

INSE 6620 Cloud Computing Security and Privacy (4 credits)

1. General Information

(Make sure you meet these requirements before you decide to take this course!) All students must have access to internet and the needed hardware equipment and ability to record video (with audio) for project presentation, to form a project group, and to work with OpenStack (which has minimum requirements for hardware specifications, such as memory and hard disk space, see <http://www.openstack.org/> for details).

- INSE 6620: Cloud Computing Security and Privacy (4 credits)
- Tuesdays and Thursdays 18:30
- Location: H-531
- Lingyu Wang, *Ph.D., P.Eng.*, Concordia Institute for Information Systems Engineering, ENCS.
- Contact: wang@ciise.concordia.ca (please include "INSE 6620" in your subject line)
- Course website: <http://users.encs.concordia.ca/~wang/inse6620/66202024.htm> (password will be provided during the 1st lecture. It's important to visit this page regularly)
- Office hours: Thursdays 16:00 - 17:00 EV009.183

2. Course Description

- Cloud computing concepts, SOA and cloud, virtualization and cloud, cloud service delivery models, cloud storage models, cloud deployment scenarios, public/ private/ hybrid/ community cloud, cloud computing architectures, SaaS, PaaS, IaaS, agility, scalability and elasticity of cloud, cloud security, cloud privacy, homomorphic encryption, searching encrypted cloud data, secure data outsourcing, secure computation outsourcing, proof of data possession / retrievability, virtual machine security, trusted computing in clouds, cloud-centric regulatory compliance, business and security risk models, cloud user security, identity management in cloud, SAML, applications of secure cloud computing. Project/term paper.
- Prerequisites: INSE6110 (No Exception!)

3. Learning Outcomes

This course brings to students fundamental concepts in cloud computing security and privacy, and exposes them to existing techniques and latest research advances in protecting today's cloud computing platforms and applications.

4. Course Materials

- Textbook: This course is based on a series of research papers. There will be no required textbook.
- Other references will be provided on the class webpage.
- Tentative topics:

- Cloud Computing Basics
- Attacks in Cloud
- Cloud Traffic Security
- Cloud Storage Security
- Cloud Architectures Security
- Cloud Applications Security
- Cloud Provenance and NFV Security Auditing

5. Assignments and Grading

- **Assignments:**

1. Two exams (closed book, in-class): 35% × 2
2. Project (A proposal, a final report, a pre-recorded video/audio presentation): 30%

- **Details:**

1. All students must have access to internet and hardware equipment and ability to record video (with audio) for project presentation, to form a project group, and to work with OpenStack (which has minimum requirements for hardware specifications, such as memory and hard disk space, see <http://www.openstack.org/> for details).
2. There is no direct mapping between numerical percentage grades and final letter grades for the course.
3. Late project reports or presentations will not be accepted. You may ask for a make-up exam only under a university-approved condition, such as sickness with the university doctor's note (other events such as a business travel are not excused!), and only if you contact me BEFORE the actual exam date. No exception!
4. In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

- **Failing Grade:**

Plagiarism, absenteeism, lack of preparation, and lack of effort will result in a failing grade.

7. Academic Code of Conduct

Academic Integrity

Any form of cheating, plagiarism, personation, falsification of a document as well as any other form of dishonest behaviour related to the obtention of academic gain or the avoidance of evaluative exercises committed by a student is an academic offence under the Academic Code of Conduct and **may lead to severe penalties up to and including suspension and expulsion.**

As examples only, you are not permitted to:

- Copy from anywhere without indicating where it came from
- Let another student copy your work and then submit it as his/her own
- Hand in the same assignment in more than one class

- Have unauthorized material or devices in an exam. Note that you do not have to be caught using them – just having them is an offence
- Copy from someone's else exam
- Communicate with another student during an exam
- Add or remove pages from an examination booklet or take the booklet out of an exam room
- Acquire exam or assignment answers or questions
- Write an exam for someone else or have someone write an exam for you
- Submit false documents such as medical notes or student records
- Falsify data or research results

You are subject to the Academic Code of Conduct. Take the time to learn more at

<http://provost.concordia.ca/academicintegrity/>

8. Student's Responsibilities

- Students are expected to attend every class. Some material may only be covered in class and not made available in the textbook nor on the course website. Students are expected to read the assigned material and to actively participate in class discussions.
- Students are expected to be respectful of other people's opinions and to express their own views in a calm and reasonable way. Disruptive behaviour will not be tolerated.
- Students are expected to be familiar with the Code of Rights and Responsibilities:
<http://rights.concordia.ca>
- If you cannot attend class for any reason, unforeseen or not, you are to come and talk or write to me as soon as possible.

9. Student Services

- **Concordia Counselling and Development** offers career services, psychological services, student learning services, etc.
<http://cdev.concordia.ca>
- **The Concordia Library Citation and Cycle Guides:**
<http://library.concordia.ca/help/howto/citations.html>
- **Advocacy and Support Services:**
<http://supportservices.concordia.ca>
- **Student Transition Centre:**
<http://stc.concordia.ca>
- **New Student Program:**
<http://newstudent.concordia.ca>
- **Office for Students with Disabilities:**
<http://supportservices.concordia.ca/disabilities/>
- **The Academic Integrity Website:**
<http://provost.concordia.ca/academicintegrity/>