CSCI 581 – Computer and Network Security (Fall 2014)

(Last updated: August 24, 2014)

INSTRUCTOR

Instructor: Jinoh Kim, Ph.D.
Office: JOUR 207
Office hours: M/T/R 10:00AM-12:00PM, T 1:00PM-3:00PM, or by appointment
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CLASS MEETING

Location: EDS 127
Time: R 4:30–7:10PM (3 credits)

COURSE DESCRIPTION

This course provides key concepts in computer and network security. Topics include cryptography including symmetric/asymmetric ciphers, cryptographic hash functions, message authentication codes, and digital signatures; mutual trust including key distribution and user authentication protocols; network and Internet security including transport security and IP security; and network system security including firewalls and intrusion detection systems.

EXPECTED STUDENT LEARNING OUTCOMES

- Be able to define basic computer and network security principles.
- Be able to evaluate applied cryptography techniques including symmetric ciphers, public key encryption, hash functions, and digital signatures.
- Be able to state mutual trust methods including key distribution and user authentication protocols.
- Be able to state network and Internet security techniques including transport security and IP security.
- Be able to explain system security tools for network security including firewalls and intrusion detection systems.

PREREQUISITES

- CSCI 525 Networking 1 or equivalent, or instructor's permission required

COURSE MATERIAL:

- **[WN] Network Security Essentials: Applications and Standards,** William Stallings, 5th edition, Prentice Hall, ISBN 0133370437, 2013.

EVALUATION

Homework	30%
Midterm Exam	30%
Final Exam	40%

GRADING SCALE

A	90-100
B	80-89.x
C	70-79.x
D	60-69.x
F	Below 60

LATE POLICY

The deadline for any assignment can be extended with a 15% penalty per day. No deadline can be extended by more than two days. Assignments will NOT be accepted 48 hours after the due date.

MAKEUP POLICY

There will be no makeup exams in general. Makeup exams may be given to students under extreme circumstances, such as hospitalization, serious injury, death in the family, etc, with prior notification *and* valid documents.

COLLABORATION POLICY

Students are encouraged to talk to each other, to the instructor, or to anyone else about any of the assignments. Any assistance, though, must be limited to discussion of the problem and sketching general approaches to a solution. *Each student must write out his or her own solutions to the homework*. Consulting another student's or group's solution is prohibited, and submitted solutions may not be copied from any source. These and any other form of collaboration on assignments constitute cheating. If you have any question about whether some activity would constitute cheating, please feel free to ask.

ACADEMIC INTEGRITY

Your commitment as a student to learning is evidenced by your enrollment at Texas A &M University-Commerce. "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedure, Conduct). All phones, pagers, and other communication devices are to be turned off or place on silent mode during class. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. *Anyone cheating will receive a zero on the work they are doing, and subsequent cheating will result in a failing grade.*

STUDENTS WITH DISABILITIES

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment

that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library, Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu

BASIC TENETS OF COMMON DECENCY

"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (Student's Guide Handbook, Policies and Procedures, Conduct.) This means that rude and/or disruptive behavior will not be tolerated.

SMOKE, VAPOR & TOBACCO FREE ENVIRONMENT

University Procedure 34.05.99.R1 now prohibits the use of vapor/electronic cigarettes, smokeless tobacco, snuff and chewing tobacco inside and adjacent to any building owned, leased, or operated by A&M – Commerce.

DISCLAIMER

This syllabus is meant to provide general guidance of what to expect from this course. The instructor reserves the right to make changes as appropriate based on the progress of the class. All changes made to this syllabus during the semester will be announced. This document has been posted electronically. If you print a copy of it, please be sure to consult the last modified date of the online version to verify that your printed copy is current.

COURSE SCHEDULE (TENTATIVE):

Week	Content	Reading
1 (8/25)	Course introduction and overview Security overview	[WN] Ch1
2 (9/1)	TCP/IP overview	Appendix D
3 (9/8)	Symmetric encryption Block and stream ciphers	[WN] Ch2
4 (9/15)	Hash and message authentication Public-key cryptography and digital signature	[WN] Ch3
5 (9/22)	Key distribution User authentication	[WN] Ch4
6 (9/29)	Transport-level security HTTPS, SSH	[WN] Ch6
7 (10/6)	Wireless network security	[WN] Ch7
8 (10/13)	Midterm Exam	--
9 (10/20)	Email security PGP, S/MIME	[WN] Ch8
10 (10/27)	Malicious software 1 Propagation, payload	[WN] Ch10
11 (11/3)	Malicious software 2 Countermeasures, DDoS	[WN] Ch10
12 (11/10)	Intrusion detection Password management	[WN] Ch11
13 (11/17)	Firewalls	[WN] Ch12
14 (11/24)	No class (Thanksgiving holiday)	--
15 (12/1)	Advanced network security topics	
16 (12/8)	Final Exam	--