CS363: Information Assurance and Security

Instructor: Prof. Yanwei Wu
CS Department, WOU

September 23, 2017

Course Objectives:

This course provides an introduction to the fundamental principles and topics of Security. It will introduce cryptography, malware or virus, operating system security, attacks and preventions of protocols, and programming security. Students gain hands-on experiences via labs and projects.

Prerequisite: CS260 and CS271

Outcomes:

Upon completion of the course, students will be able to:

- Analyze the tradeoffs of balancing key security properties (Confidentiality, Integrity, and Availability).
- Demonstrate implementation and countermeasures of buffer overflow in c.
- Classify common input validation errors, and write correct input validation code.
- Demonstrate using c language to conduct network attacks.
- (option) Demonstrate using c language to conduct cryptographic analysis.

General Information:

All handouts and important information will be posted or notified.

Teaching Personnel:

	Instructor
name	Yanwei Wu
office	ITC 310-D
phone	89121(O)
email	wuya@wou.edu

Time and Location:

Start Date	End date	Time	ClassRoom	Midterm	Final

Textbook:

TextBook:	Computer Security: Principles and Practice, 3rd Edition By William Stallings, Lawrie Brown
ReferenceBook:	Hacking: The Art of Exploitation (ISBN 1-59327-007-0) By Jon Erickson

Papers and handouts will be posted on the course website or distributed on class.

Course Content:

Week1: Security Fundamental

Week2: C language & gdb Debugger —HW1 and/or Lab1

Week3: Memory Management

Week4: Buffer Overflow (stack-based) —HW2 and/or Lab2

Week5: Buffer Overflow (heap-based and other segments) (Midterm Exam)

Week6: OSI Overview

Week7: Network Sniffing —HW3 and/or Lab3

Week8: Denial of Service

Week9: TCP/IP Hijacking —HW4 and/or Lab4

Week10: Student Presentation

Week11: (Final)

We will mainly cover the topics listed above. And we will try to cover some other topics if time permits and there are enough students who are interested.

Grading:

There will be homework (or labs), one presentation, one on-class midterm, and one on-class final exam. They will count toward the grade as follows:

Homework (or labs)(40%), Presentation (10%), Midterm Exam (20%), Final Exam (30%).

	100%-92%	A	91%-90%	A-		
	89%-88%	B+	87%-82%	B	81%-80%	B-
Final Grade:	79%-78%	C+	77%-72%	C	71%-70%	C-
	69%-68%	D+	67%-62%	D	61%-60%	D-
	59%-0%	F				

The instructor reserves the right for some small changes of grading. Any variation will be made for the benefit of students. Contact the instructor if there is still a disagreement.

Plagiarism:

In this course you are encouraged to discuss the problems with your classmates. However, you are not allowed to work together on the final solution of the problems except in a group project. If we find similar solutions, it will be treated as cheating! You get zero on the cheated assignment if you are caught once in any form of the cheating. In addition, the violation will also be reported to the division and the university.

Disability:

Please contact the Office of Disability Service if you need further help. The information of ODS is following:
http://www.wou.edu/student/disability/
Phone: 503-838-8250
Email: ods@wou.edu

NOTES:

1. The instructor reserves the right to adjust the class schedule and grading policy according to the class progress.
2. It is the policy of the computer science department that you must receive a passing grade on the final exam (60% or higher) in order to pass the class.
3. If you are going to miss the class, please ask the student affairs office to send me an email. Otherwise, no excuse is accepted.
4. Exams or quizzes must be taken at the times and dates scheduled unless you make other arrangements with me at least 24 hours prior to the exam or the quiz. There are NO makeup exams or quizzes!!
5. The final is NOT reschedulable.
6. Laptops or pads are not recommended to bring to the class since they are not necessary unless you present your work.