



Faculty of Science
Department of Computer Science
CPS633: Computer Security
Course Management Form - Fall 2019

Land Acknowledgement

Toronto is in the 'Dish With One Spoon Territory. The Dish With One Spoon is a treaty between the Anishinaabe, Mississaugas and Haudenosaunee that bound them to share the territory and protect the land. Subsequent Indigenous Nations and peoples, Europeans and all newcomers have been invited into this treaty in the spirit of peace, friendship and respect.

Calendar description: History and examples of computer crime. Security policies and mechanisms. Access control models. Implementation and usability issues. Physical security. Authentication technologies. Operating system security. Encryption algorithms and protocols. External and internal firewalls. Software flaws and malware. Ethical issues in computer security. Sample privacy noncompliance litigation cases, Social implications of computing networked communication.

Prerequisites: CPS 393.

Instructor: Ali Miri

Office: VIC708, EXT. 3131

Office Hours: Thursdays 10:00 - 11:00 (VIC708)

Lectures: Tuesdays 15:00 - 16:00 (DSQ10) and Thursdays 8:00 - 10:00 (LIB072)

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Course Organization: 3 hours of lectures per week for 12 week. All students are responsible for everything done or said in class (e.g. changes in the labs, due dates, etc.), and students who do not regularly attend class cannot expect to do well.

Objectives:

At the end of the course, students should be able to:

- Describe and correctly use fundamental terminology in the area of computer/network security.
 - Understand a number of common principles used in this field, and have examined some of their specific applications.
 - Have become familiar with some of the main standards currently used in practice.
 - Have learnt different design approaches used to meet specific computer security requirements.
 - Identify weaknesses in different security designs and be able to categorize forms of attack against programs.
 - Have become familiar about different countermeasures against various security threats.
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Compulsory Textbook:

“Computer Security: Principles and Practice (4th ed)”, by William Stallings and Lawrie Brown, Pearson Publishing (2018)

Reference Textbook:

“Computer & Internet Security: A Hands-on Approach, Second Edition (2nd ed)”, by Wenliang Du (2019).

Topic List (tentative):

- Overview (Chapter 1)
- Cryptographic Tools (Chapter 2)
- User Authentication (Chapter 3)
- Access Control (Chapter 4)
- Database and Data Center Security (Chapter 5)
- Malicious Software (Chapter 6)
- Denial-of-Service Attacks (Chapter 7)
- Intrusion Detection (Chapter 8)
- Firewalls and Intrusion Prevention Systems (Chapter 9)
- Cloud and IoT Security (Chapter 13)

Modifications to the course procedures will be made in consultation with the students.

Evaluation: The final mark will be calculated using the following:

Labs	%30
Midterm	%25
Final exam	%45

All marks will be made available on D2L. To pass the course you have to get at least 50

Course Information:

All course materials including announcements, lecture notes, labs information, dates, grades, etc. will be posted on the course web page on D2L. It is your responsibility to attend all the classes, visit the course web page, and check your Ryerson's email regularly to have all the up-to-date information. All questions about materials covered in the class should be **posted** on the *Discussion* folder in D2L. You can post your questions, comments, or suggestions *anonymously*, if you wish. Only questions of private nature should be emailed to the instructor.

Information Technology and electronic devices:

We will utilize Google G Suite for class participation and feedback. You are encouraged to bring a smart phone, tablet, or laptop (as well as pen and paper) to the class to take part.

Lab Work:

The main purpose of the labs is for students to gain hands-on experiences on basic computer and network security algorithms, common program vulnerabilities and security tools. We are using a (modified) subset of labs available at <https://seedsecuritylabs.org>. You can access the image at our labs, but also can download it to your own machine. You can also find an excellent set of resources for the labs at <https://www.handsonsecurity.net>.

Labs are to be done in groups of 4 students in the same section (larger groups will not be allowed). You have already been pre-assigned to a group. You can communicate and share materials with your other group member through D2L. You should attend the labs and contact your lab partners as soon as possible. If there are any issues with a group member, you need to bring it to the attention of the instructor immediately. Durations and submissions for each lab will be posted on D2L. No late lab will be accepted. There will be a mandatory demo for each of the labs in the course, unless specified. You have to be available to do the demo in the lab session you have registered for. All members of a group have to be present for a demo, and have to answer TA questions about the lab. All members of lab groups should be contributed to all tasks in the labs, and should be able to answer questions about them. Failure to attend a demo, or discrepancy between answers provided to the TA and the work handed in may result in receiving a zero grade for that lab. Please check the course web site for more info.

If you miss any of your labs with a verifiable, acceptable reason (as stated by the university guidelines - see 'Missed Evaluation' section of this CMF), the weight will be distributed to the remaining labs.

There are no labs in the first week of classes, i.e the week of. September 3rd.

Midterm Test and Final Exam

The midterm test will cover the topics in the class, the textbook and the labs. Best attempts will be made to return the marked midterm tests within two weeks of the test date. If you feel that there is a marking error with your test, you can request a remarking within 2 week of the test results being returned. The date for the midterm test is: Thursday, October 24th from 8-10 AM. If you miss the midterm test with a verifiable, acceptable reason (as stated by the university guidelines - see 'Missed Evaluation' section of this CMF), the weight of the midterm will be distributed to the final exam. Final exam will cover course materials in the whole semester, and will be scheduled during the exam period.

Missed Evaluations: Students are required to inform their instructors of any situation which arises during the semester which may have an adverse effect upon their academic performance, and must request any considerations and accommodations according to the relevant policies and well in advance. Failure to do so will jeopardize any academic appeals.

- *Medical certificates:* If a student misses the deadline for submitting an assignment, or the date of an exam or other evaluation component because of illness, he or she must submit a Ryerson Student Medical Certificate AND an Academic Consideration form within 3 working days of the missed date.

Important:

- The Academic Consideration Request (ACR) online form (<https://www.ryerson.ca/senate/StudentInfo/AcademicConsiderationRequest/>) must be used by all undergraduate students in the Faculty of Science, Ted Rogers School of Management (TRSM), Faculty of Engineering & Architectural Science (FEAS), with the exception of the Electrical Engineering program, and Faculty of Arts (FoA).
 - Students in all other Ryerson programs, and students taking courses in the G. Raymond Chang School of Continuing Education, must submit their request for academic consideration on health grounds by completing the Academic Consideration Document Submission Form (https://www.ryerson.ca/content/dam/senate/forms/academic_consideration_document_submission.pdf), along with a completed Student Health Certificate (or letter from an appropriate regulated health professional), <https://www.ryerson.ca/content/dam/senate/forms/medical.pdf>.
- *Religious observance :* If a student needs accommodation because of religious observance, he or she must submit a Request for Accommodation of Student Religious, Aboriginal and Spiritual Observance AND an Academic Consideration form within the first 2 weeks of the class or, for a final examination, within 2 weeks of the posting of the examination schedule. If the required absence occurs within the first 2 weeks of classes, or the dates are not known well in advance as they are linked to other conditions, these forms should be submitted with as much lead time as possible in advance of the required absence. Both documents are available at <http://www.ryerson.ca/senate/forms/reobservforminstr.pdf>. If you are a full-time or part-time degree student, then you submit the forms to your own program department or school. If you are a certificate or non-certificate student, then you submit the forms to the staff at the front desk of the Chang School.

- *Students who need academic accommodation support* should register with the Academic Accommodation Support office (formerly called the Access Centre). Before the first graded work is due, registered students should inform their instructors through an “Accommodation Form for Professors” that they are registered with Academic Accommodation Support and what accommodations are required.

Communication with Students: Ryersons email policy <http://www.ryerson.ca/content/dam/senate/policies/pol157.pdf> states that only Ryerson e-mail accounts are to be used for communication with students. All students, including continuing education students, have access to Ryerson email through their my.ryerson.ca site, and this is the official way in which they receive communication. All students are required to register for and maintain this account. **Emails sent from other accounts may not be answered!**

Academic Policies:

a - Ryerson Policies of Interest

Ryerson Senate Policies – <http://www.ryerson.ca/senate/policies/>

Ryerson Academic Integrity – <http://www.ryerson.ca/academicintegrity/>

Policy 46 – Undergraduate Grading, Promotion and Academic Standing

Policy 60 – Student Code of Academic Conduct

Policy 61 – Student Code of Non-academic Conduct

Policy 134 – Undergraduate Academic Consideration and Appeals

Policy 135 – Examination Policy

Policy 150 – Accommodation of Student Religious Observance Obligations

- Policy 157 – Student Email Accounts for Official University Communication

b - Obligations: Students need to inform faculty of any situation arising during the semester which may have an adverse effect upon their academic performance; they must request any necessary considerations (e.g. medical or compassionate), or accommodations [e.g. religious observance, disability (should be registered with the Access Centre), etc.] according to policies and well in advance. Failure to do so will jeopardize any academic appeals.

c - Re-grading and Re-calculation: Must be requested within 10 working days of the return of the graded assignment to the class.

Academic Conduct: <http://www.ryerson.ca/academicintegrity/>

In order to create an environment conducive to learning and respectful of others rights, phones and pagers must be silenced during lectures, lab sessions and evaluations. Students should refrain from disrupting the lectures by arriving late and/or leaving the classroom before the lecture is finished.

Academic Misconduct: According to the Ryerson policy 60 (<http://www.ryerson.ca/content/dam/senate/policies/pol60.pdf>), academic misconduct includes, but is not limited to:

- Plagiarism which is the claiming of words, ideas, artistry, drawings or data of another person. This also includes submitting your own work in whole or in part for credit in two or more courses.
- Cheating
- Misrepresentation of personal identity or performance
- Submission of false information
- Contributing to academic misconduct
- Damaging, tampering, or interfering with the scholarly environment
- Unauthorized copying or use of copyrighted materials
- Violations of departmental policies or professional behaviour
- Violations of specific departmental or course requirements

Committing academic misconduct will trigger academic penalties, including:

- a course-grade reduction that may be more severe than assigning a grade of “zero” (0) on course work; failing grades, suspension and possibly expulsion from the University. As a Ryerson student, you are responsible for familiarizing yourself with Ryerson conduct policies.
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Automatic Plagiarism Detection: D2L *Turnit in* plagiarism detection is used for the submitted work in the course. Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class, consult with the instructor to make alternate arrangements

Non-Academic Conduct: Ryerson's Student Code of Non-academic Conduct is described in Senate Policy 61: <http://www.ryerson.ca/content/dam/senate/policies/pol61.pdf>. Among many other infractions, the code specifically refers to the following as a violation: "Disruption of Learning and Teaching - Students shall not behave in disruptive ways that obstruct the learning and teaching environment".

Diversity and Inclusion Statement: In this course I would like to create a learning environment that supports a diversity of thoughts, perspectives and experiences, and honours your identities (including race, gender, class, sexuality, religion, ability, etc.) For more information about our University's resources and services on Equity, Diversity, and Inclusion please visit <https://www.ryerson.ca/equity/>.

Friday, November 15 is the last day to officially drop a Fall undergraduate term class in good academic standing.
There are no classes during Fall Study Week of October 12 - October 18.
