

# CSC 495/CSC 583: Topics of Software Security

**Professor: Si Chen**

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**Office:** UNA 142 (25 University Ave.)

**Course Website:** <https://www.cs.wcupa.edu/schen/security/>

**Office Hour:**

Monday/Wednesday 1:00 - 3:00PM

Thursday 3:00 – 4:00 PM

Note: Office hours may have to be temporarily or permanently changed.  
Please email me in advance when you plan to come.

**Class Schedule:**

CSC 495-01 CSC 588-80	TuTh 4:25PM - 5:40PM	UNA 162
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**Course Contents:**

This course is primarily aimed at people interested in **software security**, **reverse engineering** and **low-level software**. Here is a brief listing of some of the topics discussed throughout this course:

- The legal aspects of reverse engineering.
- Assembly language for IA-32 compatible processors and how to read compiler-generated assembly language code.
- The general principles behind malicious software and how reverse engineering is applied to study such program.

**Textbook / Other Materials**

***No Textbook***

*Reference book:*

1. Randal E. Bryant, Davie Richard O'Hallaron, *Computer Systems: A Programmer's Perspective*, 3rd Edition, ISBN 978-0134092669
2. Kris Kaspersky, *Hacker Disassembling Uncovered*, 2nd Edition, ISBN 978-1931769648
3. Eldad Eilam, *Reversing: Secrets of Reverse Engineering*, 1st Edition, ISBN 978-0764574818.

**GRADING POLICY**

A[90-100], B[80-89], C[70-79], D[60-69], F[0-59]

<b>Attendance</b>	10%	See <u>CLASS ATTENDANCE POLICY</u>
<b>Reading Questions</b>	30%	3 reading questions, 10 points per assignment
<b>Lab</b>	30%	5 Reverse Engineering Lab (6 points each) with <b>extra 10% Bonus</b>
<b>Final Project</b>	30%	

**Note: No credit for unexcused late assignments.**

### STUDY GUIDELINES:

- The topic and paper explained in class are related to your reading question. Please keep it.
- Do assigned reading question. If you have any problems, please first check the examples and methods in your notes. If still cannot solve it, e-mail me or come to UNA 142 during the office hour.
- For the final project, creative solution is always welcome.

### **Expected Background**

- Basic programming concepts (e.g. complete Java I, II)
- Knowledge with the C programming language, including pointers, arrays, loops, function calls, etc.
- Familiar with Unix/Linux including the command-line shell and gdb
- Familiar with Intel x86 assembly language and architecture
- Familiar with web programming concepts (HTML, HTTP, TCP, network communications)

### CLASS ATTENDANCE POLICY

Being present includes your on-time, prepared presence. Being present also means handing in your assignments on time and demonstrating effort and engagement with the class and group work. Absence from class, having computer problems, running out of printer paper, etc., does not excuse a late assignment. Please assume technology, transportation, and your health may get in your way at every turn and plan accordingly.

**Unexcused** late arrivals / leaving early (15 minutes) are an **unexcused absence**. Notify your professors of **ANY** absence to see if they can be excused.

**Each unexcused absence > 1 reduces your course grade by 2 points; non-participation, including not completing non-credit homework, engaging in non-class activities, conversing during lectures, etc., reduces your course grade by 2 points each.**

### DISABILITIES

If you have a disability that requires accommodations under the Americans with Disabilities Act (ADA), please bring me your letter of accommodations and meet with me as soon as possible, so I can support your success in an informed manner. Sufficient notice is needed in order to make the accommodations possible. If you would like to know more about West Chester University's services for students with disabilities, please contact the Office of Services for Students with Disabilities at 610-436-3217. You can find out more information at [www.wcupa.edu/ussss/ossd](http://www.wcupa.edu/ussss/ossd).

### **ACADEMIC HONESTY**

The Computer Science Department has adopted the following policies in regard to academic dishonesty in Computer Science classes:

- A student found to be cheating in an assignment will receive zero for that assignment if it is his first offense in that class, but an F for the course if it is for his second offense in that class.
- A student found to be cheating in a test will receive the grade of F in that class.
- For the purposes of this document on cheating, every form or method of evaluation in a class will be considered as being of one of two types: an assignment or a test. Assignments include homework assignments, and short quizzes. Tests include final exams and major exams. An instructor has, subject to these guidelines, the discretion to determine the type of any other form of evaluation, such as a project, in his class.
- The term cheating is used throughout in the sense provided by the rules and regulations of West Chester University. (The following is taken from The Ram's Eye View of 1988-89.)

Cheating includes but not limited to:

- Plagiarism that is copying another's work or portions thereof and/or using ideas and concepts of another and presenting them as one's own without giving proper credit to the source.
- Submitting work that has been prepared by another person.
- Using books or other material without authorization while taking examinations.
- Taking an examination for another person, or allowing another person to take an examination in one's place.
- Copying from another's paper during an examination or allowing another person to copy from one's own.
- Unauthorized access to an examination prior to administration.

A student who has received the grade of F in a course because of cheating and who wants or is required to repeat that course may re-take that course only as a regularly scheduled course that is open to the student community in general. In exceptional circumstances, this condition may be revoked, but only by an explicit action to that effect by the full Computer Science Committee, and only then on a case by case basis.