



CSC 570C: Wireless Security

Credit Hours: 4

Term Year: Fall 2008

Classroom & Time: UHB 2008, Tuesday & Thursday 8:00 p.m. – 9:40 p.m.

Instructor: Dr. Chung-wei Lee

Office: UHB 3112

Office Hours: Tuesday and Thursday 2:00 p.m. – 3:30 p.m.

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Course Description

This course includes a study of the vulnerabilities and solutions of wireless data networks. Emphasis is placed on learning various WLAN attacks, how new protocol standards (e.g., IEEE 802.11i or Wi-Fi Protected Access 2) and enhanced software/hardware systems can protect WLANs. Topics include wireless network discovery, wireless attacks, monitoring techniques, wireless security infrastructures, protocols, implementations, and advanced subjects such as security in wireless mobile ad hoc and sensor networks.

Course Objectives/Learning Outcomes

Upon completion of the course, students should be able to:

1. understand the fundamental wireless security principles;
2. understand different types of wireless attacks;
3. understand key defense mechanisms for wireless data networks;
4. examine alternative design choices and assess their relative merits.

Reference Books

1. *CWSP Guide to Wireless Security*, by Mark Ciampa, Course Technology, 2006, ISBN-10: 1418836370, ISBN-13: 978-1418836375.
2. *Real 802.11 Security: Wi-Fi Protected Access and 802.11i*, by Jon Edney and William A. Arbaugh, Addison-Wesley Professional, 2004, ISBN-10: 0321136209, ISBN-13: 9780321136206.
3. *Cryptography and Network Security* (4th edition), by William Stallings, Prentice Hall, 2006, ISBN-10: 0131873164, ISBN-13: 9780131873162.
4. *Security in Computing* (3rd Edition), by Charles P. Pfleeger and Shari Lawrence Pfleeger,

Prentice Hall PTR, 2002, ISBN-10: 0130355488, ISBN-13: 978-0130355485.

5. *Wireless Communications & Networks* (2nd edition), by William Stallings, Prentice Hall, 2005, ISBN: 0131918354.
6. *Data Communications and Networking* (4th edition), by Behrouz A. Forouzan, McGraw-Hill, 2007, ISBN-13: 978-0073250328.
7. *Computer Networking: A Top-Down Approach Featuring the Internet* (3rd edition), by James F. Kurose and Keith W. Ross, Addison Wesley, 3rd edition, 2004, ISBN: 0321227352.

Class Announcement/Note/Schedule

Class announcements, lecture notes, and schedule will be posted on UIS Blackboard system. Students are required to visit course website frequently to see the latest class information.

System/Software Requirements

- *Blackboard system*: Students must have an account for the UIS Blackboard system. For assistance, please send email to otel@uis.edu or call 217-206-7317.
- Microsoft PowerPoint, Microsoft Word, Adobe PDF Reader

Methods of Evaluation

There will be two exams (midterm and final), pop quizzes, and one programming project or research literature report.

- **Midterm Exam** (25%, symbol: *EM*): closed book/note (during the week of October 14, exact date to be announced).
- **Final Exam** (40%, symbol: *EF*): comprehensive, closed book/note, December 18 (Thursday) at 6:30 p.m.
- **Pop Quizzes and Attendance** (10%, symbol for the i^{th} quiz/attendance: *Qi*): pop quizzes will be given and attendance will be taken **without** prior warning.
- **Programming Project OR Research Literature Report** (25%, symbol: *PR*): students can choose to either implement a programming project or write a research literature report. The topic must be relevant to this course and **approved by the instructor**.

Grading

The subscript ‘*x*’ refers to student X’s score, and the subscript ‘*max*’ denotes the maximum points for that item. Then the *weighted_total* is calculated as follows:

$$\begin{aligned} \text{Weighted_Total} = & (EM_x / EM_{\max}) \times 25 + (EF_x / EF_{\max}) \times 40 \\ & + (\sum Qi_x / \sum Qi_{\max}) \times 10 + (P_x / P_{\max}) \times 25 \end{aligned}$$

Typically, final letter grades are assigned based on your *weighted_total* point:

	<i>Letter Grade</i>	<i>Weighted_Total</i>
A range	A	93.0 and above
	A-	90.0 – 92.9
B range	B+	87.0 – 89.9
	B	83.0 – 86.9
	B-	80.0 – 82.9
C range	C+	77.0 – 79.9
	C	73.0 – 76.9
	C-	70.0 – 72.9
D range	D+, D, D-	60.0 – 69.9
U range	U	0.00 – 59.9

Expectations and Policies

- **Class participation/attendance:** Students are expected to attend all scheduled class sessions, to carry out all assigned work, and to take examinations at the time designated by the instructor.
- **Absence from exam:** If a student fails to take the midterm exam or the final exam in the specified time period, a make-up exam will **not** be administered unless he/she informs the instructor **in advance** AND has valid medical reasons that can be verified with a genuine letter from a medical doctor. (Note: Questions in make-up exams will be **different** from the original ones.)
- **Absence from pop quiz:** No make-up quizzes will be administered.
- Students with no record of absence from exams and quizzes may receive special considerations when letter grades are given at the end of semester.
- **Late Policy:** Penalty for late work is 20% per **calendar day** late.
- **Academic Honesty:** Under no circumstances will acts of academic dishonesty be tolerated. All your work in this course must be your own. Otherwise, you will be violating the rules of professional conduct and your actions will be regarded as plagiarism/cheating. Plagiarized assignments or tests, whether given or received, will receive no credit (grade of 0), which may result in receiving a failing grade for the course. The online document “Policies and Procedures Regarding Academic Honesty” (<http://csc.uis.edu/lager/honesty.html>) explains what constitutes plagiarism/cheating. Please read this document thoroughly.

In addition, I fully support the UIS policy on Academic Integrity, which states, in part: “Academic integrity is at the heart of the University’s commitment to academic excellence. The UIS community strives to communicate and support clear standards of integrity, so that undergraduate and graduate students can internalize those standards and carry them forward in their personal and professional lives. Living a life with integrity prepares students to assume leadership roles in their communities as well as in their chosen profession. Alumni can be proud of their education and the larger society will benefit from the University’s contribution to the development of ethical leaders. Violations of academic integrity demean the violator, degrade the learning process, deflate the meaning of grades, discredit the accomplishments of past and present students, and tarnish the reputation of the University for all its members.”

Academic sanctions in this class will range from receiving no credit (grade of 0) on the assignment to a failing grade in the course with a transcript notation of academic dishonesty. A report of academic dishonesty will be sent to the Office of the Provost. You are responsible for understanding and complying with the UIS Academic Integrity Policy (<http://www.uis.edu/campussenate/AcademicIntegrity.htm>).

Accommodations Statement

Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to be unavailable. All accommodations must be approved through the Office of Disability Services (ODS) in the Human Resources Building (HRB), Room 80, 217-206-6666.