

**CMSC 355: Introduction to Computer and Network Security (3 credits)
Fall 2012**

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

Lecture: 12:00-12:50pm MWF, Ruffner 352

Office Hours: 2:00pm-3:00pm MTWRF or by appointment, Ruffner 329

Course Web Site: <http://marmorstein.org/~robert/Fall2012/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:

“Network Security Essentials: Applications and Standards”, 4th edition, William Stallings, Prentice Hall, ISBN: 9780136108054

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:

I expect you to attend class unless you are sick or engaged in a school sponsored sports event or extra-curricular activity. I will rely on your honor to enforce the attendance policy. As with the policy on missed work, you do not need a doctor's note, but you must contact me within 12 hours of the absence to explain your absence and arrange for any makeup work. In accordance with Longwood policy, missing more than 10% of scheduled class time to unexcused absences may result in loss of one letter grade. Missing more than 25% of class (whether excused or unexcused absences) may, at my discretion, result in a failing grade. If you miss work due to an unexcused absence, you may, at my discretion, receive a grade of 0% on the assignment.

Food and Drink:

I would prefer that you do not eat in class (it distracts me and the other students). You may bring water or other non-alcoholic beverages to class. I occasionally make exceptions to this rule for students who would otherwise miss lunch or have medical needs that require them to eat in class. If you feel that you need such an exception, you **MUST** make arrangements with me before you bring food to class. Violations of this policy will 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 you write down (or type) your own answers in your own words*. Tests and quizzes must be completed entirely on your own. All tests and quizzes will be taken closed-book and closed-notes. You may also 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 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. *You should consider all work in this class to be pledged work.*

Tentative Course Schedule:

Please check the course web site regularly for updated versions.

Week1 (Aug. 20-27)	Introduction, Physical Security, and Social Engineering (<i>Read Chapter 1</i>)
Aug. 27	Last Day to Drop (by 5pm)
Week 2 (Aug. 27-31)	Elementary Cryptography (<i>Read Chapter 2</i>)
Week 3 (Sep. 5-7)	Modern Ciphers and Cryptographic Hashes (<i>Read Chapter 3</i>)
Week 4 (Sep. 10-14)	Buffer Overflows, Secure Programs, and Memory Protection (<i>Read http://www.linuxjournal.com/article/6701</i>)
Week 5 (Sep. 17-21)	Viruses and Malware (<i>Read Chapter 10 and</i> http://www.schillmania.com/content/entries/2009/ javascript-malware-obfuscation-analysis/)
Week 6 (Sep. 24-28)	Catchup, Midterm Review, Midterm Exam
Week 7 (Oct. 1-5)	Authentication and Authorization (<i>Read Chapter 4</i>)
Week 8 (Oct. 8-12)	Web and Database Security (<i>Read Chapter 5</i>)
Oct. 9	Deadline to Withdraw without an F
Oct. 15-16	Fall Break
Week 9 (Oct. 17-19)	Network Security (<i>Read Chapter 8</i>)
Week 10 (Oct. 22-26)	Wireless Security (<i>Read Chapter 6</i>)
Week 11 (Oct. 29-Nov. 2)	Firewalls and Intrusion Detection (<i>Read Chapters 9 and 11</i>)
Week 12 (Nov. 5-9)	E-mail Security and Spam (<i>Read Chapter 5</i>)
Week 13 (Nov. 12-16)	Privacy and Ethics (<i>Read Online Chapter 13</i>)
Week 14 (Nov. 19)	Catchup and Review
Nov. 21-23	Thanksgiving Break
Week 15 (Nov. 26-30)	Catchup and Review
Dec. 4	Final Exam (Tuesday, 11:30am-2:00pm)