# CS4501-001: Privacy in the Internet Age, Fall 2021

 Instructor: <PROF\_FIRST\_NAME> <PROF\_LAST\_NAME>  TA: <TA\_FIRST\_NAME> <TA\_LAST\_NAME> (zf7ja),

 <TA\_FIRST\_NAME> <TA\_LAST\_NAME> (jrb2ub)

 Lecture time: 2:00-3:15pm Mondays and Wednesdays Location: Olsson 009

 Office hours:

 <PROF\_FIRST\_NAME>: Wed 3:30-4:30pm (Rice 403), Fri 2:00-2:30pm

 (Discord) <TA\_FIRST\_NAME>: TuTh 9:30-11:30am (Discord)

 <TA\_FIRST\_NAME>: Mon 3:30-4:30pm, Fri 1:00-2:00pm (Discord)

# Course Description

This course provides an in-depth look into privacy issues on the Internet and introduces privacy enhancing technologies. We will cover topics such as anonymous communications, traffic analysis and location privacy. We will also examine the trade-offs between security and privacy, and the interactions with other fields such as machine learning and policy.

# Prerequisites

CS2150. Some background in cybersecurity (CS3710) and computer networks (CS4457) will be helpful but not required.

# Course Schedule

Tentative schedule, subject to change.

|  |  |  |
| --- | --- | --- |
| Dates | Topic | Notes |
| Wed 8/25 | Intro |  |
| Mon 8/30 | Background |  |
| Wed 9/1 | Privacy issues with IP |  |
| Mon 9/6 | Anonymity systems | HW1 out |
| Wed 9/8 | Website fingerprinting |  |
| Mon 9/13 | Censorship techniques |  |
| Wed 9/15 | Censorship measurement | Quiz 1 |
| Mon 9/20 | Censorship circumvention |  |
| Wed 9/22 | DNS privacy |  |
| Mon 9/27 | IoT privacy | HW1 due, HW2 out |
| Wed 9/29 | Guest lecture Natasha Zhang Foutz |  |
| Mon 10/4 | Online tracking |  |
| Wed 10/6 | CDN privacy | Quiz 2 |
| Mon 10/11 | (Reading Days) |  |

|  |  |  |
| --- | --- | --- |
| Wed 10/13 | Data privacy 1 | HW2 due |
| Mon 10/18 | Data privacy 2 |  |
| Wed 10/20 | Machine learning and privacy | HW3 out |
| Mon 10/25 | Guest lecture (Alastair Nottingham) |  |
| Wed 10/27 | Privacy and cryptocurrency | Quiz 3 |
| Mon 11/1 | MPC and CryptDB |  |
| Wed 11/3 | Security and privacy challenges | HW3 due |
| Mon 11/8 | New Internet architecture | Project team/topic due |
| Wed 11/10 | ISP privacy |  |
| Mon 11/15 | Privacy policy |  |
| Wed 11/17 | Privacy and user study |  |
| Mon 11/22 | Summary (and trivia) |  |
| Wed 11/24 | (Thanksgiving) |  |
| Mon 11/29 | Project Presentation |  |
| Wed 12/1 | Project Presentation |  |
| Mon 12/6 | Project Presentation | Last day of class |
| Wed 12/15 |  | Final report due |

# Grading

 Homework assignments: 45% (3 assignments, 15% each) Final  project (presentation and report): 40%

 Quizzes: 15% (3 quizes, 5% each)

# Late Policy

All assignments are due via Collab at 11:59pm on the due date.

 Grace period: 12 hours (intended to cover *real issues*, e.g., internet issues, server down) 10%  penalty per day late

# Communication and Logistics

There is no textbook for the course that you need to purchase. We will distribute materials as needed.

There are several sites for the course that you can utilize: Course  website (this one): informational purpose

 Collab: Announcements, assignment submissions, course materials and recordings, Zoom links

 Piazza: Long-form questions, notes, private messages for faculty/TA, regrade request Discord: Online  office hours and meetings, quick chat, off-topic discussion

Please direct all course-related questions to Piazza (or go to office hours). If you want to discuss other topics or have personal/team issues that can and should only be handled by a professor, please email me directly (ys3kz).

# COVID Policies FAQ

(Courtesy of CS3240)

# Q: I am worried about the virus: will I know if there is an unvaccinated students in the class?

In this message https://coronavirus.virginia.edu/updates/important-information-about-fall-2021, the University announced that all students who live, learn, or work in person at the University during the next academic year must be fully vaccinated before returning to Grounds unless they have obtained a medical or religious exemption from the University. Therefore, you can expect that students in your class are vaccinated. A very small number of students have received vaccination exemptions, so the likelihood that an unvaccinated student is in your class is slight.

# Q: How will you accommodate a student who needs to isolate/quarantine?

If a student informs us that they cannot attend class in-person because they have been requested to isolate or quarantine due to possible exposure to COVID-19, we will treat you as we would any other student absent due to illness. You will have access to the recordings of the lecture, either synchronously or asynchronously. You can also continue to interact with your team via Discord and other online tools.

# Q: What if the professor has to isolate/quarantine (either for herself or because of a family member)?

We will have Zoom-only lectures and recordings. If this happens, we will send a Collab announcement.

# Q: What if a TA has to isolate/quarantine?

The TA's office hour will be online only.

# Q: How will we be doing quizzes?

Quizzes will be online via the “Tests & Quizzes” tab on Collab during a given time window. We may adjust this policy depending on how the semester goes.

# Q: Do I have to wear a mask?

Our class will diligently follow all University regulations in effect. If masks are required during a certain period, then they are absolutely required for class. If policy changes, then we will adjust accordingly. Failure to mask if a regulation is in effect will result in reporting to UJC and a professionalism penalty for the class.

Additionally, all in person office hours will require masking, regardless of location.

# Q: Is the professor going to wear a mask?

Yes, with the exception of active lecturing behind the plastic shield in accordance with the latest guideline.