Instructor: Joseph Peters  
SUR 4136  
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Office hours: SUR 4136, Wednesday 14:30–15:20 or by appointment

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Office hours: SUR 4064, Friday 14:30–15:20

Lectures: Monday, Wednesday, Friday 15:30–16:20, SUR 3310

Grading:  
Homework 25%  
Mid-term (50 minutes) 25%  
Final Exam (2 hours) 50%

Course Outline

The course will cover most of the first six chapters of the textbook and parts of Chapter 8. I intend to cover both Chapters 1 and 2 during the first two weeks. Each of Chapters 3, 4, 5, and 6 will take between two and three weeks. The amount of material that we cover from Chapter 8 will depend on how much time is left after the first six chapters.

- **Introduction:** Overview; Network types; Protocol layering; History of the Internet
- **Network Applications:** Principles of network applications and protocols; Sample applications: HTTP, DNS; Socket programming
- **Transport Layer:** Transport-layer services; Connectionless Transport (e.g., UDP); Connection-oriented Transport (e.g., TCP); Flow and congestion control
- **Network Layer:** Routing algorithms (e.g., OSPF, RIP, BGP); Forwarding and addressing in the Internet (IP); Router design
- **Link Layer and Local Area Networks:** Contention resolution and multiple access protocols; Error detection and correction; Ethernet; Bridges and switches
- **Network Security:** Principles of cryptography; Public key encryption; Firewalls

Course Organization

There is too much detail to cover all of it in lectures. I will generally present the material in a conceptual way in lectures and leave some details to the textbook. Students are strongly encouraged to read the material in the textbook before the lectures so that lecture time can be used to provide intuition, clarify difficult material, and answer questions.
The homework will be a combination of written, Wireshark, and programming exercises.

The Mid-term Exam will be during week 8 of the course (October 22 – 26) and will be based on the material from the first three chapters.

The Final Examination will be a two hour exam on Wednesday December 12, 9:30 to 11:30, and will cover all parts of the course. Please note that the exam is scheduled in a three hour slot, 8:30 to 11:30, but it will be a two hour exam. It is impossible for me to schedule a two hour exam slot, so I have to ask for a three hour slot and then use only two hours. You will be reminded that the exam is two hours several times during the course.

Assignment Policy

• Submission: Homework is due before the lecture on the due date. All written homework must be submitted in hard copy in the course assignment box across from SUR 4380 at least 15 minutes before the start of the lecture. Programming exercises must be submitted using the submission server no later than the server deadline. Homework submitted after the deadline will be considered to be late. Late homework will not receive partial credit (except for medical reasons with proper documentation).

• Collaboration vs Cheating: Students are encouraged to discuss the course material. Discussion of the homework exercises to better understand and interpret the questions is also encouraged, but sharing of solutions or partial solutions in any form is unacceptable. The solutions and code that you submit must be entirely your own work. Copying any part of an assignment either from other students or from another source (e.g., the Internet) is plagiarism even if the sentences or code that you submit are paraphrased or modified from the original ones.

• Code grading: Your code must compile without error; otherwise, we cannot test it. Typically, the grading of your code will be done through scripts or testing programs that we develop. There will be several test cases, each worth a number of points. If your code passes a test case, you get its points, otherwise you get no points for that test case.

• Code quality: Make sure that your code is well-organized with sufficient comments. Part of the grade will be based on the structure and commenting of the code.

Course Resources


There is an excellent companion website for the textbook with a large amount of information, practice exercises, video tutorials, and more. Access instructions are on the inside front cover of the textbook.


• Course web page: [www.cs.sfu.ca/~peters/371/index.html](http://www.cs.sfu.ca/~peters/371/index.html) or link on Course Central.