COMP 7370 Advanced Computer and Network Security

Spring 2011

Instructor: Dr. Xiao Qin

Tuesday and Thursday 11:00am - 12:15pm, Ramsy 201
Office hours: Tuesday and Thursday 8:00am-9:00am

Class Web Page

Announcements are posted on the class web page:
http://www.eng.auburn.edu/~xqin/courses/comp7370

Handout, assignments, and important course information will be posted periodically on the class web page, which you have to regularly check.

Prerequisite: COMP 6370 Computer and Network Security or consent of instructor.

Course Information

In this graduate class, students are expected to understand and contribute to research trends in the arena of computer and network security. To achieve this goal, we will address advanced topics including, but not limited to, cryptography, design principles, access control, security policies, key management, assurance, malicious logic, vulnerability analysis, network security. This course will be research intensive, aiming at deriving practical and achievable ground rules for secured computer and networked systems. Each student is expected to do a project including a written report and an in-class presentation on a topic to be arranged with the instructor. You will be expected to collaborate with other students toward the completion of the research project related to computer and network security.

Objectives

Students who have completed this course should be capable of doing the following:

- Understand fundamental issues in computer and network security
- Understand reasons for policies, settings, and configurations in the practicum.
- Improve technical writing and oral presentation skills.

Textbook

There are no texts for this course. Handouts, book chapters, and papers will be used as supplement course material. The course material will be posted online.

Topics Covered (These topics may change)

- cryptography,
- design principles,
- access control,

- security policies,
- key management,
- assurance,
- malicious logic,
- vulnerability analysis,
- network security.

Assessment

- Exams: Midterm Exam, Final Exam
  Exams will be closed book, closed notes. Questions will be derived from lectures, material taught only in class, and from assignments. Question format will be mixed.

- Short Homeworks and Activities: 2-3 homeworks
  These activities will be take-home in nature and designed to reinforce concepts taught in class. An electronic copy must be submitted through the BLACKBOARD system. Generally, these assignments are designed to be low-risk in the sense that they are designed to assess thinking and effort, rather than to strictly punish errors.

- Individual Research Projects: 1-2 Lab Assignments
  There will be one to two laboratory assignments. The lab assignment solutions will be submitted in C, C++, or java code. All projects should be made to compile under a compiler on Linux. You may use any development platform or compiler, but your projects will be graded ONLY on compilers running on Linux. If your project does not work in that environment, you will NOT get credit. Always test it yourself in the lab (shop 3)!

Note: Individual Projects will be graded as follows (The criteria may change):

- Analysis, Design, and Testing Documents: 30%
- Adhering to coding style: 10%
- Program meets specifications and implements key features correctly: 60%

Exams and Grading

Mid-term Exam	20%
Final Exam	20%
Homework Assignments	15%
Presentation	15%
Project Assignments	30%

Scale

Letter grades will be awarded based on the following scale. This scale may be adjusted upwards if it is necessary based on the final grades.

A [90~100], B [80~90], C [70~80], D [60~70], F [0~60]

Attendance

Class attendance is mandatory. This is a graduate class; therefore, students will have to actively participate in class. It is believed that if you miss many classes (more than 6), there is a strong likelihood that you will not pass the class. Please notify me in advance if you will attend conferences, research meetings, or the like.

Getting Help

Assignments may prove challenging and time-consuming. You are always welcome to bring questions concerning labs to the class, as well as to office hours. A good strategy is to always start early on projects, so that if you run into difficulties, you can get help as soon as possible. I will do my best to answer e-mails concerning labs within 48 hours of receiving them; however, I do not guarantee that I will always have time to debug code via e-mail (I prefer not to do so). For time-consuming problems dealing with code, office hours are always preferable. I will not help debug code via e-mail on the day an assignment is due.

Reading

Students are expected to read assigned papers.

Project Due Dates

Projects will be submitted through Blackboard. Projects will always be due at 11:55 pm on the due date. Late assignments will receive a grade of zero (0) Deadlines will be made as generous as possible to a priori take into account illness, other courses, Acts of God, and nearly all conceivable excuses. If you have a documented illness preventing you from completing your assignment, you may submit all of your partial work and request an extension. This extension is not automatic.

Office Hours

Dr. Qin will have office hours on Tuesday and Thursday at 8:00-9:00am in his office (3101E Shelby Center). To get the most out of office hours, it is recommended to send an email in advance.

Cheating

If you make use of ideas obtained from previous work of another person, you must give credit by commenting in your report, explaining where you obtained ideas, what you have used, and who developed the ideas. If you use any code provided by another person, you must obtain permission from the copyright owner, then comment in your code, including a statement explaining where you found the code and who is the author. Failure to follow these rules will be considered a violation of the Academic Honor Code.

Special Accommodations

A student in need of special accommodations must bring that need to my attention within the first two weeks of class. The need must be properly documented.

Study Hints

- Ask questions in class.
- At the first sign of difficulty, talk to your instructor and teaching assistant.
- Form a study group and meet regularly.
- Construct chapter summaries noting concepts, definitions, & procedures.

Misc Related Material

- Technical Writing Resources
- Technical Journals: IEEE Transactions on Dependable and Secure Computing, ACM Transactions on Information and System Security
- Computer Security Conference Ranking and Statistic
- Instructor Wiley's C++ Tips
- gdb Tutorial