Massachusetts Bay Community College
CS 243-750 Computer Networks II
Hybrid with in-class meetings on Mondays from 5PM to 7PM

Fall 2013

Professor:	**Shamsi Moussavi**
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Office Location:	**Room # 442**
Office Hours:	**M, W, F: 12:00 - 1:00**
	T or TH: by appointment

Course Description

Building upon the knowledge gained from the first computer network course, this course provides students with more in-depth knowledge and hands-on experiences on important networking topics, such as firewalls, IPSec, VPN, ACLs, Wireless APs, routers and router configuration. Students completing this course will be prepared to take industry standard networking and/or routing certificate examinations.

Pre-requisite

CS242 – Computer Networks

Instructional Objectives and Outcomes

The goal of this course is to continue computer networking topics in more detail, such that students will be able to effectively perform network administration tasks. The course will cover higher level aspects of networking and students will perform a number of hands-on exercises.

The following is a list of objectives/outcomes:

- Learn and be able to recall new networking vocabulary and discuss the terminologies used in technical documents
- Use the OSI model knowledge from previous course and be able to identify the layer responsible for network issues
- Be able to describe and define new networking standards and protocols
- Effectively use network diagnostics tools (including monitoring, auditing, and logging) in order to evaluate, analyze, and identify network issues
- Use, setup, and test firewalls, VPNs, IPSec, and wireless APs
- Use, configure, and test CISCO routers
- Recognize the importance of proper documentation for and be able to describe a network.

This workforce solution is 100% funded by a grant awarded by the U.S. Department of Labor, Employment and Training Administration, TAACCCT grant agreement # TC-22505-11-60-A-25.The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. Massachusetts Community Colleges are equal opportunity employers. Adaptive equipment available upon request for persons with disabilities.

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Required Text

Network+
Guide to Networks, 6th Edition
Tamara Dean
ISBN-13: 978-1-133-60819-6

Teaching Procedures

This class, being a hybrid class, has two distinct components: the in-class lab period and the online presence.

We will meet in class (lab room 425, which is a virtualized lab) only for lab periods. Students are expected to have read the material before coming to in-class lab to be prepared to complete the lab work. Students are also encouraged to talk with other students, tutors or the instructor to maximize their learning. Lab exercises will be done on virtual machine as well as actual computers and other devices.
Lab exercises will not be graded for, but the attendance and the work done in class during the lab period will be graded and a total grade will be given based on completed lab assignments.

A number of resources will be available on Blackboard and instructions will be given to students to study the material and perform course tasks. Students are expected to participate in discussions on the content of the course, which is a very important part of the course work and is graded.

Expectations for Discussion

In this course, we will have class discussion using the discussion board in each unit. Everyone is required to read and post to the discussion according to the criteria below.
My expectations for discussions extend beyond the "facts" contained in the reading. You will be evaluated on synthesizing what you think, what you read, and what others say. I have set up the discussions to extend our discussion beyond the facts of each unit and try to address some of the bigger picture questions about astronomy.

Here is how I will grade you on your discussion posts:

Quantity

For each discussion you are required to submit a number of responses, which will be indicated for each specific discussion forum:

- Response(s) or comment to my question - this must be substantial in terms of content.

• Response(s) to another student's reply to my question - these must also be substantial in terms of content (i.e. at least 2 sentences).
• Remember that discussion entries are dated.
• Hint, discuss early and often. There is no way we will evolve a meaningful discussion if everyone waits until the end of the module to make their require postings.

Quality
All interaction in the Discussion section of each module should:

• Focus on the main points of the question;
• Use proper Netiquette - avoid slang and jargon
• Mention the content of other reading and writing assignments.
• Use specific examples from the course content.

A low quality response consists of "I agree." "Good Question" or "Good Answer." any response which is just your opinion, or is unsubstantiated, any response which is carelessly typed, poorly thought-out, grammatically incorrect or confusing, any response which is disrespectful of another student or any other person etc.

A high quality response contains information from the texts or another valid source, or applies a concept from the text in a meaningful way, or facilitates understanding of the reading into your discussion threads in order

Communications

Direct communication with students will be through Massbay email address and announcements will be through Blackboard. So, students are required to check both their Massbay email and Blackboard often.
All communications (Blackboard postings, emails, written assignments) are considered “business communications”. Students are expected to pay attention to format, structure, organization, tone, clarity, spelling and punctuation on all forms of communication.
Any communication not deemed an appropriate communication may be disregarded or points may be taken off, at the sole discretion of the professor. Students are expected to thoroughly proofread all communications before submitting them.

Technology Help

For tech support regarding **lab computers** - usernames, passwords, and access to Blackboard, PeopleSoft or your H: drives please visit How to Get Technical Help or go to room 242 F for assistance.

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For tech support regarding **your laptop, iPad, or use of technology** please visit TechBay our tech support center operated by students between 12 pm and 2 pm Monday through Friday. TechBay is located on the Wellesley Campus, 4th floor corridor by room 422. Or make an appointment at http://tinyurl.com/TechBay2013.

Any student with disability should inform me as soon as possible.

Class Attendance

It is the responsibility of the student to be mindful of his/her attendance status. Consistent tardiness is discouraged, as it will add up to one full class absence.

Students are expected to attend the lab period and are responsible for all material covered during that time.
A student who is present during the lab session but not performing the lab work will lose the attendance grade for that lab session.

Use of phones, pagers, or similar communication devices (for texting, etc) during the lab period is prohibited. Turn off your device before entering the class.

Grading Policy

Assignments: Assignments, of any kind, must be submitted on time. Assignments that should be submitted on Blackboard are due at the end of the day (11:59pm) on the due date. When attaching a file for your assignment on Blackboard, make sure that the correct file is submitted, as resubmission will not be permitted. Points will be deducted from assignments that are submitted late.

Academic Integrity is a serious matter in this class. Students should familiarize themselves with this conduct by reading the section on "Academic Integrity" under "Student Responsibilities: The Code of Student Conduct" in Student handbook.

Exams and quizzes: There will be a quizzes, a midterm, and a final exam for this course. **There will be no makeup for missed quizzes or midterm exam**. The grade received on the final exam will replace the missed midterm exam grade. **The Final exam will be comprehensive**.

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The grade breakdown for this class will as follows:

Quizzes and homework of any kind	15%
Online participation	15%
Paper	10%
Lab notes and attendance	20%
Midterm exam	20%
Final exam	20%

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Course Schedule

Week of	Topics covered	Lab
Sept. 2 & Sept. 9	Review of networking basics *Chapters 2 & 4*	Get to know the lab and virtual environment: create and use a VM (on VMWare) TCP/IP exercies
Sept. 16	Topologies and standards *Chapter 5*	Use of Wireshark (network protocols, IPv6 vs IPv4)
Sept. 23 & Sept. 30	Switches, routers and routing protocols *Chapter 6 and extra resources*	Cisco switches and routers configuration, creating small network and configuring VLAN on a switch
Oct. 7	Wide Area Networks and Wireless WAN *Chapter 7 & 8*	Create a wireless network with an AP and configuring a WAP
Oct. 14	In-Depth TCP/IP *Chapters 9*	TCP/IP utilities and commands and DNS used to find information about servers, change setting on router using NAT
Oct. 21	**Review and Midterm**	Complete any unfinished lab work/note Start work on paper
Oct. 28	Virtual Networks and Remote Access, VPN *Chapter 10*	Use of VirtualBox and running Linux VM on it, setting up VPN server and client, and remote desktop
Nov. 4	Network Security and Firewalls *Chapter 11 and extra resources*	Capture and analyze data on wireless transmissions while changing the setting for security of WPA2, setting up firewall on router
Nov. 11	Voice and Video Over IP *Chapter 12*	Compare VoIP products in the market with Skype, figure out network setup (placement, other devices needed) for introducing VoIP, identify the source of issues that may come up with VoIP
Nov. 18	Troubleshooting Network Problems *Chapter 13*	Troubleshoot physical (cable issue, loose adapter, etc), logical (incorrect IP address, VLAN, gateway, DNS, or subnet mask, etc), and wireless

		(incorrect channel, encryption, or frequency, distance, AP placement, etc)
Nov. 25	Ensuring integrity and Availability *Chapter 14*	Assess network diagram to identify points of failure and recommend both physical (placement of devices, UPs needs) and logical (preventing security threats) solutions to make the network more fault tolerant.
Dec. 2	Network Management *Chapter 15*	Logs and events on Windows and Linux, backup , and auditing
Dec. 9	**Review for final exam**	Paper presentations
Dec. 16	Final Exams Week	