College of Engineering and Computer Science (ECS)
Department of Computer Science (CPSC)
2023 Summer: May 30-June 28.

Course information

Course title:	Cybersecurity Foundations and Principles
Course code:	CPSC 253-01
Course number:	10309
Class meeting	Mon,Tue,Wed: 10:30am – 1:30pm

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Classroom:	RGC-019
Instructor:	Floyd Holliday
Office room:	CS-513
Email:	holliday@fullerton.edu
Office phone:	(657)278-7021
Office hours:	Half-hour immediately following the end of each lecture.
Final exam	June 28 at regular class time.

CSUF policy on many important subjects including final exam schedule, earthquake procedures, and many other subjects. Please record this URL for future reference:

http://fdc.fullerton.edu/teaching/syllabus.php

Course description exactly as found in the CSUF Catalog.

Title: Cybersecurity Foundations and Principles

Security goals, security systems, access controls, networks and security, integrity, cryptography fundamentals, authentication. Attacks: software, network, website; management considerations, security standards in government and industry; security issues in requirements, architecture, design, implementation, testing, operation, maintenance, acquisition and services. Course not available for Graduate Credit

Course prerequisites: (Computer Science major or minor) or a Computer Engineering major.

Textbook

Computer Security Principles and Practice, authors: Stallings and Brown, publisher Pearson Educational Company, date of last copyright: 2018. The ebook version of the text is better suited to the structure of this class than the hardcopy book. Ebooks are often sold online at the same stores that sell the hardcopy book.

Class website

https://sites.google.com/a/fullerton.edu/activeprofessor/3-courses

//At the time this is written the website does not yet have information about 253.

Course goals and objectives:

Expected learning outcomes. The student in this class will gain knowledge of the following.

- The threats posed to machines and humans
- Evaluation of threats
- Problems faced by security specialists while countering the threats.
- Cost-benefit analysis of available counter measures
- Issues of including security into the design of systems.
- Participate in committee discussions regarding security at your employer's site.
- Prepare for enrollment in advanced courses of computer security.

Class organization

This is a survey course. The most direct way to implement this seems to be a simple path through the textbook chapter by chapter. Because of the enormous volume of information in our textbook and the fact that we have exactly 5 weeks to absorb that great quantity of knowledge it will become necessary to selectively choose some chapters for lectures while omitting others.

As of the date of this writing the following are planned for coverage in lectures.

Chap 1: Overview of the entire realm of Cybersecurity
Chap 2: Encryption
Chap 3: Passwords
Chap 4: Access controls
Chap 6: Worms and viruses
Chap 8: Intrusion detection
Chap 9: Firewalls
Chap 10: Buffer overflow
Chap 11: Programming with security included
Chap 12 Operating system
Chap 16: Physical security
Chap 17. Human security
Chap 19: Lawyers and legal issues
Chap 22: Internet security

There may be minor modifications of the planned chapters to accommodate the available time, but any such changes will be minor.

Tests

The plan is to have three tests at these time intervals

Test 1 on the 5th class meeting (June 7, 2023)
Test 2 on the 10th class meeting (June 20, 2023)
Final test on the 14th class meeting (June 28, 2023)

Each test mostly focuses on subjects since the previous, but occasionally cumulative questions may appear on any test.

The format of the tests is a collage of T/F, multiple-choice, and fill-in the blank types of questions. The answers to all test questions can be found in the textbook.

Tests are open notes, open book, and open internet. Since all the answers for all the questions are in the book, that means you should become very familiar with the textbook.

Attendance

The professor sincerely hopes you attend every class meeting because your education has a very high priority at this time in your life. The professor mentally notes your name in the zoom window if you attend class remotely. If you attend lectures in person the professor does not know your name. No records of attendance are kept except mental records.

In-person instruction or online instruction?

Each lecture of this course will be available in-person in the classroom, and at the same time, it will be broadcast on zoom. You decide if you want to attend in-person or online. You find what works best for you.

If you are in the classroom bring your laptop and login to zoom. Announcements and lectures are all sent through zoom to everyone including those persons in the classroom.

Homework

Your professor is trying to figure this out. Here are some ideas:

Term paper explaining the details of one of the chapters of the book. Everyone picks a different chapter.

A program in C++ or C. The program accepts from the user an encryption key as a string of bits, and opens a plaintext (unencrypted) file as input and creates an encrypted output file. Of course, after that you have to make the decrypting program.

Set up an iptables based firewall according to a specification. Then give your ip address to classmates and challenge them to crack through your firewall.

Create some fake malware and use the stack overflow technique to force your machine to run the unintended program.

Then on the other hand, we could simply just cancel the homework for this short semester.

Withdrawal from the course

If a student experiences an event making participation in the course impossible, then he or she is responsible for correctly withdrawing from the course. Be aware that in a 5-week semester like this one administrative dates will arrive quickly. For example, the last day to add a course and the last day to drop a course will arrive sooner than may be expected.

Grades

The course grade is based on the sum of points earned during the 5-week session. Do your best to collect as many points as possible.