SE 4C03 Winter 2002

00. Preliminaries

Instructor: W. M. Farmer

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Instructor

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Tentative office hours:

MT 14:30–15:20, WR 10:30–11:20

Mission

1. Learn how communication between computers is performed.
2. Learn how the Internet is organized and how the TCP/IP protocol suite works.
3. Learn what are the threats to the security of computers and networks.
4. Learn what are the defensive mechanisms against these threats.

Work Plan

- Lectures in class
- Five lab exercises outside of class
  - Done in teams of two or three
  - Performed on an experimental "Little Internet"
- Research and presentation project
  - Done individually
  - Purpose is to investigate a new network or security technology
  - Products: proposal, Web page presentation
- Midterm test in class on February 15, 2001
- Final exam on the date scheduled by the University

Little Internet

- The lab exercises will be done on a little internet of computers in ITB 238
- The Little Internet is composed of Intel computers running Linux
  - Each computer has two network interfaces
  - The computers are organized into an internet composed of several Ethernet networks
  - The computers are intended to be isolated from the Internet
- Each computer will be configured and secured by a team of two or three students

Mechanics

- Course web site:

  `http://www.cas.mcmaster.ca/~wmfarmer/SE-4C03-02`

- Required text:

  D. E. Comer, *Internetworking with TCP/IP: Principles, Protocols, and Architectures, Vol. 1, Fourth Edition*, Prentice Hall, 2000. ISBN: 0130183860.

- Teaching assistants: Kevin Lou, Angela Wu
  - Provide assistance with lab exercises
  - Mark lab exercises
- Each student is required to keep a log book

Tentative Schedule

00. Preliminaries

01. Information Security

02. Physical Networks

03. The Internet Model and TCP/IP

04. Internet Protocol (IP)

05. Transmission Control Protocol (TCP)

06. Computer and Network Security Threats

07. Overview of Encryption

08. Common Network Services

09. Defense Mechanisms

Selected Policy Statements

1. Significant study and reading outside of class is required.
2. Regular class attendance is required. Attendance will be taken, and absences will be excused only in highly exceptional cases.
3. The student is expected to ask questions during class.
4. The student is welcome to discuss lab exercises with other students, but all such interactions must be recorded in the student's log book. The lab exercise reports and the research and presentation project Web page must be the student's own work.
5. A student may use his or her texts and notes during the midterm tests and final exam.
6. Lab exercises may not be turned in 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. Suggestions on how to improve the course and the instructor's teaching methods are always welcomed.

Grading

Lab exercises (5)	20%
Project (proposal and Web page)	20%
Midterm test	20%
Final exam	40%
Total	**100%**

- **A student who fails the final exam automatically fails the course.**
- A student's final score will be reduced one half point for each missed class (there is no penalty for the first **five** missed classes).
- A portion of the research and presentation project Web page will be graded by the class.
- The instructor reserves the right to adjust the grades for a lab exercise, midterm test, or final exam by increasing or decreasing every score by a fixed number of points.