Computing Science Course Outlines

CMPT 371 - D100 Data Communications/Networking

Instructor(s): Janice Regan

Calendar Objective/Description:
Data Communications/Networking

Instructor's Objectives:
Computer networks and the Internet have become an essential part of our everyday life; almost every device that we use is either already connected to the Internet or soon will be. This course is an introduction to the principles and practical aspects of designing and operating computer networks as well as analyzing their performance.

Special Note: Assignments will be in an online format. Lectures will all be available online after the lecture has occurred. Many lectures will also be available live/interactive at the scheduled lecture time. Students must have access to a computer with internet access, and the ability to remotely access the CSIL labs (instructions on how to do so will be provided). Some components of the course will require real-time participation during the scheduled lecture and/or exam times. Attempts will be made to schedule one or two sessions of each of these components available at times more appropriate for students in Europe and Asia (between 8AM to 8PM local time).

Prerequisites:
see go.sfu.ca

Topics:
- Introduction: Overview, Network types, Protocol Layers
- Network Applications: Network applications and protocols, HTTP, DNS, Socket programming
- Transport Layer: Transport layer services and protocols, UDP, TCP, Flow and congestion control
- Network Layer: Routing algorithms, Forwarding and addressing in the Internet, IP, Routers
- Link Layer and Local Area Networks: Multiple access protocols, Error detection, Ethernet, Bridges
- Network Security: Principles of cryptography, Public key encryption, Firewalls (time permitting)

Grading:
Assignments and Projects 30%; Quizzes/Midterms 40%; Final Exam 30%

Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better).

Required Books:

Reference Books:
Academic Honesty Statement:

Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).