



CS 578 Privacy in a Networked World

School of Engineering and Science - Department of Computer Science

Fall 2023

Syllabus version 7.0 (Sept 15, 2023)

Instructor: R. Jason Cronk
Canvas Course Address: <https://stevens.zoom.us/j/8850214791>
Course Schedule: Tuesday 6:30PM – 9:00 PM Eastern Time ([Zoom](#))
Contact Info: rcronk@stevens.edu
Virtual Office Hours: Thursdays 2:00 PM – 3:00 PM Eastern Time or by appointment. Please email me in advance to confirm my availability or schedule an alternative mutually agreed upon time to meet. **Note: virtual office hours will start Sept 22.**

Course Assistant: Matthew Turner
Contact Info: mtturner3@stevens.edu
Virtual Office Hours: Thursdays, 4:00 PM – 5:00 PM Eastern Time
Zoom Link: <https://stevens.zoom.us/my/mtturner>

Virtual session URL: <https://stevens.zoom.us/j/97384587605>

Prerequisite(s): CS306 or CS506 or CS594 or CS579

Corequisite(s): N/A

Cross-listed with:

COURSE DESCRIPTION

Increasing use of computers and networks in business, government, recreation, and almost all aspects of daily life has led to a proliferation of online sensitive data that, if used improperly, can harm the data subjects. As a result, concern about the ownership, control, privacy, and accuracy of these data has become a top priority. This course focuses on both the technical challenges of handling sensitive data and the policy and legal issues facing data subjects, data owners, and data users. This course is suitable for advanced undergraduate computer science majors, graduate students in computer science, and students in technology management or other majors with some computer science background. Course readings draw on a variety of sources, including both technical materials and the popular press.

STUDENT LEARNING OUTCOMES

After successful completion of this course, students will be able to...

- Describe a conceptual framework to reason about privacy and/or balance it against other values.
- Articulate the relationship between privacy and security, explain how cryptography may help in protecting privacy, describe at a high level the relevant crypto techniques, and discuss their limitations.
- Identify potential negative consequences resulting when a person's privacy is violated and describe examples of countervailing benefits that may be claimed as (justifiable or not justifiable) reasons for violating one's privacy.
- Describe the privacy concerns addressed by established privacy practices, such as the HEW Fair Information Principles, or the OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data. I am able to articulate the benefits and limitations of the regulatory and self-regulatory approaches to protecting privacy.
- Identify and explain the impact on privacy of technological enhancements in the gathering, aggregation, analysis, and dissemination of personal information. I am able to perform a critical evaluation of the privacy implications of a novel or existing technology.
- Describe various privacy-enhancing technologies, and explain how factors like ease-of-use and consumer education may affect their effectiveness.
- Articulate some of the privacy issues that are specific to industries and sectors such as healthcare, finance, or national security sectors.

For Program Outcomes see https://web.stevens.edu/academic_files/courses/outcome/CS578.pdf

COURSE FORMAT AND STRUCTURE

This course is fully online. To access the course, please visit [stevens.edu/canvas](https://web.stevens.edu/canvas). For more information about course access or support, contact the Technology Resource and Assistance Center (TRAC) by calling 201-216-5500.

Course Logistics

- All assignments to be turned in before 11:59 PM at the end of the date due.
- Deadlines are an unavoidable part of being a professional, and this course is no exception. Course requirements must be completed and posted or submitted on or before the specified due date and delivery time deadline. Due dates and delivery time deadlines are in Eastern Time (as used in Hoboken, NJ). Please note that students living in distant time zones or overseas must comply with this course time and due date deadline policy. Avoid any inclination to procrastinate. Due dates have been established for each assignment to encourage you to stay on schedule
- Late submission will be accepted with a penalty of 25% within the first 24 hours of being late. Those received within the next 72 hours will receive a penalty of 50% of the awarded points and those after that are eligible for only 1 point of credit and only for exemplary work.

Instructor's Online Hours

I will be available via email and respond as soon as I am available (generally within 24-48 hours). For the online discussions, I will check in several times per week. If you feel you are being neglected in any way, please contact me. When emailing me, please place in the subject line the course number/section and the topic of the email (e.g. CS578 – Assignment 2 Question). This will help me tremendously in locating your emails more quickly.

Virtual Office Hours

Virtual Office Hours are a synchronous session (via Zoom) to discuss questions related to weekly readings and/or assignments. I am also available via email during this time. Office hours will be held Thursday afternoons from 1:00-2:00 pm Eastern Time. To connect to the weekly session, go to <https://stevens.zoom.us/j/8850214791>

Online Etiquette Guidelines

Your instructor and fellow students wish to foster a safe online learning environment. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Our differences, some of which are outlined in the University's inclusion statement below, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambience. Please read the etiquette rules for this course:

- Do not dominate any discussion. Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using internet language. For example, do not capitalize all letters since this suggests shouting.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Keep an open mind and be willing to express even your minority opinion.
- Think and edit before you push the "Send" button.
- If you have a question or comment, please use the raise hand feature in Zoom. I will try to get to you at the soonest time possible.
- Do not hesitate to ask for feedback.

COURSE MATERIALS

Textbook(s)

None Required

Other Readings

See Canvas each week

Materials

See Canvas each week

TENTATIVE COURSE SCHEDULE

For the Steven's Academic Calendar go [here](#).

Class <i>Tuesdays 6:30-9:00 PM ET</i>		Pre-Class Work <i>due 6:30 PM on the day of class</i>	In Class Topic(s)	In Class Work
1	Sep 5, 2023	Syllabus Quiz	Introduction	Breakout Session
2	Sep 12, 2023**	Computer-based training Privacy Harms , Read Solove's Nothing to Hide Read Solove's Taxonomy of Privacy	Models of Privacy Norms	Breakout Session, Quiz
3	Sep 19, 2023	Computer-based training Threat Modeling & Privacy Risk , Read Chapter 6 of Strategic Privacy by Design 2 nd Edition, Book Requests due by Book Group Privacy Wiki Event proposal in Discussion Board (due by 11:59 PM ET)	Privacy Threat Modeling	Breakout Session, Quiz
4	Sep 26, 2023	Computer-based training: Design Strategies, Consent, Deceptive Designs , Read Hoepman's Little Blue Book Completed Privacy Wiki entry (due by 11:59 PM ET)	Privacy Design Strategies	Breakout Session, Quiz
5	Oct 3, 2023	Read NYT Blog Book Review Progress Reports (due by 11:59 PM ET)	Legal Landscape	Breakout Session, Quiz
N/A	Oct 10, 2023	Book Review Progress Reports (due by 11:59 PM ET)	No Class/Monday Schedule	N/A
6	Oct 17, 2023**	Project Requests due Project Team (due by 11:59 PM ET)	Book Reviews	Book Review Presentations
7	Oct 24, 2023	TBD Written Book Reviews due by Book Group (due by 11:59 PM ET)	Cryptography and Privacy	Breakout Session, Quiz
8	Oct 31, 2023	TBD Research Project Progress Report 1 (due by 11:59 PM ET)	Privacy Enhancing Technologies (PETs)	Breakout Session, Quiz
9	Nov 7, 2023	Read Blogs on Privacy Engineering: Privacy Maverick & Superheros	Topics in Privacy Engineering	Breakout Session, Quiz
10	Nov 14, 2023	Read Identity and Anonymity Read pgs 1-28 of Anon Terminology	Anonymization Measures and Technique	Breakout Session, Quiz
11	Nov 21, 2023	Read Damien Desfontaines' Blog Optional: Differential Privacy Research Project Progress Report 2 (due by 11:59 PM ET)	Differential Privacy	Breakout Session, Quiz
12	Nov 28, 2023	Watch the first episode of the Prisoner , Research Project Executive Summary (due by 11:59 PM ET)	Some Final Topics	Breakout Session, Quiz

13	Dec 5, 2023**	Written Project Paper Odd ¹ (due by 11:59 PM ET)	Project Presentations	Optional Quiz ² In Class Presentations for Even Teams
14	Dec 12, 2023**	Written Project Paper Even (due by 11:59 PM ET)	Project Presentations	In Class Presentations for Odd Teams

** *Non-standardized Class Format*

General Class Structure (may vary by day)

- 6:30 PM – 6:40 PM – Course logistics
- 6:40 PM – 8:05 PM – Instruction
- 8:05 PM – 8:35 PM – Breakout Sessions
(15 minutes to discuss & 15 minutes report to class)
- 8:35 PM – 8:55 PM – Quiz
- 8:55 PM – 9:00 PM – Buffer or Q&A

COURSE REQUIREMENTS

Attendance

Students are expected to attend the Zoom video conferencing sessions. Attendance will be recorded, by various methods to be determined, at multiple points during session. Students will be marked as either in full (full credit), partial (half credit) or no attendance (no credit). The first class is ignored, which leaves 13 additional classes. Attendance counts towards 5 points of your overall grade (see Grading section). Note failure to attend may also negatively affect other parts of your grade (such as failing to participate in Breakout discussions). If you have an emergency or other legitimate reason for not attending class, please contact the instructor or course assistant for partial or full credit for that specific class.

Participation

Class participation counts for 10 points towards your grade and is subdivided into two measures: synchronous and asynchronous. Most classes will have a breakout session where students will breakout into a group of 6-8 students (about 5-6 groups) and regroup into the full class. After regrouping, one representative from the group will be expected to report the group's findings. This counts for four points of your synchronous participation (2 points awarded for being the representative and 2 additional points for full responsiveness to the Breakout prompt). Ten breakout sessions for the semester should provide ample opportunity to participate. An additional point is awarded for taking advantage of other opportunities to participate (including reporting for a second breakout group). Asynchronous participation is earned through participation in the Discussion forums in Canvas.

Privacy Wiki

In lieu of homework, students will, individually, identify a news story, from reputable news sources, about a privacy incident (excluding data breaches) from the past year. Students will then write an article for the Privacy Wiki. Students will post a link to the Wiki article in the Discussion Forum and describe why they choose that topic to write about.

Quizzes

¹ To be fair, half the class will present presentations on the 5th and the other half on the 12th, the written project papers will be due for each section on opposite days.

² Offered earlier in the day, not during class.

One of the major elements of the course will be in-class quizzes. Quizzes will be a combination of material learned in the previous classes and the immediate class where the quiz is taken. The goal of the quiz is not to check your memorization but rather your application of the course contents. You are free and encourage to use any materials provided (your notes, the class slides, infographics, etc.). The first quiz, available to take at your discretion is the Syllabus Quiz. You must get 100% on this quiz and you may take it as many times as you'd like. The purpose of this quiz is to ensure your familiarity with this syllabus and how quizzes operate in Canvas. There is also an optional quiz on December 5th which may be used to replace a low quiz grade, if you feel it necessary.

Book Reviews

Another major component of the class is the class project, which is a team effort. Teams will be assigned randomly. Please refer to the detailed Book Review⁸ description for additional information.

Projects

Another major component of the class is the class project, which is a team effort. Teams will be assigned randomly. Please refer to the detailed Project description for additional information.

Exams

There are no exams in this course.

TECHNOLOGY REQUIREMENTS

Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Canvas

Technology skills necessary for this specific course

- Live web conferencing using Zoom

Required Equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone

Required Software

- Microsoft Word or word processing software
- Microsoft PowerPoint or similar presentation software

GRADING PROCEDURES

Grades will be based on:

Attendance	5 points
Class Participation	10 points
Privacy Wiki Assignment	10 points
Quizzes	25 points
Book Review	20 points
Team Project	30 points

Extra Credit

Extra credit can be earned to improve your grade. All Extra Credit work will be critically examined and must be perfect to achieve full credit. You have an opportunity to improve your grade by up to 33.33% of the points needed to achieve a perfect score (100 points).³ Extra credit is due by December 12th with no late material accepted.

- Privacy Wiki articles 12.5% (1st article) +6.5% (2nd article) +3.5% (3rd) +1.5% (4th) +1% (5th)
- Diagramming Privacy Threats +5%
- Book review in LaTeX Format +3.33%

More information on the extra credit assignments will be available on Canvas.

Notes:

- What Canvas displays as "Total" neither reflects the points as per above nor the dropping of the lowest quiz grade.
- Letter grades (i.e., A, A-, B+, ...) will be assigned ONLY for the final grade. All other (intermediate) grades for any of the individual deliverables are determined only as points/percentages and are NOT to be interpreted as/converted to letter grades as possibly done in other classes
- The final grade is determined as follows:
 - First the overall number of achieved points (percentage) is computed for each student based on the above distribution.
 - Then, up to four clusters of grades are determined across all students (i.e., determining a relative ranking/position of each student to/amongst all the other students in the class).
 - Finally, each cluster is assigned a grade (i.e., A, B, C, F) and within each cluster +/- may be used (as appropriate and allowable) for further differentiating.

ACADEMIC INTEGRITY

Generative AI Technologies

You may use AI programs (e.g. ChatGPT) to help generate ideas and brainstorm. However, you should note that the material generated by these programs may be inaccurate, incomplete, or otherwise problematic. Also, much of the material in the course is on the cutting edge of thinking and thus might not be part of the program's learning set. Beware that use may also stifle your own independent thinking and creativity.

You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any other reference material (with due consideration for the quality of the reference, which may be poor). Your grade will reflect the quality of the source and your contribution.

Any plagiarism or other form of cheating will be dealt with under relevant Stevens policies.

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at <http://web.stevens.edu/honor/>.

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is

³ For instance, if you have 70 out of 100 points, completing all of the extra credit would earn you an extra 10 points (33% of 30 points).

assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

“I pledge my honor that I have abided by the Stevens Honor System.”

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor.

Graduate Student Code of Academic Integrity

All Stevens graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline.

All graduate students are bound to the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found on the [Office of Graduate Academics web page](#).

Special Provisions for Undergraduate Students in 500-level Courses

The general provisions of the Stevens Honor System do not apply fully to graduate courses, 500 level or otherwise. Any student who wishes to report an undergraduate for a violation in a 500-level course shall submit the report to the Honor Board following the protocol for undergraduate courses, and an investigation will be conducted following the same process for an appeal on false accusation described in Section 8.04 of the Bylaws of the Honor System. Any student who wishes to report a graduate student may submit the report to the Senior Vice Provost for Graduate Education or to the Honor Board, who will refer the report to the senior vice provost. The Honor Board Chairman will give the Senior Vice Provost for Graduate Education weekly updates on the progress of any casework relating to 500-level courses. For more information about the scope, penalties, and procedures pertaining to undergraduate students in 500-level courses, see Section 9 of the Bylaws of the Honor System document, located on the Honor Board website.

ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other disabilities to help students achieve their academic and personal potential. They facilitate equitable access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit <https://www.stevens.edu/student-diversity-and-inclusion/disability-services>. If you have

any questions please contact the Office of Disability Services at disabilityservices@stevens.edu or by phone: 201.216.3748.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

INCLUSIVITY

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

Name and Pronoun Usage

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your pronouns and/or name, please inform the instructor of the necessary changes.

Religious Holidays

Stevens is a diverse community that is committed to providing equitable educational opportunities and supporting students of all ethnicities and belief systems. Religious observance is an essential reflection of that rich diversity. Students will not be subject to any grade penalties for missing a class, examination, or any other course requirement due to religious observance. In addition, students will not be asked to choose between religious observance and academic work. Therefore, students should inform the instructor at the beginning of the semester if a requirement for this course conflicts with religious observance so that accommodations can be made for students to observe religious practices and complete the requirements for the course.

MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or psychological difficulties (e.g., anxiety and depression). Appointments can be made by phone (201-216-5177), online at <https://stevensportal.pointnclick.com/confirm.aspx>, or in person on the 2nd Floor of the

EMERGENCY INFORMATION

In the event of an urgent or emergent concern about your own safety or the safety of someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year-round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text “Home” to 741-741). If you are concerned about the wellbeing of another Stevens student, and the matter is *not* urgent or time sensitive, please email the CARE Team at care@stevens.edu. A member of the CARE Team will respond to your concern as soon as possible.