

CPSC310A Special Topics: Computer Security

Fall 2013

Instructor: Mr. Scotty Smith

Office Hours: Tuesday 2:00 - 4:00 pm

Friday 3:00 - 5:00 pm

Office: Trexler 365-B

E-Mail: chssmith AT roanoke DOT edu

Phone: 375-4962

Course Objectives

This course focuses on introducing the field of computer security. Securing data via physical and software mechanisms are of greater focus as our society moves towards an ever increasing digital world. Topics include cryptography, security models and policies, malicious software detection and prevention, and software security

Intended Learning Outcomes: At the end of the course the successful student will be able to

1. Evaluate a system against the three main tenants of computer security (Confidentiality, Integrity, and Availability).
2. Discuss the space/time/security trade-off facing many software companies.
3. Implement a cryptographic protocol for protection of sensitive information.
4. Write security policies, and evaluate their effectiveness.
5. Perform simple, classical exploits for known vulnerabilities.

Course Content

Prerequisites: CPSC 170, or permission from the instructor.

Text: *Computer Security Principles and Practice*, 2nd edition by William Stallings and Lawrie Brown, Pearson Publishing, 2012.

Assignments: In addition to regular reading, there will be four assignments during the semester. These assignments are designed to give the student the opportunity to put into practice the problem solving and programming skills they have learned. As such they are one of the most important aspects of the course both for student learning and for assessment. The assignments will vary in length and difficulty. You are encouraged to start on them immediately when assigned and get help from the instructor as needed.

Important: Assignments are to be done individually. You may ask class members and others for help with system questions (e.g., "How do I get a printout of my program?") or general information about a topic covered in class (e.g. "What is the symbol for boolean AND?") provided you can do so without divulging or receiving information specific to the solution of the assignment problem. You may not discuss any aspect of the design or coding of a program with anyone except the instructor. This policy will be strictly enforced; see the section on Academic Integrity below.

Paper and Presentation: Each student will be responsible for a 20 minute presentation at the end of the semester. These presentations can be research into a topic about computer security, or can be a presentation on an implementation project of your choosing. A written report will also be required. More information will be provided later in the semester.

Quizzes, Tests, and Exams: Short weekly quizzes will be given to make sure you are understand the concepts and are keeping up with the course work. Quizzes will be at the beginning of class. The lowest quiz grade will be dropped when final grades are calculated. No make-up quizzes will be given. Two tests and one comprehensive final exam will

be given.

Test Dates: Test #1 Monday, September 24

Test #2 Monday, October 29

CPSC310A Final December 12th (8:30 AM - 11:30 AM)

MCSP Conversations: The Department of Mathematics, Computer Science, and Physics (MCSP) is offering a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications, and other issues that face our disciplines. You are invited to attend all of these events but participation in **at least 3** is mandatory. Within one week of attending an event you must submit a one page paper reflecting on (not just summarizing!) the discussion. If you do not turn the paper in within the one week time frame you may not count that event as one you attended. The MCSP discussions are generally scheduled for Wednesdays at 5:30 or Tuesday or Thursday at 7:00. A schedule will be provided soon and will be posted on the course web page. Please discuss scheduling conflicts with the instructor ASAP.

Grading: Course grades are assigned based on the following weights and scale:

Grade Weights: quizzes.....10% tests.....30% final exam.....22%

assignments.....20% presentation.....15% co-curricular.....3%

Grade Scale: 93-100 A 83-86 B 73-76 C 63-66 D

90-92 A- 80-82 B- 70-72 C- 60-62 D-

87-89 B+ 77-79 C+ 67-69 D+ below 60 F

Course Policies

Academic Integrity: It is accepted that you have read and understood the standards for academic integrity at Roanoke College. All tests, exams, and assignments are to be the work of the individual student. You are encouraged to get help from the instructor if you need help with any aspect of the course including programs and assignments. Student assistants, tutors, and classmates may help you understand course concepts but may not show you how to do any particular aspect of an assignment. Copying someone else's work or turning in someone else's work is NEVER allowed. Using someone else's work or ideas as your own is plagiarism and an academic integrity offense. Examples of academic integrity violations include copying a program or part of a program (even one line) from someone else, writing code for someone else, telling someone else how to solve a problem or having someone tell you how to solve a problem. Discussion among students about programming projects should be limited to general concepts, not specific aspects of how to complete the work.

Computer Use Policies: All students must abide by the Computer Use policies of Roanoke College. Failure to do so will result in involuntary withdrawal from the course.

Attendance Policy: Class attendance is vital to your success in this course; material covered during missed sessions is the responsibility of the student. Conversations held in class illuminate the published class materials and are subject to evaluation on subsequent tests and quizzes. Moreover, quizzes and in-class assignments are not available for make-up.

Late Assignments: Unless otherwise specified, assignments are to be turned in before the start of class on the due date. If you anticipate being unable to meet a deadline, talk to me at least 24 hours before the deadline. In extenuating circumstances we may be able to make special arrangements. Please note that this must be discussed -- just sending an email does not automatically grant you extra time. If you have not been granted extra time ten percent per calendar day (24 hours) will be deducted for late work (including weekends and holidays); work more than 2 days late will receive no credit. Electronic "glitches" do not waive your responsibility to submit your work in a timely manner.

Make-up Policy: Everyone is expected to take tests, quizzes, and the exam at the scheduled time. Make-ups will be given only for legitimate, documented absences that the instructor has been notified of ahead of time. Make-up tests, if given, may be oral. There will be no make-up quizzes.

Electronic Devices: All cell phones and pagers must be turned off prior to entering the classroom or lab. The use of any electronic device during a test or quiz is prohibited. This includes cell phones, PalmPilots, Blackberrys, PocketPCs, and laptops. Any use of such a device during a test or quiz will be considered a breach of academic integrity.

Special Services: If you are on record with the College's Special Services as having special academic or physical needs requiring accommodations, please meet with me during my regular office hours or schedule an appointment as soon as possible.. We need to discuss your accommodations before they can be implemented. Also, please note that arrangements for extended time on exams and testing in a semi-private setting must be made at least one week before every test or exam. If you believe you are eligible for accommodations but have not yet formally contacted Special Services, please call 375-2248 or drop by the Center for Learning and Teaching in Fintel Library.