SE 4C03 Winter 2001

00. Preliminaries

Instructor: W. M. Farmer

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Instructor

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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
- Six 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, 10-minute oral presentation, 3-page written paper
- Midterm test in class on February 14, 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 GS 342B
- The Little Internet includes 14 Intel computers running Redhat Linux 6.2 and 8 Ethernet hubs
  - Each computer has two network interfaces
  - The computers are organized into an internet composed of 10 Ethernet networks
  - The computers are isolated from the Internet
- Each computer will be configured and secured by a team of two or three students

Texts

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

2. **Optional**: C. Brenton, *Mastering Network Security*, Sybek, 1999. ISBN: 0782123430.

Mechanics

- Course web site:

  `http://www.cas.mcmaster.ca/~wmfarmer/SE-4C03-01`

- Teaching assistant
  - One to be announced
  - Provide assistance with lab exercises
  - Grade 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 Encryption

08 Common Network Services

09 Defense Mechanisms

10 Project Presentations

Policy Statements

1. Significant study and reading outside of class is required.
2. Regular class attendance is required.
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. Lab exercises 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 midterm tests may not be taken later without **prior** approval from the instructor.

Policy Statements (cont.)

7. The instructor reserves the right to require a deferred final exam to be oral.
8. Calculators are permitted during the midterm test and final exam.
9. "If there is a problem [with discrimination], that cannot be resolved by discussion among the persons concerned, individuals are reminded that they should contact their Department Chair as soon as possible."
10. "Students are reminded that they should read and comply with the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Senate Office."
11. Suggestions on how to improve the course and the instructor's teaching methods are always welcomed.

Grading

Lab exercises	20%
Project	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 three missed classes).
- 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.