

Contact Info: Slack

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Office Hours: By appointment on slack

TA will have weekly office hours

Course Goals:

Understand the problems of securing a network

Understand the underlying protocols and technologies

Crypto, IPsec, TLS

Examine the methods and tools for attacking and defending a network

network reconnaissance, enumeration, exploits, tools

defense tools (firewalls, ids, router, switches, wireless)

Explore some advanced topics

E.g., Firewalls, Wireless

Reading Materials - urls, papers, news articles will be regularly assigned - these materials may be on the exam

Submit Early Homeworks & Quizzes you can get more points

## Lecture 1

Security Basics

Homework #1 - Due 18 Aug

Lab #1 - Due on June 8

Computer and Network Security is focused on preventing undesired behavior

Need to think differently - edge cases. How can an attacker try to exploit this?

Security Mindset

What is the system designed to do? What is the proper operation?

The system is typically larger than just the computer or network. For example: a website has a frontend, backend, database, etc.

What are the vulnerabilities in the system? How can this be attacked?

Bonus Exercises: Due 2PM before next class

Exercise #1 -

Suppose you have a database with a password. What are some ways to "hack" into the account? That is, how would you figure out the username/password?

Guess the password until you get it right

Try to trick a user into giving the password

Try to exploit the logic of the database to get around the password

#### Exercise #2

What happens when a TCP RST attack is sent with the wrong SEQ/ACK # to the target?

The target ignores it with a wrong SEQ/ACK #

#### Exercise #3

Introduce yourself in slack

#### Exercise # A

Describe a recent cybersecurity incident you read about in the news. Explain the incident, the vulnerabilities exploited, and the impact of the attack. What measures could have been taken to prevent this attack? Please limit response to no more than 100 words.

Muddled Points - Is there anything that is not clear in today's lecture? Note it down here, for your own review and study prior to the next class.