Privacy Enhancing Technologies

Bulletin Description

(Comp 590 Description) This course has variable content and may be taken multiple times for credit. Different sections may be taken in the same semester. Honors version available.

General Course Info

Term:	Maymester 2025
Department:	COMP
Course Number:	590
Section Number:	01M

Website: https://www.cs.unc.edu/~saba/priv_class/summer25/
Time:	See website
Location:	See website

Instructor Info

Name:	Saba Eskandarian
Office:	Brooks 346
Email:	saba@cs.unc.edu
Web:	http://www.cs.unc.edu/~saba
Office Hours:	See course website

Textbooks and Resources

We will primarily use Canvas for course announcements and answering questions. If you have any questions, comments, or suggestions regarding the course organization and policies, please feel free to reach out via email. An anonymous feedback form is linked on the course website if you would like to give feedback anonymously.

There is no textbook for this class.

Course Description

This class covers a combination of fundamental tools and recent developments in privacy-preserving technologies. The first half of the course will cover cryptographic tools that can be used to build privacy-preserving systems, and the second half will cover various privacy-preserving technologies, including both research contributions and deployed systems. Along the way we will discuss how to think about the technology we create and its impact on society.

Class meetings will consist of a mix of lectures and discussions, with responses to pre-discussion readings being an important component. Students will also complete a course project on a relevant topic of their choosing.

Target Audience

This class is intended for undergraduate students who are interested in thinking about what technology can do to protect privacy and why modern technology so often fails to do so. Prior experience in security or privacy, while welcome, is by no means required.

Prerequisites

Prerequisites for this course are COMP 283 and COMP 301.

Goals and Key Learning Objectives

By the end of this course, students should:
- Be prepared to think about and develop technologies that make useful improvements to users' privacy
- Be familiar with a range of topics in applied cryptography and privacy
- Be generally informed about privacy issues and have the background to follow news and technical articles dealing with privacy issues.

Course Requirements

Class meetings will consist of a mix of lectures, in-class assignments, and discussions. There will additionally be a course project and two quizzes.

Lectures: Participation in the form of attendance, asking questions, and completing in-class assignments is expected.

Discussions: Many class meetings will consist primarily of discussing assigned readings. Everyone is expected to do the reading, submit a hand-written reading response before class, and participate in the discussion. The prompt for the reading responses will be posted on Canvas.

Project: The project will be on a privacy or cryptography-related topic of students' choice. The project will be completed in groups of 2-4 people and will consist of studying and presenting a privacy, cryptography, anonymity, or anti-censorship tool not covered in class. Students will study the tool and write a 2-3 page report (plus references) summarizing it and describing its technical details. Reports must be typeset in Latex (a template will be provided). Additionally, teams will give a 5 minute presentation on their topic.

Key Dates

- Lab 1: May 20
- Quiz 1: May 21
- Lab 2: May 23
- Lab 3: May 29
- Project materials due: May 29
- Quiz 2: May 30
- Project Presentations: May 30

Grading Criteria

- Readings & responses: 20%
- In-class assignments: 20%
- Labs (3): 30%
- Quizzes (2): 20%
- Project: 10%
  - Report: 5%
  - Presentation: 5%

Course Policies

Reading responses are generally due by the beginning of class for the day the readings are assigned. Responses must be hand-written on 8.5x11 lined paper. You may skip 1 day of readings with no penalty. No late responses will be accepted.

All project-related assignments are due at 11:59pm on the listed day and must be emailed to the instructor with all team members copied. Late submissions will not be accepted.

Honor Code

You must write your own reading responses in their entirety (no assistance from automated composition services), but you are welcome and encouraged to discuss the readings with others or consult other online sources.

Project work must be your own, including all writing, but you may use research projects you are already conducting as the class project if your research is connected to security, privacy, or cryptography.

I expect all students to follow the guidelines of the UNC honor code. In particular, students are expected to refrain from "lying, cheating, or stealing" in the academic context. You can read more about the honor code at honor.unc.edu.

Please see me if you are unsure about what may or may not violate the honor code in this class.

Course Schedule

See course website for schedule of topics

Attendance and Participation

Class will be held in person. Participation in class discussions and assignments are an important part of the course. Please get in touch if you need to miss class.

Grade Appeal Process

If you feel you have been awarded an incorrect grade, please discuss with me. If we cannot resolve the issue, you may talk to our departmental director of undergraduate studies or appeal the grade through a formal university process based on arithmetic/clerical error, arbitrariness, discrimination, harassment, or personal malice. To learn more, go to the [Academic Advising Program](#) website.

Accessibility Resources and Services

The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities.

Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: https://ars.unc.edu or email ars@unc.edu.

Counseling and Psychological Services

CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: https://caps.unc.edu/ or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

Title IX Resources

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made online to the EOC at https://eoc.unc.edu/report-an-incident/. Please contact the University's Title IX Coordinator (Elizabeth Hall, interim – titleixcoordinator@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

Policy on Non-Discrimination

The University is committed to providing an inclusive and welcoming environment for all members of our community and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with this principle and applicable laws, the University's Policy Statement on Non-Discrimination offers access to its educational programs and activities as well as employment terms and conditions without respect to race, color, gender, national origin, age, religion, creed, genetic information, disability, veteran's status, sexual orientation, gender identity or gender expression. Such a policy ensures that only relevant factors are considered and that equitable and consistent standards of conduct and performance are applied.

If you are experiencing harassment or discrimination, you can seek assistance and file a report through the Report and Response Coordinators (see contact info at safe.unc.edu) or the Equal Opportunity and Compliance Office, or online to the EOC at https://eoc.unc.edu/report-an-incident/.

Diversity Statement

I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve, I appreciate suggestions.

Syllabus Changes

I reserve the right to make changes to the syllabus, including project due dates. These changes will be announced as early as possible.