CS 3CN3 and SE 4C03 Winter 2009

00 Preliminaries

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Instructor

- Dr. William M. Farmer
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- Office hours: M 15:00–17:00

Teaching Assistant

- Fang Cao
  - E-mail: caof@mcmaster.ca
  - Office hours: TBA
- Mr. Cao will:
  - Administer the lab sessions
  - Provide assistance with the lab exercises
  - Mark the lab exercises
  - Administer the research project
  - Answer questions concerning the course material

Mission

The Internet has revolutionized science, technology, and culture and has elevated information security to a major societal concern. The mission of the course is to teach students the underlying principles of internetworking and information security. By the end of the course the student should:

1. Understand how the Internet works and what are its strengths and weaknesses.
2. Understand the threats to the security of computers and networks and the techniques that can be used to counter these threats.
3. Have a working knowledge of the TCP/IP protocol suite, basic network services, cryptography, and common information security tools.
4. Be able to perform basic networking tasks on computers running Unix-style operating systems.

Mechanics

- Lectures: MW 8:30–9:20, F 10:30–11:20 in JHE 326H
- Lab sessions:

  Lab session 1: T 14:30–17:20 in ITB 235
  Lab session 2: F 14:30–17:20 in ITB 235

- Course web site:

  `http://imps.mcmaster.ca/courses/SE-4C03-09/`

- WebCT: Used for some services.
- Textbook: D. E. Comer, Internetworking with TCP/IP, Vol. 1, Fifth Edition, Prentice Hall, 2005.
  ISBN: 0131876716
- The class will pick a class representative who will serve as a liaison between the students and the instructor

Work Plan

- Lectures given by the instructor
- Five lab exercises during lab sessions
  - Done in teams of two or three
  - Performed on an experimental little internets (Little Internet A and Little Internet B)
- Research project outside of class
  - Done individually
  - Purpose is to investigate an important topic in networking or security
  - Products: wiki page presentation, project report
- Midterm test during class time on Wed., February 25
- 2-hour final exam on the date scheduled by the University
- Each student is required to keep a log book

Academic Dishonesty

- Students are expected to exhibit honesty and use ethical behavior in all aspects of the learning process
- Academic dishonesty consists of misrepresentation by deception or by other fraudulent means
- Academic dishonesty includes:
  - Plagiarism
  - Copying
  - Improper collaboration
- Academic dishonesty can result in serious consequences
- Your work must be your own. Plagiarism and copying will not be tolerated!
- Students may be asked to defend their written work orally

Other Policy Statements (1)

1. Significant study and reading outside of class is required.
2. Students are required to attend the lectures and tutorials. Attendance will be recorded, and absences will be excused only in highly exceptional cases.
3. The student is expected to ask questions during class.
4. You may want to discuss the assignments with your fellow students. If you do that, you must record a summary of your discussions in your log book including a list of all those with whom you had discussions and a description of what information you received. It is part of your professional responsibility to give credit to all who have contributed to your work.
5. A student may use his or her texts and notes during the midterm test and final exam.

Other Policy Statements (2)

6. Assignments may not be submitted late and the midterm test may not be taken later without prior approval from the instructor.
7. The instructor reserves the right to require a deferred final exam to be oral.
8. Calculators and electronic devices are not permitted during the midterm test and final exam.
9. The Faculty of Engineering is concerned with ensuring an environment that is free of all adverse discrimination. If there is a problem, that cannot be resolved by discussion among the persons concerned, individuals are reminded that they should contact their Department Chair and the Human Rights and Equity Services (HRES) office as soon as possible.
10. Suggestions on how to improve the course and the instructor's teaching methods are always welcomed.

Marking Scheme

Lab exercises (5)	20%
Research project (wiki page, project report)	20%
Midterm test	20%
Final exam	40%
Total	**100%**

Notes:

1. A student's final score will be reduced by one half point for each missed lecture and tutorial (there is no penalty for the first six absences).
2. The project wiki pages will be formally assessed by the class.
3. The instructor reserves the right to adjust the marks for an exercise, midterm test, or final exam by increasing or decreasing every score by a fixed number of points.

Syllabus

00 Preliminaries
01 Physical Networks [chapter 2]
02 The Internet Model and TCP/IP [chapters 1, 3]
03 Internet Addressing [chapters 4, 5, 9]
04 Internet Protocol (IP) [chapters 6–8]
05 Transport Protocols [chapters 10–12]
06 Information Security [chapter 30 and notes]
07 Overview of Cryptography [notes]
08 Interaction Schemes [chapters 18–21]
09 Common Network Services [chapters 23–27]
10 Defense Mechanisms [chapter 30 and notes]
11 Routing Protocols [chapters 13–15]