

Introduction to Network Security

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Today's Goals

- Introductions and ice breakers.
- Course organization.
- Labs.
- Project.
- Maybe final exam?
- Introduction to networking.
- Prelab and setup instructions

About me

- Please call me *Mohammad*.



Education

Education

- BE in Computer Engineering from AUB.
- ME in Electrical Engineering from AUB.
- PhD in Computer Science from UIUC.

Research

- Networking and network security.
- Programmable networks.
- General systems security.

About you!

- (Preferred) name.
- Major.
- Why are you taking this class?
- Ask me a question.
 - I get to ask you the same question!

Skillset

To really make it in this class, you will need to train the following muscles:

- python and C programming.
- A lot of Unix terminal management.
 - This is crucial to make your life easier.
- A good pair of eyes.
 - A lot of staring at the screen.
 - Working with weird config files.
- Writing.
- Reading.

Course Format

- Mostly no lectures from me.
 - Occasional demo and introduction here and there.
 - Don't have to listen to my voice for 100 minutes.
- Class time is reserved for doing labs, asking questions throughout.
 - Makes more sense to meet twice a week for a longer time period.
- Labs will take some time and you will need to submit lab sheet.

Perusall

- I will assign papers every other week for you to read and comment on.
- Those papers I deem foundational to the field of networking in general, and network security in particular.
- We will walk through perusall setup at end of today.

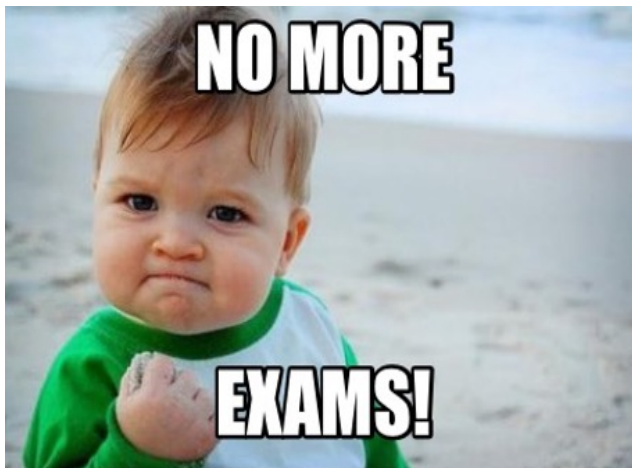
Project

- Work in groups of 3.
- Develop a new lab for the class.
- In the same way as the class labs are.
- You pick the topic, but it must include a practical element.
- More information later on.

Labs

- Done in and out of class.
- Require login to provided virtual machine.
 - **Must be on Rose-Hulman VPN to access it.**
 - Can be done on your own Linux machine, if it is beefy enough.
- Almost always there will be a lab sheet for you to fill out with the concepts you pick.
 - Observations.
 - Definitions of concepts.
 - Submitted via gradescope.
- Some labs may require writing an incident response report.

No Exams

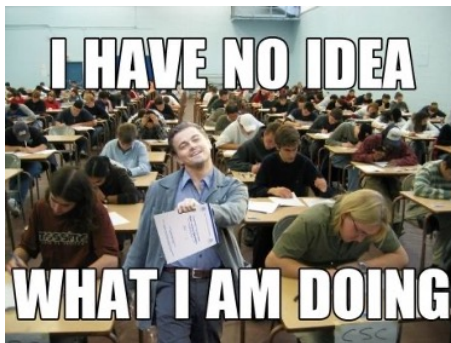


But, ...

- Maybe a final exam.
- Crazy idea, not sure if doable.
- Set up a small network, give you access point.
- Give list of possible exploits.
- Map the network, find the topology, get to target server, get secret!
- Too ambitious but we'll see!

Help Wanted

- Course is very much still under development.
- Only second time offering it (previous infrastructure decommissioned).
- Please give feedback, open issues on GitHub.



What this class is not!

- Buffer overflow attacks.
- XSS scripting.
- SQL injection.
- Spectre and Meltdown.
- Password cracking.
- See CSSE 340 for more on those topics.