

# CS 88S: SAFETY IN THE CLOUD

## INTRODUCTION TO CYBERSECURITY

*Facebook Data Center in Luleå, Sweden*

### Course Description

With the advancement of accessible technology such as the Internet and smartphones, more and more people (especially the younger generation) are accustomed to establishing an online presence. Our privacy has always been an important aspect of our lives in this world, but not as many people understand how “online privacy” work. Our emails, electronic purchases, files, and sensitive information can be easily taken away from us if we are not educated in protecting ourselves online.

Frank Chen

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Location: TBA

Time: TBA

Faculty Mentor:

Peter Reiher

Office Hours: TBA

Course Website:

<http://kfrankc.me/cs88s>

### Learning Objectives

Students will:

- ◆ Learn the ways their online accounts can be compromised
- ◆ Compare varying cultural influences of cybersecurity
- ◆ Practice methods to protect themselves online
- ◆ Analyze how their online data is used to generate industry revenue
- ◆ Understand the role cybersecurity plays in our country
- ◆ Submit final 1-page reflection about their views on cybersecurity and Internet Safety after finishing the class



Google Authenticator, an app that provides two-factor authentication (2FA) to your online accounts. 2FA is one of the many topics we will cover in this class.

### Grading Scheme

This is a 1-unit P/NP seminar that meets 1 hour per week. Students are expected to attend each seminar, but given one absence; additional missed classes are a case-by-case basis.

Pass:  $\geq 73\%$  | No-Pass:  $< 72\%$

70% - 10 participation, each 7%

30% - final reflection

\*\*\*I reserve the right to change this syllabus and the associated work at any point during the quarter.

### Course Expectations

Students are expected to participate and maintain classroom discussions. In addition, students are encouraged to create and ask questions, as well as promote a positive, healthy atmosphere for discussion of ideas. Brief articles or videos will be given to students to familiarize themselves with each week's topic before class. Students are not necessarily expected to fully understand the reading, but will be expected to get a general introduction.

# Schedule

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## Week 1: Phishing, Social Engineering, Identity Theft

We begin our course by looking at why this is an important field through vulnerabilities in our online services. We'll discuss why these attacks happen, and their prevalence in our everyday lives. *Hw 1: Cleaning Social Media*

## Week 2: Hollywood Hacking vs. Real Hacking

In recent months, there have been some accurate portrayals of cybersecurity and hacking, but we'll revisit some of the more embarrassing examples, and discuss why this field of study is often dramatized or stereotyped. *Hw 2: Review Mr. Robot*

## Week 3: Passwords, Authentication, & Password Managers

What does it mean to have a strong password? How long does it take to crack an easy password? How does password authentication work in a service? What are password managers? *Hw 3: Setting up a strong password*

## Week 4: Web Browsing, Encryptions, & VPNs

How can we tell if a website is safe to access? What is a Virtual Private Network (VPN), and how does it allow a user to have privacy when browsing on the Internet? *Hw 4: Setting up VPN*

## Week 5: Your data & how it's used to make money

Ever wonder how a website such as *Amazon.com* recommends items that you may like? We'll explore the ethical dilemmas that sometimes results from these recommendation algorithms. *Hw 5: Netflix & Big Data*

## Week 6: Protecting Yourself: apps, methods, practices

We'll explore 2FA, encrypted emails, encrypted SMS, encrypted phone calls, and various apps and services that you can use to protect your privacy online and strengthen your protection against attacks. *Hw 6: Installing some cool Apps*

## Week 7: Cybersecurity, Privacy, & US Government

Remember Apple vs. FBI a year ago? We'll explore what cybersecurity means in a government context, and how that sometimes clashes with the cybersecurity goals of the tech industry. *Hw 7: Installing more cool Apps*

## Week 8: How does the Internet work?

UCLA is the birthplace of the Internet; we'll understand the significance of this achievement, how the Internet was created, and what happens when we type in *www.google.com* into our browser. *Hw 8: Witness the Internet in Action*

## Week 9: Advanced Topics (Tor, Onion Routing)

Ever used Google Incognito? How does that work? We'll also explore advanced services such as Tor, ProtonMail, and go over some ways victims are hacked online. *Hw 9: Hands on with Tor, ProtonMail*

## Week 10: Future Topics in Cybersecurity

Will we be using passwords for the rest of our lives? What other kinds of authentication systems are out there? How can we all contribute to a world more educated in cybersecurity?

# Campus Resources

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## CAE — Center for Accessible Education

The Center for Accessible Education is able to provide adequate accommodation for students with suspected and/or documented disabilities. Accommodation requests can be made at their office A255 Murphy Hall or over the phone 310-825-1501

## AAP — Academic Advancement Program

AAP students are eligible to receive free peer tutoring with appointments made through [my.ucla.edu](http://my.ucla.edu). To determine your AAP eligibility status, contact the AAP New Student Programs office at [aapnewstudents@college.ucla.edu](mailto:aapnewstudents@college.ucla.edu)

## LGBT Campus Resource Center

The center on campus provides social, educational, and support programs and services to all LGBTQIA, questioning, or ally students. They are an excellent resource that maintain a welcoming environment for all. If you're interested they are located in the Student Activities Center (facing the bruin bear) or contact them electronically via their website [lgbt.ucla.edu](http://lgbt.ucla.edu) or email [lgbt@ucla.edu](mailto:lgbt@ucla.edu).

## CAPS — Counseling & Psychological Services

This is a multidisciplinary student mental health center for the UCLA campus. CAPS offers an array of free services including individual counseling. If you suspect you are experiencing mental health problems or just need to talk, you can make an appointment at John Wooden Center West (facing Drake Stadium, second floor), over the phone 310-825-0768, or their website [counseling.ucla.edu](http://counseling.ucla.edu).

## Myself

I may be your instructor, but I am also your peer. My goal is to promote an educational and supportive environment and as such, I am always available as a resource if needed.

# Plagiarism

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Just don't do it, because you will be given a No Pass (or much worse).

For UCLA's paragraph on academic integrity, visit

<http://www.deanofstudents.ucla.edu/Academic-Integrity>