

COMP620 Information Privacy and Security

Fall Semester 2010

Graduate Syllabus

Instructor: Dr. Kenneth A. Williams

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office hours: MWF 8:30 to 9:00, 11:00 to 12:00, 3:00 to 4:00, T 3:30 to 5:00, F 4:00 to 5:00

other times by appointment

Required Text: *Computer Security: Art and Science*, by Matt Bishop, Addison-Wesley Publishing, 2003, ISBN: 0201440997

Lectures: Monday, Wednesday and Friday 2:00pm – 2:50pm McNair 129

Communication: The web page for this class is <http://williams.comp.ncat.edu/comp620>

Assignments and information will also appear on the University's online Blackboard system,

<http://blackboard.ncat.edu> Email messages will be sent to the student's A&T email address. It is the student's responsibility to regularly check their A&T email account.

Description:

3 credits

This course examines the security and privacy issues associated with information systems. There are cost/risk tradeoffs to be made. Discussed are topics such as technical, physical, and administrative methods of providing security, access control, identification, and authentication. Encryption is examined, including Data Encryption Standards (DES) and public key crypto-systems. Management considerations such as key protection and distribution, orange book requirements, and OSI data security standards are covered. Privacy legislation is covered, as is current cryptographic research.

The topics to be covered include:

Authentication

Buffer overflow

Computer forensics

Cross site scripting

Denial of Service

Encryption

Firewalls

Privacy issues

Secure software development

Security policies

Security standards

SQL injection

URL modification

Goals: Upon completion of this course, the student should be able to:

1. Secure a system against common threats.
2. Develop software that avoids known security threats.
3. Develop software systems that use private information while avoiding unnecessary release of information.

Response clickers: This course will use response clickers during the lecture. Response clickers will be loaned to the students for the semester. Each student will have their own response clicker and should bring it to every lecture. The response clickers will be used to provide input during the lectures.

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Grading : A student's grade in the class will be based on their performance on the exams, quizzes, programs and homework assignments. All work will be graded on a numerical scale from 0 to 100. The final grade will be the weighted sum of all work using the following weights:

assignments and quizzes	20 % combined
3 exams	20 % each
final exam	20 % Tuesday, December 7, 10:30am – 12:30pm

The lowest homework or quiz grade will be discarded. Homework must be turned in at the beginning of class on the assigned day for full credit, unless accompanied by a valid excuse. Homework turned in within one day of the assigned time will be penalized 20%. Homework turned in within two days of the assigned time will be penalized 25%. **No homework will be accepted after two days. Students who are absent** during a class period when a test is given, **will receive a score of zero** unless previous arrangements are made or a valid written excuse is presented.

Final letter grades will be based on the following scale:

A: 80 to 100 B: 70 to 80 C: 60 to 70 D: 50 to 60 F: less than 50

In addition to the normal assignments that contribute to the final grade, there may be several optional "Challenge Problems". The "grade" for the challenge problems is not included in determining the final total score. If a student's final total score is **close** to a higher letter grade (e.g. a student has a final total score of 79.8), the student *may* be given the higher grade if they have properly completed a sufficient number of the challenge problems.

Students will be allowed one and only one 8½ by 11 inch page of notes during the exams. Both sides of the note page can contain information as small as the student desires. You are not allowed to use more than 187 square inches of paper surface to hold your notes. Any additional pages, fold outs, flaps or other means of extending the page of notes will be considered cheating.

Attendance: Students are expected to attend all lectures. The lectures introduce the class material. Some material presented in the lectures is not covered in the text. Students are responsible for all class material covered or assigned in lectures.

Cheating: Instances of cheating will be handled according to departmental policy. Cheating covers any case in which a student has received unauthorized aid in his/her performance that contributes to a course grade or submits material contributing to a course grade with the intent to deceive the instructor or grader. If the unauthorized aid includes help from another student, then that student is considered to have cheated as well. Students are expected to submit assignments that are entirely their own work. A common example of cheating is to copy another person's program or homework assignment.

If a student cheats on a homework assignment, then he/she will receive a grade of zero (a grade of F) for that item as will anyone assisting him/her in an unauthorized way. If a student cheats on an exam or the final, he/she will receive a failing grade for the class. All cases of cheating will be reported to the Director of Graduate Studies. When a student cheats for the second or more time in any Computer Science class, he/she will receive an F in the class in which the most recent case occurred and will be referred to the University authorities for disciplinary action.

Special needs: Students with special needs (e.g. hearing, vision, etc.) should inform the instructor at the beginning of the semester.

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Class Schedule

Monday, August 16 Introduction read chapter 1	Wednesday, August 18 Security Principles	Friday, August 20 Encryption read chapter 9
Monday, August 23 Encryption read chapter 10	Wednesday, August 25 Encryption signing HW	Friday, August 27 Encryption signing HW due
Monday, August 30 Cryptanalysis read chapter 11	Wednesday, September 1 Digital Money & Steganography	Friday, September 3 Stack overflow
Monday, September 6 <i>Labor Day Holiday</i> <i>(no class)</i>	Wednesday, September 8 Stack overflow	Friday, September 10 Stack overflow lab
Monday, September 13 Computer Forensics	Wednesday, September 15 review	Friday, September 17 Exam 1
Monday, September 20 Authentication read chapter 12	Wednesday, September 22 Authentication	Friday, September 24 Social Engineering read section 1.7
Monday, September 27 Access Control read chapter 15	Wednesday, September 29 Network overview	Friday, October 1 Denial of Service
Monday, October 4 Firewalls	Wednesday, October 6 Firewalls	Friday, October 8 Firewall lab
Monday, October 11 Java client side security	Wednesday, October 13 Security policies read chapter 5	Friday, October 15 Security policies read chapter 6
Monday, October 18 <i>Fall Break</i> <i>(no class)</i>	Wednesday, October 20 review	Friday, October 22 Exam 2
Monday, October 25 Database security	Wednesday, October 27 SQL injection	Friday, October 29 SQL injection lab
Monday, November 1 URL modification	Wednesday, November 3 SOA and web services	Friday, November 5 JavaScript & DOM
Monday, November 8 JavaScript & DOM	Wednesday, November 10 Cross site scripting	Friday, November 12 Cross site scripting lab
Monday, November 15 Secure SE read chapter 28 & 29	Wednesday, November 17 Security Testing read chapter 23	Friday, November 19 Privacy issues
Monday, November 22 Privacy issues	Wednesday, November 24 <i>Thanksgiving Holiday</i> <i>(no class)</i>	Friday, November 26 <i>Thanksgiving Holiday</i> <i>(no class)</i>
Monday, November 29 review	Wednesday, December 1 Exam 3	Friday, December 3 Final review
Tuesday, December 7 Final Exam 10:30am – 12:30pm		