**CS53A: Cybersecurity Fundamentals**
**Foothill College Fall, 2018**
**Instructor: Timothy Ryan**
**Lecture Room: 4306, Mon 6:00PM – 9:50PM**
**Email: ryantimothy@fhda.edu**
**Office Hours: Sat. 9:00AM – 10:30AM (Online and by appointment)**
**Website: https://foothillcollege.instructure.com or http://tinyurl.com/gofhda**

## Required Materials

Textbook: CompTIA Security+: Get Certified Get Ahead: SY0-501 Study Guide
by Darril Gibson (Author)

## Course Description

The fundamental aspects of computer and network security as it pertains to policy deployment and network defense. Core topics include cryptography, public key infrastructure, standards and protocols, physical security, infrastructure security, remote access, messaging, intrusion detection and system baselines. Industry-specific topics include certifications for CompTIA's Security+, ISC2, SSCP.

## Course Objectives

- Recognize and explain access control models.
- Recognize attacks and specify the appropriate actions to take to mitigate a vulnerability.
- Recognize and understand the administration of remote access technologies.
- Recognize and understand the administration of Internet security concepts.
- Understand security concerns and concepts for mobile devices.
- Understand security concerns regarding various network media.
- Be able to identify and explain the different cryptographic algorithms.
- Understand and explain concepts of Key Management and Certificate Lifecycles.
- Understand the concepts of physical security.
- Understand the concepts and uses of policies and procedures.
- Understand and explain documentation concepts.

## Student Learning Outcomes for CS 53A

- A successful student will be able to demonstrate an understanding of the role of certificates and be able to explain basic concepts of Key Management and Certificate Lifecycles.
- A successful student will be able to recognize and understand the administration of basic remote access security technologies.

## Foothill College Student Learning Outcomes:

https://foothill.edu/schedule/outlines.html

## Opportunities and Resources

http://csopportunities.blogspot.com/
https://foothill.edu/stemcenter/

**Evaluation**

Course evaluation is based on the following:

| | |
|---|---|
| Lab Activities | 300 Points |
| Projects/Discussions | 300 Points |
| Research Project | 100 Points |
| Midterm Exam | 100 Points |
| Final Exam | 200 Points |

| | |
|---|---|
| 1000-900 | = A |
| 899-800 | = B |
| 799-700 | = C |
| 699-600 | = D |
| 599-Below | = F |

**Academic Honesty**

Your instructor enforces the Foothill College Academic Honor Code. It is assumed that all students will pursue their studies with integrity and honesty. See course catalogue for details.

**Lab Activities**

Lab assignments will be completed using the online NetLab+ system which is available at the following URL: https://openlab.bayict.cabrillo.edu. Key features of each assignment will be discussed in class and emphasized with respect to Security+ exam objectives.

**Projects/Discussions**

Each week will include a hands-on class project or an online Discussion. The Discussions will be completed within the Canvas Learning Management System and will be reviewed in class to provide background information and assist in preparing a thoughtful and articulate response.

**Research Project**

Each student will research and document a selected topic related to Cybersecurity.

**Attendance**

This class includes both an in-person and online section. The in-person section will be delivered within ConferZoom which allows active participation by all class members, it will also be recorded for later viewing.

**Phones, Laptops and Classroom Etiquette**

Use of cellular phones is prohibited during class time.

**Special Assistance**

To obtain disability-related accommodations, students must contact Disability Resource Center (DRC) as early as possible in the quarter. To contact DRC, you may:

- Visit DRC in Room 5400
- Email DRC at adaptivelearningdrc@foothill.edu
- Call DRC at 650-949-7017 to make an appointment

If you already have an accommodation notification from DRC, please contact me privately to discuss your needs.

**Course Outline (Subject to Change)**

| Week | Date | Reading | Labs/Discussions/Projects |
|---|---|---|---|
| 1 | 9/24 | Chapter 1: Mastering Security Basics | *Lab #1: Capturing Network Traffic<br>Online Discussion: Breach Database |
| 2 | 10/1 | Chapter 2: Identity and Access Management | *Lab #2: Configuring pfSense Firewall<br>Online Discussion: Current Sec Topics |
| 3 | 10/8 | Chapter 3: Network Technologies and Tools | *Lab #3: Connecting to a Remote System<br>Hands-On Project: Wireshark |
| 4 | 10/15 | Chapter 4: Securing Your Network | *Lab #4: Secure Wireless Networking<br>Hands-On Project: ACL Configuration |
| 5 | 10/22 | Chapter 5: Securing Hosts and Data | *Lab #6: Log Analysis<br>Online Discussion: Vulnerabilities |
| 6 | 10/29 | Chapter 6: Threats, Vulnerabilities and Common Attacks | *Lab #7: Attacks and Mitigation<br>Hands-On Project: Threat Identification<br>Midterm Exam |
| 7 | 11/5 | Chapter 7: Protecting Against Advanced Attacks | *Lab #9: Analyze IDS Alerts<br>Hands-On/Online: pfSense Firewall |
| 8 | 11/12<br>Holiday | Chapter 8: Risk Management Tools | *Lab #10: Analyze Types of Malware<br>Online Discussion: Advanced Attacks |
| 9 | 11/19 | Chapter 9: Controls to Protect Assets | *Lab #13: Analyzing Web Attacks<br>Hands-On Project: Tor Operation |
| 10 | 11/26 | Chapter 10: Cryptography and PKI | *Lab #14: Authorization and Access<br>Hands-On Project: Security Audit |
| 11 | 12/3 | Chapter 11: Policies to Mitigate Risks | *Lab #16: Cryptography (Extra Credit)<br>Course Review |
| 12 | 12/10 | Final Exam | |

***Hybrid Course Information**

This course includes two "hybrid" hours per week. These "hybrid" hours are conducted within the NetLab system (https://openlab.bayict.cabrillo.edu) and not in a face-to-face class session on campus. In order to fulfill the participation requirements for these "hybrid" hours, students are expected to complete the Lab Assignments as indicated above each week and submit them in the Gradebook. Student participation during the "hybrid" hours is mandatory.