA for your labs. Sharing assignment or quiz specifications or posting them online (to sites such as Chegg, CourseHero, OneClass) is considered academic misconduct. You are never permitted to post, share, or upload course materials without explicit permission from your instructor.

COMP 4108 addendum on integrity violations: Beyond any other standard university policies, in COMP 4108 any student submitting work including uncited portions originating from someone else, is subject to a mark of negative 100% on the entire work item. For example, if a lab assignment is worth 10%, the 10% is lost plus an additional 10% penalty, making the best possible course mark 80%. Both students may be penalized if the infraction involves copying from another student. Each student must write up submitted work individually from their own personal notes, unless given permission explicitly in writing to do otherwise by the Instructor or head TA.

SCS Computer Laboratory

SCS students can access one of the designated labs for your course. The lab schedule 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/technical-support/>. Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00 or by emailing support@scs.carleton.ca.

University Policies

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 awarded penalties which range from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar.

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”. Reported offences will be reviewed by the office of the Dean of Science. Penalties for violations of Carleton’s Policy on Academic Integrity will normally be applied as follows:

- First offence, first-year students (< 4.0 credits completed): No credit for assessment(s) in question, or a final grade reduction of one full letter grade (e.g., A- becomes B-), whichever is a greater reduction.
- First offence (anyone else): A grade of F in the course
- Second offence (anyone): A grade of F in the course and a one-term suspension from studies
- Third offence: Expulsion from the University

Note: While these are the standard penalties, more severe penalties may be applied when warranted.

Unauthorized Co-operation or 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”. Please refer to the course outline statement or the instructor concerning this issue.

Academic Accommodations for Students with Disabilities. The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send your course instructor your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your course instructor to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable) at <http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines>

Accommodation for Student Activities. Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. More information can be found [here](#).

Survivors of Sexual Violence. As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Religious Obligation: Write to the course instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: <http://www2.carleton.ca/equity/>

Pregnancy Obligation: Write to the course instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: <http://www2.carleton.ca/equity/>

Medical Certificate: The official medical certificate (form) accepted by Carleton University for the deferral of final examinations or assignments in undergraduate courses can be accessed from: <http://www.carleton.ca/registrar/forms>