

Fall 2013

# CEG 7200-01: Information Security

Meilin Liu

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# ***Computer Engineering (CEG) 7200***

## ***Information Security***

**Fall 2013**  
**Wright State University**

### **Course Description**

This course gives a comprehensive study of security vulnerabilities in information systems and the basic techniques for developing secure applications and practicing safe computing. Topics include: Conventional encryption; Data Encryption Standard; Advanced Encryption Standard; Hashing functions and data integrity; Basic Number Theory; Public-key encryption (RSA); Digital signature; Security standards and applications; Access Control; Management and analysis of security. After taking this course, students will have the knowledge of several well-known security standards and their applications; and the students should be able to increase system security and develop secure applications.

### **Lecturer**

Meilin Liu

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### **Class**

- Tuesday/Thursday 05:00 pm - 06:20pm MC RC 145

### **Text**

*Cryptography and Network Security, Fifth Edition or Sixth Edition, by William Stallings, Prentice Hall.*

### **Reference**

*Information Security: Principles and Practice, Mark Stamp, ISBN: 978-0470626399, Publisher: Wiley, 2 edition.*

*Charles Pfleeger and Shari Pfleeger, Security in Computing, Third Edition, Prentice Hall, 2003.*

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**Prerequisite:** Computer Organization (CEG 3310), and Data Structures and Algorithm (CS 3100) or with the permission of the instructor

### **Required Work (Subject to change)**

Homework	15% (5 to 6 homeworks)
Quizzes	10% (5-6 quizzes)
Project	25% (3 to 4 projects)
Midterm	20%
Final Exam	30%

### Grading

The base scale is: A: 90-100, B: 80-89, C: 70-79, D: 60-69, F: 0-59. This is the highest requirement that will be used. The scales may be lowered or revised if necessary.

### Schedule

(The schedule may subject to change.)

Week	Contents	Reading
1	Overview of Security; Common Security Attacks	Chap1
2	Conventional Cryptography	Chap2
3	Block Ciphers and DES	Chap3
4	Introduction to Number Theory	Chap8
5	Introduction to Number Theory	Chap8;chap4
6	Public Key cryptography, RSA	Chap9
7	Diffie-Hellman Key Exchange System; Introduction to Finite Fields	Chap10;chap4
8	Introduction to Finite Fields; <b>MIDTERM</b>	chap4
9	Advanced Encryption Standard	Chap5
10	Hash Functions & Secure Hash Algorithm	Chap11; Chap12
11	Data Integrity & Digital Signature	Chap13
12	User Authentication	From reference books
13	Access Control; Security Models	From reference books
14	Intrusion Detection	Chap20
15	Intrusion Detection, Review	Chap20
	<b>Final Exam: December 10, 2013 (Tuesday), 5:45 – 7:45pm</b>	

### Policies and Notes

- **Attendance:** Attendance is not required, but class participation is important. For your own sake, you should not miss any of the classes. If you are not a regular attendee, it will be your responsibility to seek out what material was covered in the lecture and learn it. Most of my exam questions will be taken directly from ideas covered during the lecture, so it greatly helps if you attend! Pop up quizzes will be given. If you miss a class, you might also miss a pop up quiz.
- I will utilize Pilot ([pilot.wright.edu](http://pilot.wright.edu)) to post updates to the course, solutions, assignments, announcements, schedule, etc. Get in the habit of checking it regularly.
- If you are going to miss an exam, for any reason, discuss it with me in advance. If it is an emergency situation, please notify me as soon as possible.
- A penalty of 10% deduction each day for late submission of homework will be given and after 5 days, 0 point will be given.