

**CMSC 355: Introduction to Computer and Network Security (3 credits)
Fall 2015**

Instructor: Robert Marmorstein, 395-2185, marmorsteinrm@longwood.edu

Lecture: 2:00-3:15pm TR, Ruffner 352

Office Hours: 10:00am-12:00pm MTWRF or by appointment, Ruffner 329

Course Web Site: <http://marmorstein.org/~robert/Fall2015/cs355.html>

I am also available outside my usual office hours. To make an appointment with me, please send e-mail to marmorsteinrm@longwood.edu

Course Description:

A course dealing with basic techniques in computer and network security. Topics covered include elementary cryptography, secure programs, malicious code, protecting of operating systems, database security, network security, security administration and legal issues.

Course Objectives:

The student will:

1. Encounter common security vulnerabilities and understand how they can be exploited, mitigated, or avoided.
2. Learn practical techniques for identifying and correcting security weaknesses in system and network configuration.
3. Learn safe programming techniques and best practices.

Textbook:

The textbook for this course is "Elementary Information Security", 2nd edition, Richard E. Smith, Jones and Bartlett Learning, ISBN: 9781284055931

Course Requirements:

Your grade will be determined by your performance on the quizzes and homework assignments (20% of your grade), lab projects (50%), the midterm exam (15%) and the final exam (15%).

Grading Policy:

Late work will not be accepted unless you have a medical condition or family emergency which prevents you from completing the assignment on time. In such circumstances, you do not need a doctor's note, but you must contact me by e-mail at least 12 hours before the assignment is due to explain the circumstances and arrange to make up the work.

Grading Scale:

Letter grades will be assigned using the following scale. Note that there is no grade of D- in this class.

	A: 91-100	A-: 90
B+: 89	B: 81-88	B-: 80
C+: 79	C: 71-78	C-: 70
D+: 69	D: 64-68	F: Below 64

Attendance:

Missing more than 10% of scheduled class time will result in loss of one letter grade. Absences for school events or illness may be excused if you make arrangements with me within 12 hours of the missed class. Students who miss more than 25% of classes, for any reason, may at my discretion receive an F for the course in accordance with Longwood policy.

Food and Drink:

Please do not eat in class. It distracts me and the other students. You may bring water or other non-alcoholic beverages to class. If you are not able to eat lunch at another time or have a medical condition that requires you to eat in class, I may be willing to negotiate an exception to this rule, but you must make arrangements with me in advance. Violations of this policy may be considered an unexcused absence.

Cell Phones and Laptops:

Cell phones, music players, and laptops must be turned off and put away during lecture, unless specifically noted at the beginning of class. Violations of this policy will be considered an unexcused absence. I will tell you in advance (usually by e-mail) if you need your laptop in class.

Honor Code:

You should consider all work for this class to be pledged work.

You may freely discuss homework problems with other students *as long as the answers you submit are in your own words and you have typed or written them down yourself. You may not copy answers to the problems from the Internet.*

Tests and quizzes must be completed entirely on your own. All tests and quizzes will be taken closed-book and closed-notes. You MAY discuss the laboratory projects subject to the following restrictions:

1. *You should type any commands or lines of code yourself.*

If you are helping someone else – keep your hands off the keyboard. I want to see that each of you can figure out what to type, so it's important that any file you turn in be something you generated on your own.

2. *Only discuss the project in general terms*

I want to see that you understand the concepts behind the lab well enough to figure out how to complete the labs. It's okay to discuss security vulnerabilities and threats in the abstract, but it's not okay to tell someone exactly what to type.

Infractions of this policy will be dealt with harshly under the Longwood Honor Code. A student convicted of an Honor Code offense involving this class will receive a grade of F for the course in addition to any penalties imposed by the Honor board.

Tentative Course Schedule:

Please check the course web site regularly for updated versions.

Week1 (Aug. 25-27)	Introduction, Physical Security, and Social Engineering (<i>Read Chapters 1 and 2</i>)
Aug. 31	Last Day to Drop (by 5pm)
Week 2 (Sept. 1-3)	Permissions and Authorization (<i>Read Chapters 3 and 4</i>)
Week 3 (Sept. 8-10)	File security (Chapter 5)
Week 4 (Sept. 15-17)	Authentication, Passwords, and Biometrics (<i>Read Chapter 6</i>)
Week 5 (Sept. 22-24)	Secure Programming, Buffer Overflows, and Memory Protection (<i>Read http://www.linuxjournal.com/article/6701</i>)
Week 6 (Sept. 29-Oct. 1)	Viruses and Malware (<i>Read Chapter 15 and</i> http://www.schillmania.com/content/entries/2009/ javascript-malware-obfuscation-analysis/)
Week 7 (Oct. 6 - 8)	Catchup, Midterm Review, Midterm Exam
Oct. 13	Fall Break
Oct. 14	Deadline to Withdraw without an F
Week 8 (Oct. 15)	Cryptography, Ciphers, and Cryptographic Hashes (<i>Read Chapters 7 and 8</i>)
Week 9 (Oct. 20-22)	Web and Database Security (<i>Read Chapter 16</i>)
Week 10 (Oct. 27-29)	Network Security, Virtual Private Networks, Availability, Spoofing, Black-hole Routing (<i>Read Chapters 10 and 11</i>)
Week 11 (Nov. 3-5)	Firewalls and Intrusion Detection (<i>Read Chapters 12 and 13</i>)
Week 12 (Nov. 10-12)	Wireless Security (<i>Read Chapter 14</i>)
Week 13 (Nov. 23)	E-mail Security and Spam (<i>Read Chapter 15</i>)
Nov. 26	Thanksgiving Break
Week 14 (Dec. 1-3)	Privacy and Ethics (<i>Read Chapter 17</i>)
Dec. 10	Final Exam (Thursday, 11:30am-2:00pm)