COMP 535 Computer Networks
Winter 2017

General Information:

Instructor:	Xi Chen
Class Time:	10:35 – 11:25 AM, Monday, Tuesday, Thurday
Class Location:	ENGTR 1100
Office Hour:	11:30 – 12:30 AM, Monday, Extra office hours can be made through appointments
Office Room:	312 McConnell Engineering Building
Email policy	Emails should be sent from your official McGill email address in order to be responded. Emails should be started with the title "COMP535: *** ". For every email communication, please make sure to use "COMP535:" as a single word (with no spaces) as the start of the title and replace *** with your topic/questions.
Prerequisites	COMP310/ECSE 427 (OS) COMP251 (Algorithms and Data Structures) COMP202 (Introduction to Programming / Foundations of Computing) Please Note: These prerequisites are strict, unless you get special approval from the course instructor. Please bring your transcript(s) and detailed CV with detailed project and research experiences.
Class Webpage	MyCourses
TAs	Chen Ma (chen.ma2@mail.mcgill.ca) Jianan Yue (jianan.yue@mail.mcgill.ca)
TA Office Hours	TBD

"McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism, and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity for more information)."

We enforce zero tolerance policy for any form of cheating, plagiarism, and other academic offences.
We will report ANY SUSPECTED offenses to the University to handle.

Brief Course Description:

This is a senior undergraduate/first-year graduate course in computer networks. We will examine computer networks within the context of the Internet. It will build on prior knowledge in operating systems, basic algorithms, and programming. We will study the fundamental principles, elements, and protocols of computer networks. We will investigate how the different protocols work, why they work that way, and their performance trade-offs. Using this knowledge, we will try to examine the way applications are deployed on the Internet and their performance trade-offs. In particular, we will try to examine some strategies that are commonly used to accelerate application- level performance in the context of the operation of the Internet.

By the end of the course, you should be able to: (i) explain the operation of a range computer networking applications such as email, web, and peer-to-peer file-sharing; (ii) relate the architecture of the Internet to the underlying design principles; (iii) illustrate the operation of common routing protocols, queuing mechanisms, and congestion control mechanisms; (iv) Understand how routers a switches work and (v) explain the performance of a given set of routing protocols, queuing mechanisms, and congestion control mechanisms on an example network.

Course Syllabus

Note: Subject to change

- Overview & Introduction
- Layered Architecture & Performance
- Direct Link Networks: Encoding, Error Detection, Framing
- Direct Link Networks: Media Access Control
- Direct Link Networks: Reliable Transmission
- Switching and Forwarding
- Learning Bridges
- Routing
- Internet
- Internet/End-to-end Protocols End-to-end Protocols
- Congestion Control
- Fair Queuing

- Application: DNS, HTTP Applications: P2P
- Performance and QoS

Textbook

Required Textbook:

*** Larry Peterson & Bruce Davie, Computer Networks --- a systems approach (5th Edition or Latest edition)**

Optional: reference textbooks.

1. James F. Kurose , Keith W. Ross, Computer Networking: A Top-Down Approach (latest edition)

2. Andrew S. Tanenbaum, David J. Wetherall, Computer Networks (5th Edition or Latest edition)

Evaluation

Evaluation Components:

Activity	Percentage
Midterm Exam (in class)	30%
Final Exam (in class)	40%
Programming Assignments	30% (10% + 10% + 10%)
Total	100%

Programming Assignments (PA): The document of PA will be released after class begins. There are three Programming Assignments in this class. The three assignments focus on different components/functionalities of a simulated Link State Routing Protocol implementation. The evaluation of the assignment is in the form of code review, evaluation and testing, and demos. TA will ask the students to show different functionalities of the program and will also ask the students to explain the implementation of the codes. Students can finish the task in groups (no more than 2 people per group, 2 is recommended).

Re-grading Policy: If you find your assignments or exams are not marked according to the marking scheme, you are encouraged to consult me or the TAs. When you resubmit your assignment or exam for regarding, we reserve the right to re-grade the full exam or assignment without restricting the attention to the disputed portion. So your re-graded mark may be lower than the original mark. Each student has one chance to ask to re-grading his/her midterm exam, and has another chance to ask for re-grading his/her final exam.

Each group has in total one chance to ask for re-grading one of its programming assignments. For example, suppose Alice and Bob form a group for their programming assignments. If Alice already asked for re-grading programming assignment 2, then both Alice and Bob can no longer ask for re-grading any of the programming assignments 1&3.

Late Assignment Policy: There will be two deadlines for each assignment: proper deadline and cut-off date. After the proper deadline, there will be a penalty of 30% for each day the assignment is late until the end of the 2nd day after, which is the cut-off date. After the cut-off date, the assignment cannot be handed in, hence you receive 0 grade for that assignment. No individual requests for extensions will be granted unless they are for medical reasons. The penalty is calculated by rounding-up of each day.

The deadlines will be set for EDT 23:59pm. Please observe the time and date very carefully. It is your responsibility to make sure that the assignment is properly submitted to the MyCourses.