

CSCI 563 – Fundamentals of Information Security

(Spring 2014)

(Last updated: November 7, 2013)

Instructor: Jino Kim, Ph.D.

Office: JOUR 217

Office hours: M/T/R 10:00a-noon, T/R 1:00p-3:00p, or by appointment

Phone: 903-468-6084, **Fax:** 903-886-5404

Email: Jino.Kim@tamuc.edu (Please indicate the course number in the email subject line)

Class Meeting:

Location: EDS 134

Time: R 4:30p–7:10p

Course Description:

This course provides an introduction to the study of computer security. Topics include confidentiality, integrity and availability; threats, vulnerabilities, attacks and countermeasures; access control; authentication; malicious logic; security policy, system models and mechanisms for computer security.

Expected Student Learning Outcomes:

- State the basic concepts in computer security, including security policies, security models, and various security mechanisms.
- Understand the issues of communications such as confidentiality, authentication, reliability, access control, and availability.
- State threats and sources of attacks in computer and network security.
- State main strategies to secure Windows and Linux computers.
- Explain how to use cryptography to protect information and how to choose an appropriate encryption method.

Prerequisites:

CSCI 152 Programming Fundamentals II, or instructor permission

Course Material:

- **[P&P] Security in Computing**, Charles P. Pfleeger and Shari Lawrence Pfleeger, 4th edition, Prentice Hall, ISBN 0132390779, 2006. (required)
- **[DG] Computer Security**, Dieter Gollmann, 3rd edition, Wiley, ISBN 0470741155, 2011. (reference)

Tentative Schedule:

Week	Content	Reading
1	Course introduction and overview	--
2	Security principles and goals <ul style="list-style-type: none">○ Vulnerabilities, threats, attacks, controls○ Security goals○ Methods of defense	[P&P] Ch1
3	Symmetric ciphers <ul style="list-style-type: none">○ Substitution ciphers○ Transpositions (permutations)○ DES and AES	[P&P] Ch2.1-2.6
4	Public key cryptography <ul style="list-style-type: none">○ Asymmetric ciphers○ RSA encryption	[P&P] Ch2.7
5	Hash, digital signatures, certificates	[P&P] Ch2.8
6	Program security <ul style="list-style-type: none">○ Buffer/stack overflow○ Time-of-check to time-of-use errors	[P&P] Ch3.1-3.2
7	Malicious code <ul style="list-style-type: none">○ Viruses, worms○ Covert channels	[P&P] Ch3.3-3.4
8	Midterm Exam	--
9	OS security <ul style="list-style-type: none">○ Memory and address protection○ File protection○ User authentication	[P&P] Ch4 & 5
10	Database security	[P&P] Ch6
11	Network security <ul style="list-style-type: none">○ Threats in network○ Network security controls	[P&P] Ch7.1-7.2
12	System security <ul style="list-style-type: none">○ Firewalls○ Intrusion detection systems○ Secure e-mail	[P&P] Ch7.3-7.6
13	Privacy in computing	[P&P] Ch10
14	Advanced topics in security	--
15	Project presentation	--
16	Final Exam	--

Evaluation:

Homework	20%
Project	30%
Midterm Exam	20%
Final Exam	30%

A	[90, ∞]
B	[80, 90)
C	[70, 80)
D	[60, 70)
F	[0, 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.

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.

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.