MSI 603: Communication Networking and Computer Security
University at Albany, SUNY
Fall 2002

Instructor Information

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Office Hours:	Monday 1:00-2:30 or by appointment
Room:	BA 310b

Class Information

Time:	TH 1:00 - 4:00pm
Room:	BA 233
Dates:	September 5 - December 5
Available Labs:	MIS Lab

Course Overview

This course covers Data Communications, Computer Networking and Computer Security. The first portion on communications will cover fundamentals of signal transmission, transmission hardware and basic concepts like multiplexing. The networking portion will cover Network Topologies, the OSI model, and the TCP/IP protocol suite. In the security portion of the course we will discuss vulnerabilities of the network and techniques for protecting data such as Cryptography and Steganography. Public Key Infrastructure, which is currently used for secure data transmission over the web, will also be discussed. The class will include Network and Security Programming using Java language to supplement the theory covered in the classes. By the end of the semester, students should expect to have a general understanding of the above topics and should be capable of simple network programming. The computer labs on networking in the first few weeks are contingent upon how comfortable the students are in Java programming.

Books & Software

Text: Data Communications & Computer Networks: A Business Users's Approach by Curt M. White
Text: Hackers Beware by Eric Cole
Reference: Professional Java Security by Jess Garms and Daniel Somerfield
Reference: Computer Networking, A top down approach featuring the Internet by J. W. Kurose & K Ross

Grading

Homework:	25%
Paper:	25%
Exams:	50%

Course Schedule

Week	Date	Topics	Readings
1	09/05	Introduction	DCCN Ch. 1
		Fundamentals of Data and Signals	DCCN Ch. 2
2	09/12	Hardware & Media Types	
	09/12	Multiplexing	
3	9/19	Internet Architecture / Layered Internet Model	
	09/19	Socket Programming in Java - TCP	
4	09/26	Layered Internet Model (OSI Model)	
	09/26	Socket Programming in Java - UDP	

5	10/3	Routing	DCCN Ch 10
	10/3	Remote Method Invocation	Class Notes
6	10/10	Network Congestion Control	
	10/10	Exam I	
7	10/17	Introduction to Security / Hacker Attacks	
	10/17	Security Lab	
8	10/24	Hacker Attacks contd.	
	10/24	Security Lab	
9	10/31	Cryptography - Symmetric & Asymmetric	
	10/31	Security Programming (Symmetric)	
10	11/07	Public Key Infrastructure	
	11/07	Security Programming (Asymmetric)	
11	11/14	Security Modeling / Review	
	11/14	Exam II	
12	11/21	Watermarking and Steganography	
	11/21	Lab Exercise - Steganography	
13	12/05	Presentations	
	12/05	Presentations	