

SECURITY ENGINEERING

CSC 459

Professor: [Kazimierz Kowalski, Ph.D.](#)
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Office-hours: TBA
Meeting: TBA

THIS IS A HYBRID COURSE.

At least 1/3 of the coursework is delivered through traditional lecture and 2/3 is delivered on-line using Blackboard and departmental web servers webserver. All exams will be taken in class during regular meeting time.

Prerequisite: **CSC311-Data Structures** or consent of instructor

Textbook:

Ross Anderson, [Security Engineering](#), John Wiley & Sons, Inc., 2001. ISBN: 0-471-38922-6

Course goals and objectives:

The goal of the course is to provide introduction to the design, implementation and management of systems that remain dependable in the face of malice, error or mischance. Topics include the tools, processes and methods needed to design, implement and test complete systems, and to adapt existing systems as their environment evolves. Specifically it includes cryptography, privacy, hardware tamper-resistance, firewalls, intrusion detection and prevention, and security policis.

Learning outcomes:

Upon completion of the course students will demonstrate the ability to: - remove spyware from desktops and servers,
- install host-based firewalls,
- identify company's security threats
- design security policy and its enforcement.

Course requirements:

There will be one midterm exams and an in-class final exam.
One software project, and one research project will be required.

Grading:

The weights of the various assignments are given below:

Midterm exam	30%
Final exam	30%
Software project	20%
Research project	20%

Completion of all exams, and projects is required to pass the course.

The following grading table will be used:

Score	94-100	91-93	88-90	84-87	81-83	78-80	74-77	71-73	68-70	64-67	61-63	0-60
Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Academic Integrity:

[Academic integrity](#) is of central importance in this and every other course at CSUDH. You are obliged to consult appropriate sections of [University Catalog](#) and obey all rules and regulations imposed by the university relevant to its lawful missions, processes, and functions.

Students with Disabilities:

California State University Dominguez Hills makes all of the Universities educational, cultural, social and physical facilities and programs available to students with disabilities. It is done through the [Disabled Student Services \(DSS\)](#) program which serves as a centralized source of information for students with disabilities and those who work with them. By providing support services, DSS assists students with disabilities in the enhancement of their academic, career and personal development.

Make-up policy:

No make-ups will be given!!!

Projects:

Unless stated otherwise, all projects are individual assignments and are expected to be the student's own work. You may engage in general discussions concerning the solution, but giving and receiving major sections of code is considered cheating. Projects must be ready by 3:00 PM on their assigned due date. Late projects will be penalized 5% per 24

hour period of lateness, up to 50%. No projects will be expected 2 weeks after the due date.

Software projects should be e-mailed as attachments (including source code as well as executable files and documentation - when appropriate) to [instructor: kkowalski@csudh.edu](mailto:kkowalski@csudh.edu). Documentation should contain: algorithm description, printout of the source code, application discussion, user manual.

Research projects should be e-mailed as attachments (including research essay and powerpoint presentation) to [instructor: kkowalski@csudh.edu](mailto:kkowalski@csudh.edu).

You will need to make a public statement of your results to the class. The overall grade will depend how well you show: **a**/involvement, **b**/exploration of the subject, **c**/understanding of the subject, **d**/conclusions communication.

Attendance and drop policy:

Students are expected to attend lectures, study text, and contribute to discussions. It is the student's responsibility to contact the instructor in the event a midterm exam is missed and to make arrangements before returning to class. Drops after ([Check Academic Calendar](#)) will reflect student's average. The student must initiate all withdrawal procedures. **Non-attendance does not constitute withdrawal and will result in F.**

.**You will be notified in class of any and all changes to this syllabus**

Tentative schedule (based on 15 weeks/45 hours of study)

Week	Material	Chapter
1	Definitions and Protocols	1, 2
2	Passwords	3
3	Access Control	4
4	Cryptography	5
5	Distributed Systems	6
6	Multilevel Security	7
7	Multilateral Security	8
8	Banking Security	9
9	Biometrics <small>__MIDTERM EXAM__</small>	13
10	Network Attacks and defense	18
11	E-Commerce Security	20
12	Privacy Protection:	20
13	Security Policy <small>__Research Project__</small>	21
14	Management Issues <small>__Software Project__</small>	22

FINAL EXAM: Tuesday, May 15, 2007 @ 7:00PM - 9:00PM

Software Projects (choose one)

1. Implement RSA encryption algorithm.
2. Implement Diffie-Hellman protocol
3. Implement keystroke dynamics password protection
4. Design and implement steganography using jpg, or mp3 files
5. TBA
6. Your own proposal.

On (or before) the due date you have to send me an e-mail containing, as attachments, source code as well as executable files and documentation - when appropriate. It would be beneficial if you could implement software project as a set of applets, install them on your website, and send an URL of the entry point to your html document showing the project in action.

Research Projects (choose one)

1. Password management.
2. The role of honeynets in intrusion prevention.
3. Privacy protection.
4. Distributed Denial-of-Service attacks.
5. Trojans, Viruses, and Worms.
6. Find and discuss vulnerabilities of selected university computers (www444.csudh.edu, csc.csudh.edu, mieszko.csudh.edu, etc).
7. Computer Forensic.
8. Users' authentication in online examinations.
9. Your own proposal.