

CIT 130-01: Networking and Security, Intro
Fall 2008 (JOYC Room 201)
Monday – 2:00 PM to 3:15 PM
Wednesday – 11:00 AM to 12:15 PM

Instructor: **Zach Tanko**
West Hall – Room
Office Hours: M 12:30–1:30, T 2:00 – 3:00, W 12:30 – 1:30, TH 11:00 –12:00
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Description

This course introduces the student to the concepts and terminology of data communications. The course highlights the history and evolution of voice and data communications technologies. Specific emphasis is placed on the role of standards organizations in this evolution. The course examines such topics as telephony and subsystems, analog and digital signaling, network protocols and topologies, the OSI reference model, the TCP/IP protocol suite, high-speed LAN/WAN topologies, remote access, bridging and routing, network troubleshooting, network design considerations, the evolution and future of Ethernet, emerging technologies for both business and residential use, and information security considerations. The primary purpose of this course is to facilitate students' understanding of the basic concepts, vocabulary, theories and processes, relevant to business data communications. The course will use discussion, in and out of class activities, written assignments, and tests to facilitate and measure the development of knowledge on the topic. Readings will be assigned, and those topics may not be fully covered in class. Tests will cover both the reading and the class materials.

Summary of Instructional Methods:

In this class students can expect the instructor to use the following techniques to facilitate students' acquisition of knowledge about business data communications and skills related to putting this knowledge into practice:

- a. Lecture and discussion on data communications issues with a heavy emphasis on concepts.
- b. In and out of class exercises involving students' application of network knowledge.
- c. In class problems involving students doing group exercises about data communications.
- d. Discussion with the instructor about course material and course-related assignments.
- e. Textbook assignments intended to develop students' application of course concepts to actual "real-life" circumstances.
- f. Testing of students' comprehension and understanding of course material to assess students' ability to retain, synthesize and apply basic theories and concepts pertaining to the subject matter presented in the text and lecture.

Learning Objectives

Using the instructional methods outlined above as a means to accomplish the course objectives, this course is designed to foster students' ability to accomplish the following objectives:

- Outline the history of business networks
- Describe how data is communicated as a signal on a physical medium
- Explain and identify the role of standards and standards organizations in the data communications market place
- Discuss the structure and components of business phone and data networks
- Describe the 7 layers of the OSI model, identify the major functions of each layer and its use in the business communications process
- Describe the operation of common Local Area & Wide Area network protocols
- Demonstrate knowledge of media, topologies, hub/switches, routers and network interface cards
- Identify and contrast enabling technologies in both the business network environment as well as for residential applications
- Review the history and operation of the TCP/IP protocol suite
- Discuss the structure and operation of the Internet and its importance to business today
- Identify concerns and potential solutions for bandwidth constraints
- Understand the security aspects of data communications and implications in implementing and managing communications resources

Materials

Note: Texts are subject to change in future semesters. This syllabus is accurate only for the semester listed at the top page of the document.

Textbook: **Hands-On Networking Fundamentals**, Michael Palmer (2006) by Michael Palmer. Course Technology (ISBN: 1- 4188-3554-4)

Criteria and Methods for Evaluating Students

A. Tests - Tests will be used to measure students' basic comprehension, understanding and application of selected theories and concepts introduced in the text, lectures and discussions. In this sense the tests will be used as a means to measure knowledge and skill application across all the aforementioned learning objectives.

Each test will be a combination of multiple choice and essay questions. The instructor will identify the specific concepts and terms to be covered on a test prior to the day of the test to enable students to focus their review of the material.

- i. Multiple choice questions will focus on measuring students' ability to identify theories and concepts and apply those theories and concepts to examples provided in the questions.
- ii. Essay questions will be used to measure students' ability to synthesize and apply material covered to address potential or actual data communications environments.

B. Textbook assignments - Exercise based assignments will be used to assess students' knowledge and skill levels in relation to specific subject areas within the main topic of data communications. These assignments are also designed to challenge students' ability to demonstrate the course concepts as they relate to specific business environments. **YOU ARE RESPONSIBLE FOR COMPLETING ASSIGNMENTS ON TIME AND TURNING THEM IN TO ME IN A SUITABLE FORMAT. ALL WRITTEN ASSIGNMENTS MUST BE TYPED!** The textbook assignments will count as 10% of a student's final grade.

C. Paper/Demonstration – A paper or presentation of a data communications concept with written explanation (10% of your total grade for the class)

This assignment is designed to evaluate your competency at applying course concepts to 1) research 2) analyze a specific topic related to data communications 3) produce a paper or demonstration model and operate it for the group.

D. Quizzes (20% of your grade)

There will be approximately 5 quizzes. Each quiz is a short (3-5 questions) short answer exercise. This will test the most recent reading and terms from the textbook and lecture discussions.

Assignment Values and Grade Definitions

2 Tests	30%
Quizzes	20%
Textbook Assignments	10%
Participation/Classroom Activities	10%
Paper/Demonstration	10%
Final Exams	20%

Final letter grades will be based on the scale recommended by Champlain College:

Course Policies

Attendance

If the student is unable to attend class, the student is responsible for any assignment or material missed during the absence. Contact the instructor for handouts, announcements or changes to the course calendar. Contact a classmate for notes. Missing 3 classes in a row subjects the student to being withdrawn from the class.

Any student missing 3 classes (non-consecutive), **for any reason**, will be subject to a 10 point deduction after final grade is calculated. Missing more than 3 non-consecutive classes may result in withdrawal from the class (or additional point reduction).

Homework

Homework assignments are due in the class following their assignment. Late homework **will** receive a lower grade. Partial assignments will be graded as incomplete. Due to the nature of this class, it may not be possible for a student to make-up a missed lab. Class attendance is a must!

Exams/Quizzes

Students are required to take all quizzes and exams at the appointed time unless arrangements prior to the test are made with the instructor. Make-up tests will be more rigorous than the regular tests, and will be scheduled at a time convenient for the instructor.

Academic Honesty Policy

The Champlain College Student Handbook (*The Rudder*) describes the College's Academic Honesty policy. It basically says that if I think you've cheated on an assignment — i.e., to either actually or attempt to knowingly give, receive, or use work that is not your own — I can give you a zero on that assignment. I will strictly adhere to this policy. You may trick me, but it will catch up to you somewhere once you enter the workplace. In addition, it is very common for prospective employers to call professors for references. It is really not worth taking the chance of jeopardizing your future as a result of cheating. If you are experiencing any difficulties with the subject matter, or experiencing any personal difficulties, talk to me. I am committed to help make you successful. You must be committed to your own success as well!

This in no way suggests that I am opposed to your collaboration with fellow students and others; in fact, I encourage as much collaboration as possible. The point of this policy is that work that you submit as your own *has* to be your own! If you work with another person or other resource that helps you learn an answer to something, that's fine — what I see, however, should be in your own words and clearly demonstrate **your** understanding. If you're unsure, tell me that you worked with others.

Special Needs: If you believe that you have a disability requiring accommodations in this class, please contact the Coordinator of Support Services for Students with Disabilities as soon as possible. After you receive your accommodation form, please see me so I can work with you to implement them in a timely fashion.

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Section 01 – Monday 2:00 P.M. – 3:15 P.M

Wednesday 11:00 A.M – 12:15 P.M

Course Calendar – Fall 2008

No.	Date	Topic	Reading Assignments
1	Sep 03	Introductions / Course Overview Networking: An Overview	Chapter 1
2	Sep 08	How LAN and WAN Communicate	Chapter 2 Chapter 1 Assignments due
3	Sep 15	Using Network Communication Protocols	Chapter 3 Chapter 2 Assignments due
4	Sep 22	Quiz 1 (Chapters 1, 2, 3) Connecting Through a Cabled Network	Chapter 4 Chapter 3 Assignments due
5	Sep 29	Devices for Connecting Networks	Chapter 5 Chapter 4 Assignments due
6	Oct 06	Connecting Through a Wireless Network	Chapter 6 Chapter 5 Assignments due
7	Oct 13	Test (Chapter 1 – 6)	
8	Oct 20	Sharing Resources on a Network	Chapter 7 Chapter 6 Assignments due
9	Oct 27	Using a Server	Chapter 8 Chapter 7 Assignment due
10	Nov 03	Understanding WAN Connection Choices	Chapter 9 Chapter 8 Assignments due
11	Nov 10	Quiz 2 (Chapter 7 – 9) Basic Network Design	Chapter 10 Chapter 9 Assignment due Presentation topics distributed
	Nov 17	Securing Your Network	Chapter 11 Chapter 10 Assignment due
12	Nov 24	Test (Chapter 7 – 11)	
13	Dec 01	Maintaining and Troubleshooting Your Network	Distribute finals
14	Dec 08	Presentations	
15	Dec 15	Final Exam (actual date/times TBD)	Finals due

