Computer Security — CptS 427/527, 3 Credits
Washington State University, Tri-Cities
Fall 2013

Instructors: A. David McKinnon, Ph.D. mckinnon@tricity.wsu.edu
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Schedule: Monday/Wednesday 16:15-17:30
Tri-Cities, West 224; Pullman, EME B46

Office Hours: By appointment, typically either before or after class

Website: http://www.tricity.wsu.edu/~mckinnon/cpts427/

Prerequisites: CptS 360, Math 216, Certified major in CptS, CptE, or EE

Catalog Desc.: Computer security concepts, models and mechanism; encryption technology, formal models, policy and ethical implications

Required Text: Matt Bishop, *Introduction to Computer Security*, Addison-Wesley, 2005

Policies: *Academic Integrity*. As stated in the WSU Tri-Cities Student Handbook, "any member of the University community who witnesses an apparent act of academic dishonesty shall report the act either to the instructor responsible for the course or activity or to the Office of Student Affairs." The Handbook defines academic dishonesty to include "cheating, falsification, fabrication, multiple submission [e.g., submitting the same or slightly revised paper or oral report to different courses as a new piece of work], plagiarism, abuse of academic material, complicity, or misconduct in research." Infractions will be addressed according to procedures specified in the Handbook.

Code of Conduct: The ACM Code of Ethics and Professional Conduct and the IEEE Code of Ethics will serve as conduct guides for this class. In particular, all members of the class will be treated with respect and courtesy.

Accommodations for Disabled Students. Reasonable accommodations are available for students who have a documented disability. Classroom accommodation forms are available through the Disability Services Offices. If you have a documented disability (even temporary) make an appointment prior to the onset of the semester with the Disability Services Coordinator, Cherish Tijerina, 269 West Building (372-7352). You will need to provide your instructor with the appropriate classroom accommodation form during the first week of class. All accommodations for disabilities must be approved through the Disability Services Coordinator.

Safety. The Campus Safety Plan (http://safetyplan.wsu.edu) contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety. The University emergency management website (http://oem.wsu.edu/emergencies) provides campus safety and emergency information. The emergency alternative site (http://alert.wsu.edu) provides information about emergencies and communication resources WSU will use to provide warning and notification during emergencies.

Course Overview

This course introduces students to topics in computer security, both theoretical and practical. Students learn about common vulnerabilities that occur in systems, whether at the application, OS, or networking level and learn how systems are protected using cryptography and other techniques. Mechanisms for providing anonymity and privacy are also considered along with policy questions concerning these topics.

In particular, CptS 427/527 will cover the following topics:

- Introduction to Computer Security
    - Confidentiality, Integrity, Availability
- Information Assurance
- Cryptography
- Program Security
- Operating System Security
- Designing Secure Systems
- Administering Security
- Privacy/ Policy
- Legal and Ethical Issues in Computer Security

For details on the course schedule, please refer to the course scheduled on the class website.

Student Learning Outcomes

CptS 427/527 students will, at the successful completion of the course:

- understand confidentiality, integrity, and availability and be able to apply these core computer security concepts to computing systems design, implementation, and operation.
- understand the difference between computer security policy and computer security mechanisms and be able to apply both throughout the systems engineering lifecycle.
- use critical thinking and quantitative skills to identify and evaluate computer security issues, both personally and professionally.
- integrate good computer security practices into their personal and professional practices.
- communicate effectively on computer security issues due to technical knowledge and skills developed in this class.

Important Dates

August 19	First Day of Class
September 2	**Labor Day—All University holiday**
October 14	Mid-term Exam Review
October 16	Mid-term Exam (Chapters 1-10)
November 11	**Veteran's Day—All University holiday**
November 25-29	**Thanksgiving vacation**
November 18 & 20	Graduate Student Presentations
December 4	Final Exam Review, Last Day of Class
December 11	Final Exam (Comprehensive) — 3:10 PM - 5:10 PM

Grading Policy

The overall class grade will be broken down as follows:

CptS 427

- 25 % Assignments and Homework[1]
- 22 % Programming Exercises[1]
- 3 % Computer Security Classroom Discussion
  (Lead a five-minute classroom discussions on a (recent) computer security issue)
- 20 % Mid-term Exam[2]
- 25 % Final Exam[2]
- 5 % Discretionary points[3]

CptS 527

- 85 % CptS 427 Requirements
- 15 % Research Paper & Presentation

Grading Scale[4]	
A	> 93 %
A-	> 90 %
B+	> 87 %
B	> 83 %
B-	> 80 %
C+	> 77 %
C	> 73 %
C-	> 70 %
D+	> 67 %
D	> 63 %
F	>= 0 %

Unless otherwise specified, all assignments, projects, exams, and other work in this class shall be your own, individual effort.

Notes:

1 Late work will be penalized 20% per day, unless otherwise noted.

2 Makeup exams will not be given without prior authorization or written documentation verifying that the student was unable to take the exam as scheduled. Unexcused missed exams will earn a 'zero.' Work-related obligations and personal emergencies are included in the valid reasons for missing an exam.

3 Discretionary points will be awarded on the basis of class participation and professional conduct. Computer security requires both good written and oral communication skills. Discretionary points are intended to help encourage this via productive classroom discussions.

4 The grading scale is tentative. It will not be revised upwards, but may revised downwards at the instructor's sole discretion. (If everyone has a raw score over 93%, everyone will receive an 'A'. However, if the highest raw score is 88%, the scale will likely be revised downward so that an 'A' or 'A-' will be given.)

Assignments, Homework, and Programming Exercises

Assignments, homework, and programming exercises will be given out in class. Details about these assignments will be given in class and also posted on the class website. Late work will be penalized 20% per day, unless otherwise noted.

E-mail will be used for official communication in this class. Please check your e-mail.