

ISE 331, Spring 2025, Department of Computer Science, Stony Brook University
Fundamentals of Computer Security

Instructor: Christopher Kane, christopher.kane@stonybrook.edu

Office: New Computer Science, Rm. 107

Office Hours: Tuesday/Thursday: 2:30 – 4:30 PM; or, by appointment. [On Zoom Only](#)

Class: Monday/Wednesday, 11:00 AM – 12:20 PM; Earth and Space Science Building, Rm. 069

Course Description:

The course will introduce the concepts and terminology of computer security in addition to describing attacks against computer infrastructure and typical defenses against such attacks. The course will outline security policies and procedures used by enterprises and will introduce tools and techniques used by both attackers and defenders.

(<https://www.cs.stonybrook.edu/students/Undergraduate-Studies/courses/ISE331>)

Credits: 3

Pre-requisite: ISE 218 or CSE 220

Co-requisites: ISE 316 or CSE 310

Course Outcomes:

The following are the official course goals agreed upon by the faculty for this course:

- Be conversant with the terminology and concepts of computer security
- Understand security threats to enterprise data
- Be familiar with strategies used to protect enterprise data

Textbook:

- *Principles of Computer Security: CompTIA Security+ and Beyond*, 6e, William Arthur Conklin, Greg White, Chuck Cothren, Roger Davis, Dwayne Williams, McGraw-Hill, 2022. ISBN: 978-1260474312

Course Format:

This course will be conducted in a live, in-person format.

- **Lectures:** This course will be conducted in a live, in-person format. Lectures will also be broadcast and recorded on Echo360 using Universal Capture. Lectures will be accessible on Echo360 through Brightspace.
- **Exams:** There will be one midterm exam and a cumulative final exam. Exams will be made available through Brightspace. Exams will be taken in-person, in the classroom, on your laptops. A remote option for completing the exams may be made available (using the Respondus Lockdown Browser and Monitor).
- **Assignments:** The assignments will be posted to Brightspace.
- **Practical Exercises:** The practical exercises will be posted to Brightspace, but may make use of a third-party website. Details explained in lecture.
- **Presentation Project:** There will be a term presentation project on a significant topic in computer security during the second half of the semester. Students may work in teams of up to 4 people for the term project. We will talk more about this mid-semester.

Course Online Resources:

- Course Homepage: <https://www3.cs.stonybrook.edu/~ckane/spring2025/ise331>
- D2L Brightspace: <https://mycourses.stonybrook.edu>
Brightspace will be used for most other course materials such as slides, assignments, grades, etc.
- PIAZZA: <https://piazza.com/stonybrook/spring2025/ise331>
This term we will be using PIAZZA for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, and Professors. All non-personal course-related communication should be posted to the discussion board. If you have questions about assignments, technical problems that need troubleshooting, or other questions that might be of interest to other students, they must be posted to PIAZZA and not emailed to the instructor or TA. If you have any problems or feedback for the developers, email team@piazza.com.

Course Outline:

The following topics will be covered in the lectures:

- Intro to Security
- General Security Concepts
- CSI Study and Operational Security
- People in Security
- Cryptography
- Public Key Infrastructure
- Physical Security
- Network Fundamentals
- Infrastructure Security
- Authentication
- Intrusion Detection and Network Security
- Attacks
- Web Components
- Legal, Ethical, and Privacy related Issues

A more detailed schedule of lectures, readings, assignments, and exams will be posted to the course homepage.

Course Announcements: Course announcements will be posted to Blackboard (they may be cross-posted to Piazza). You are expected to be aware of all announcements.

Final Exam: Friday, May 16th, 2025, 11:15 AM to 1:45 PM

Grade Distribution:

- Homework: 10%
- Practical Exercises 10%
- Term Project: 40%
- Midterm Exam: 20%
- Final Exam: 20%

Course Grade Cutoffs:

A	[93 - 100),	A-	[90 - 93),	
B+	[87 - 90),	B	[83 - 87),	B- [80 - 83),
C+	[77 - 80),	C	[73 - 77),	C- [70 - 73),
D+	[67 - 70),	D	[63 - 67),	
F	[0 - 63)			

Course Policies:

- Attendance is expected and highly encouraged.
- Students are responsible for all missed work, regardless of the reason for the absence. It is also the absent student's responsibility to obtain all missed notes or materials.
- Students are expected to work independently (except for the term presentation project). Offering and accepting solutions from others is an act of plagiarism, which is a serious offense, and all involved parties will be penalized according to the Academic Honesty Policy. Discussion amongst students is encouraged, but when in doubt, direct your questions to the professor or TAs.
- Assignments must be turned in on the day they are due. Students are urged to plan ahead to avoid problems such as congestion or failure of computer facilities at the last minute. If your assignment is incomplete turn in whatever you have or accept the consequences of late submission. A few other things to keep in mind regarding assignment submissions:
 - **Do not send file timestamps screenshots as "evidence"** of having done the assignment on time. File timestamps can be manipulated extremely easily, and the teaching staff will not consider such things for grading (and/or re-grading, grade disputes, etc.).
 - **Make sure that you double-check what you are submitting.** It is absolutely worth spending one extra minute to make sure that you are not submitting an old draft or otherwise incorrect files. Always keep a time-window in mind, and do not submit in a hurry.
 - **Make sure your submission process is complete.** Otherwise, the teaching staff cannot see your files. As a result, it cannot be graded.
- **Late Policy:** All assignment submissions will incur a 10%-point penalty per day for missing the submission deadline. This penalty will be imposed strictly, and without any further sub-division in the penalization. For example, if a homework is due by 11:59 pm tonight, then a submission at 12:00 am or 12:01 am (i.e., just one or two minutes later) will be treated as delayed by one day. If you receive, say, 94/100 in that homework, your grade will thus become 84/100.
- **Grading Issues:** All issues with grading must be emailed to the relevant TA/Grader or Instructor within 1 week of the return of the graded assignment or exam. Any requests/concerns after this date will not be considered. The email must include a detailed explanation of the specific grading issues and reason/correction. We believe students often learn by investigating and understanding their mistakes. Therefore, it is the responsibility of the student to determine the issues, not the grader/instructor/TA.
- Exams are closed book, closed notes.
- **Makeup exams will be given only for reasons outlined in the Undergraduate Bulletin, or at the discretion of the instructor.** Please inform the instructor as soon as you know or suspect you will not be able to attend the exam as scheduled.

- **Generative AI and LLM tools:** The use of generative AI tools for assistance with assignments or exams in any form is prohibited. This is in accordance with the CSE department's general policy on the use of generative AI tools in undergraduate classes. That policy can be found here: <https://www.cs.stonybrook.edu/students/Policies/aiusage>

Etiquette:

PIAZZA: PIAZZA is a forum for additional learning and assistance. It is not the place for cyber-bullying, memes, grade complaints, concerns/comments/criticisms about the course, or in general, anything unrelated to the course material. Improper behavior will result in the deactivation of PIAZZA and reporting of the individual's behavior to the University Office of Community Standards.

Students are expected to use the PIAZZA forum for all non-personal, course-related communication. If you have questions about assignments, technical problems that need troubleshooting, or other questions that might be of interest to other students, they should be posted to PIAZZA and not emailed to the instructor or TA.

Email: Almost all questions concerning the course should be posted to PIAZZA. The following list gives exceptions for which students should email me directly:

- If you cannot come to office hours and need to set up an appointment to meet at another time; in this case, you must include your availability for the upcoming week.
- Making arrangements for disability accommodations.
- To discuss private, personal matters that are impacting your coursework, such as physical or mental illness, death in the family, etc.
- Questions about the grading or evaluation of your assignments and exams.
- If the instructor asks you to email them something relating to a previous conversation.

When emailing, please use the following guidelines to ensure a timely response:

- Use your official Stony Brook (@stonybrook.edu) email account.
- Use a descriptive subject line that includes “ISE 331”, identifies the item you are emailing about, and a brief description of the topic of your email.
- E.g., “ISE 331: A1 Submission error”, “ISE 331: A2 Brightspace Grade”
- Begin with a proper greeting, “Hello Prof. Kane,”
- Please be direct and concise in explaining the issue.
- End with a proper salutation that includes your full name, netid, and SBU ID number.

Student Accessibility Support Center Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union, Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is

required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.