

ISE 331, Fall 2021, Department of Computer Science, Stony Brook University
Fundamentals of Computer Security

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Office: New Computer Science, Rm. 107

Office Hours: MF: 3:00 PM to 5:00 PM; TR: 4:00 PM to 6:00 PM; or, by appointment.

Class: Monday/Friday, 1:00 PM to 2:20 PM

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>)

Pre-requisite: ISE 218

Co-requisites: ISE 316 or CSE 310 or CSE/ESE 346

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*, 5e, William Arthur Conklin, Greg White, Chuck Cothren, Roger Davis, Dwayne Williams, McGraw-Hill, 2018. ISBN: 978-1260026016

Course Format:

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

- Lectures will be recorded using the Echo 360 system. Recordings of the lectures will be made available through Blackboard to assist students who miss lecture for technical or other reasons.
- Exams will be conducted during class-time through Blackboard. I am planning (or hoping) we can do this in person with laptops, but, for students without a laptop, the exam may be taken remotely using the Respondus Lockdown browser and Monitor.
- Assignments will be submitted through Blackboard as usual.

Technical Requirements:

The shift to a live, online format will impose some technical requirements on students wishing to complete the class:

- A reliable, broadband connection to the Internet
- A desktop or laptop computer
- A webcam
- A microphone
- The latest version of the Respondus Lockdown browser downloaded through Stonybrook:
<https://download.respondus.com/lockdown/download.php?id=772113517>

Course Online Resources:

- Course Homepage: <https://www3.cs.stonybrook.edu/~ckane/fall2021/ise331>
- Blackboard: <https://blackboard.stonybrook.edu>
Blackboard will be used for most other course materials such as slides, assignments, grades, etc. These sites must be monitored and read regularly.
- Piazza: <https://piazza.com/stonybrook/fall2021/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: Monday, December 13th, 2021, 2:15 PM to 5:00 PM

Grade Distribution:

- Homework: 15%
- Practical Exercises 15%
- Term Project: 30%
- 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. 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 TA.
- 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 or is not working by the due date, turn in whatever you have.
- **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 honored. 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.
- **No makeup exams will be given, except for PRIOR excused absences with official documentation approved by the University.**

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 and your learning. Improper behavior will result in the deactivation of PIAZZA and reporting of the individual's behavior to University Office of Community Standards.

Therefore, 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 must 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.
- 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: HW1 Submission error", "ISE 331: HW2 Blackboard 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.

Course Attendance and Engagement

Students are expected to attend every class, report for examinations and submit major graded coursework as scheduled. If a student is unable to attend lecture(s), report for any exams or complete major graded coursework as scheduled due to extenuating circumstances, the student must contact the instructor as soon as possible. Students may be requested to provide documentation to support their absence and/or may be referred to the Student Support Team for assistance. Students will be provided reasonable accommodations for missed exams, assignments or projects due to significant illness, tragedy or other personal emergencies. In the instance of missed lectures or labs, the student is responsible for: **reviewing posted slides, reviewing recorded lectures, seeking notes from a classmate, and checking Blackboard and Piazza for course announcements.** Please note, all students must follow Stony Brook, local, state and Centers for Disease Control and Prevention (CDC) guidelines to reduce the risk of transmission of COVID. For questions or more information click [here](#).

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, 128 ECC Building, (631) 632-6748, or via e-mail at: sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website: <https://ehs.stonybrook.edu//programs/fire-safety/emergency-evacuation/evacuation-guide-disabilities> and search Fire Safety and Evacuation and Disabilities.

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

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. Until/unless the [latest COVID guidance](#) is explicitly amended by SBU, during Fall 2021 "disruptive behavior" will include refusal to wear a mask during classes.

For the latest COVID guidance, please refer to:

<https://www.stonybrook.edu/commcms/strongertogether/latest.php>