State University of New York at Albany
ACC 680 Research Seminar in Accounting:
Computer Networking and Security
Class Time: W 5:45-8:35; Room: BA219

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Class web page: http://www.albany.edu/~ah268485

WELCOME

This course requires intensive reading and research on an approved topic of special interest in the student's field of concentration. A comprehensive report and an oral presentation are required.

LEARNING OBJECTIVES

At the end of this course, you should be able to:

- Comprehend research publications in your chosen field of concentration;
- Synthesize findings of multiple research studies and draw inferences from such findings;
- Identify interesting topics in your chosen field of concentration;
- Plan for conducting a study in your chosen field of concentration;
- Communicate effectively with professionals in your chosen field of concentration.

SPECIFIC CONCENTRATUION IN COMPUTER NETWORKING AND SECURITY

ACC680 "Research Seminar in Accounting " accommodates a multitude of concentrations. The following particulars are intended to be for students interested in the general areas of (1) computer networking, and (2) electronic commerce security and computer security within the context of accounting and auditing. The technologies enabling each area will be introduced.

SPECIFIC OBJECTIVES OF THIS CONCENTRATION

By the end of this course, you should be able to:

- Evaluate capabilities and limitations of various communications systems (NSA 4001 Requirements A1b);
- Understand information security concepts and technologies (NSA 4001 Requirement C1d);
- Analyze computer networks used in transmitting critical business and accounting information (NSA 4001 Requirement B1f);
- Communicate effectively with systems professionals on specification, design and implementation of accounting information systems distributed over a network.

TEXTBOOK

Required Computer Networking: A Top-Down Approach Featuring the Internet (KR), J. Kurose and K. Ross, Addison Wesley 2003. ISBN 0-201-97699-4. Online version of the KR book is available at the following URLs:
http://gaia.cs.umass.edu/kurose/Contents.htm
http://wps.aw.com/aw_kurose_network_3

Recommended Java How to Program, Harvey Deitel, Paul Deitel, 4th ed (2002) Prentice Hall. ISBN: 013341517

Multithreading is an essential technique for implementation of network programming. Deitel and Deitel explain this technique well in one chapter (called Multithreading). You should refer to examples in that chapter. Threads are also covered in the tutorial page at Sun: http://java.sun.com/docs/books/tutorial/essential/threads/index.html

Since examples of network programming in Java will be introduced in the course, students should visit the following web page to gain a good understanding of the materials in the first week:
http://www.javasoft.com/docs/books/tutorial/networking/index.html

EXAMPLES OF RESEARCH PAPER TOPIC

Each student should write a 15 page individual research paper on a topic relevant to the focus of this course. The following topics are suggested. For implication of information technology on accounting in general, refer to the AICPA web page http://www.toptentechs.com. ***Do not use any materials published before Jan 1, 2000.***

1. How is computer networking relevant to accounting? Review and summarize accounting research in computer networking.
2. How is information and computer security relevant to accounting? Review and summarize accounting research in security.
3. Classify and map all AIS research onto a hierarchy. How is computer networking and security related to this hierarchy?

4. Review and summarize academic literature and the public press in AIS.
5. Write programs to demonstrate variation of network delays at different hours of the day. Using an atomic clock server, report delays through TCP versus UDP.
6. Write programs to demonstrate client-server programming for audio and video transmission using UDP.
7. Research on the future of differentiated services (Diffserv) as an Internet architecture.
8. Research on the future developments of computer networking.
9. Research on the future developments of information and computer security.
10. Design an application layer protocol for transmitting XML business documents (e.g. purchase order, invoice, etc).
11. Demonstrate using socket programming a simple protocol for transmission of purchase order.
12. Assets can be confirmed with certainty, but some liabilities could remain hidden until after a business decision is made. A better infrastructure is needed for the auditor to more accurately determine all outstanding liabilities, and for the investor to better assess the financial health of a company. Because a single borrower may borrow from any lender, liability information is not centrally stored but widely distributed. Undeclared liabilities hidden in the records of one of thousands of lenders could become unwelcome surprises to the investor. Communication technologies, including network architecture and application protocol, hold the promise for an automated system to more accurately and efficiently reconstruct the total liability picture from widely distributed data stores. Design the network architecture and protocol needed for this system.
13. Other interesting topics relevant to the focus of this course. Approval from instructor is needed.

GRADING

This course will consist of lectures, homework, a test, a research paper and a presentation. Students will be graded on a satisfactory/unsatisfactory basis based on performance in homework, test, research paper, presentation, and participation in class. **Homework is due and will be collected at the beginning of class. Late submissions will not be evaluated. Missed homework also cannot be made up.**

50 points: Research assignments
100 points: Test
100 points: Individual Research Paper and Presentation
50 points: Class Participation and Quizzes
300 points: Total

RESEARCH ASSIGNMENTS

Each week 3 students will be responsible for finding an article from a current Journal or magazine that pertains to the topic for the given week. The students should correspond with each other to determine what articles will be used. I do not want duplications of articles, therefore the 4 people presenting for the following week will be responsible to make sure there is no duplication. We will use the class list and go alphabetically down the list, you may switch with someone if a topic interests you but you must let me know. The article will be turned in with a 1 page review write up of how the article pertained to the current topic. The review should also have a critique of what you liked or didn't like about the article. We will go over these articles at the beginning of class.

ACADEMIC HONESTY

You MUST acknowledge your source with proper reference when you mention someone else's work. Whether you are directly quoting or indirectly paraphrasing, you MUST disclose the original authors. For instance, if you use/quote/paraphrase any idea from Fama's efficient market hypothesis, you should add (Fama, 1970) at the end of your corresponding sentence (or paragraph). Also make sure that you include Fama's 1970 paper in your list of reference. The same rule applies to shared information, including computer codes, obtained from the internet or from other published sources. For guidelines on how to cite other researchers' work, please refer to:

http://www.geocities.com/Athens/Oracle/4184/#conven

The above is the most important advice. While you are encouraged to read other published articles, you MUST clearly identify the portions (paragraph, sentences, etc) of the paper that represent your own work, and the portions that represent other authors' ideas. You must strictly observe the codes of academic honesty.

TENTATIVE SCHEDULE

	Topics	Chapters	HW
Jan 24	Computer Network & Internet;	KR 1	
Jan 31	Application Layer	KR 2	Arakelyan,Michael G Berley,Marisa B Bryant Jr,Edward T
Feb 7	Transport Layer	KR 3	Carlin,Jennifer L Christian,Shirley S Consolato,Christine L
Feb 14	Network Layer and Routing	KR 4	Damin,Adam M Doolittle,Matthias Foster Georgiou,Georgios P
Feb 21	NO CLASS		
Feb 28	Link Layer and LAN	KR 5	Griffin,John P Grigoryants,Mikhail V Grunes,Cornelia Harris,Kristen J Submit a detailed list of reference ***(Do not use materials published before Jan 1, 2000),*** and a draft describing preliminary findings (each in 1 typewritten page). Due Mar 28.
Mar 7	Wireless and Mobile Networking	KR 6	Krairi,Brahim Lai,Yi-Chen Martinez,Micaela McKown,Brandon T Writing individual research paper
Mar 14	Multimedia Networking	KR 7	Motler,Susan C Parker,Nicole K Schulman,Andrew E Writing individual research paper
Mar 21	Security in Computer Network	KR 8	Tao,Jin-Hung Vaccaro,Michael P Welsh,Raymond M Writing individual research paper
Mar 28	Network Management	KR 9	White,Nikki E Williams,Courtney C Williams,Heather A Writing individual research paper
Apr 4	NO CLASS		
Apr 11	Review Class		Writing individual research paper
Apr 18	Test		
Apr 25	Presentation		
May 2	Presentation		Research paper due.