Term: Spring 2026 **Subject:** Computer Science (CSE)   **Number:** 468

Course Title: Computer Network Security (CSE 468)

Course Session

Days: M W

Time: 12:00 – 1:15 PM

Location: Lattie Coor Hall L1-74 (Tempe)

Dates: 312/2026 - 5/1/2026 (C)

Instructor

Name: Bharatesh Chakravarthi, Ph.D.

Assistant Teaching Professor, CSE, SCAI

Office: BYENG M1-40 / Zoom Personal Meeting Room

Email: bshettah@asu.edu

Office Hours: Tuesday, 1:30 – 2:30 PM (BYENG M1-40)

Students can meet the instructor by scheduling an appointment by email. Include [CSE468] at the start of the subject's line.

TA Office Hours

To be updated.

UGTA Office Hours

To be updated.

Course Prerequisite:

Students who have accomplished CSE 365 (Introduction to Information Assurance) or equivalent course. The recommended background shall be:

- Students with computer networking (e.g., CSE 434 Computer Networks) basics are highly recommended. This can help students have a basic knowledge of computer networking, such as the TCP/IP protocol stack, and networking services such as DHCP, DNS, ARP, etc. Students who have experience using Linux OS are also highly beneficial.

Course Description:

This course is developed to meet the high demands for practical network security exposure at the undergraduate level and to help students get hands-on experience with network security issues. Three portions broadly divide the course:
- Network Foundation
- Network Tools
- Secure Network Applications
- Case Studies

Course Objectives:

This course will incorporate an active learning approach (or problem-based learning) to assist students in learning network security techniques through various network analytic and diagnostic tools. At the end of the semester, students will learn security techniques:

- How to use network analytic and diagnostic tools to monitor network services, inspect network vulnerabilities, and detect intrusions.
- To understand attack techniques and to learn how to build secure network infrastructure and provide defensive services to counter attacks.
- How to use secure network applications and learn the security philosophies behind them.
- Practice with attacking/defending technologies.

Course Learning Outcome:

After completing this course, students are expected to have the following background and capabilities:

1. Understand basic security terminologies, models, architectures, and techniques.
2. Learn attack techniques and corresponding countermeasures.
3. Demonstrate an awareness of network security standards and cryptography algorithms.
4. Elicit and document the processes in countering attacks.
5. Build a security system to counter specific attacks.

6. Follow the computer security ethics.
7. Plan and track a network security establishment effort.
8. Conduct a security penetration test.
9. Present security system set up and process results in oral and written form

Lectures

During the Fall 2026 semester, lectures in CSE 468 will be given in person only. The exception may be if I need to travel to attend a conference, in which case an online / pre-recorded lecture may be provided. Regular lectures will not be recorded.

Lecture Modules

- Network Foundations: Understanding the building blocks of networks.
- Network Firewalls: Learning how firewalls operate to safeguard network boundaries.
- Traffic Analysis: Gaining insights into monitoring and analyzing network traffic.
- Network Intrusion: Identifying and mitigating unauthorized access attempts.
- Network Attacks and Defenses: Exploring common attack strategies and effective countermeasures.
- Hands-on session/case studies

(Note: Lecture Modules typically do not follow any text/reference books)

Course Evaluation Components

- **Individual Assignments:** Throughout the course, there will be three individual take-home assignments, each designed to reinforce the key concepts and skills learned in class. These assignments will span over two weeks, giving students ample time to work through the tasks. The assignments will include both theoretical questions and practical exercises, aimed at testing students' understanding of the material. Submissions must be made through the course's online platform - Canvas, by the designated due date. Grading will be based on the correctness of the solutions, the depth of the explanation provided, and the overall clarity of the presentation. These assignments offer an opportunity to apply the knowledge gained in class and to engage deeply with the course content.
- **Individual Projects:** In addition to the assignments, there will be three individual projects spread across the course. Each project will span three weeks, allowing students to tackle more complex, applied problems. The projects are designed to test the ability to synthesize theoretical knowledge and apply it in real-world scenarios. They will require a combination of research, coding, and analytical skills, depending on the project's nature. Students are expected to submit their completed projects through the canvas m by the given deadlines. The evaluation will be based on technical accuracy, creativity, and how well students follow the project guidelines. The individual projects are key to honing problem-solving skills and understanding how course concepts can be used in practical settings.

- **Quiz:** There will be 10 online quizzes throughout the course, each designed to test students' grasp of the material on a regular basis. These quizzes will be hosted on Canvas, with a 24-hour window for completion. Each quiz will consist of multiple-choice questions (MCQs) that cover a range of topics, allowing students to gauge their progress in real time. The quizzes will be conducted using a lockdown browser, which will ensure academic integrity during the assessment. Students will not be able to revisit previous questions once they have moved on, so it's important to read each question carefully before answering. The quizzes are intended to help reinforce learning and provide instant feedback. Importantly, there will be no negative marks for incorrect answers, encouraging students to attempt every question without fear of penalties.
- **Midterm and Final Exam:** The midterm exam will be administered online via Canvas, with a 24-hour window for completion. It will consist of two parts: multiple-choice questions (MCQs) and programming-based questions. The MCQs will be a closed-book format, and students will be required to use a lockdown browser to ensure they adhere to the exam rules. The programming section, however, will be open web, allowing students to access online resources as they solve coding problems. This hybrid format ensures that the exam tests both theoretical understanding and practical coding ability. The midterm is a significant assessment that will provide a comprehensive evaluation of students' learning progress midway through the course.

Grading Policy

Evaluation Component	Weightage
Quiz	10%
Assignments (3)	30%
projects (3)	30%
Midterm Exam	15%
Final Exam	15%

Grade	Upper limit percentage	Lower limit percentage
A+	100 %	to 97 %
A	< 97.0 %	to 94.0 %
A-	< 94.0 %	to 90.0 %
B	< 90.0 %	to 87.0 %
B+	< 87.0 %	to 84.0 %
B-	< 84.0 %	to 80.0 %
C+	< 80.0 %	to 76.0 %
C	< 76.0 %	to 70.0 %
D	< 70.0 %	to 60.0 %
E	< 60.0 %	

	Course Plan **CSE 468 – Computer Network Security** **Spring 2026**				
Week (W)	**Date**	**Lecture Topic**	**Quiz (Q)**	**Assignment (A)**	**Project (P)**
01	01/12/26	Module 01			
	01/14/26				
02	01/19/26	Class Excused – Martin Luther King Jr Holiday			
	01/21/26	Module 01			
03	01/26/26				
	01/28/26		Q1		
04	02/02/26	Module 02		A01 Release	
	02/04/26		Q2		
05	02/09/26				P01 Release
	02/11/26		Q3	A01 Submission	
06	02/16/26	Module 03			
	02/18/26		Q4	A02 Release	
07	02/23/26				
	02/25/26		Q5		P01 Submission
08	03/02/26	Review		A02 Submission	
	03/04/26	MID TERM EXAM			
09	03/08/26	SPRING BREAK			
	03/15/26				
10	03/16/26	Module 04			P02 Release
	03/18/26		Q6		
11	03/23/26				
	03/25/26		Q7		
12	03/30/26	Module 05			
	04/01/26			A03 Release	P02 Submission
13	04/06/26				
	04/08/26		Q8		
14	04/13/26	Hands-On Sessions & Case Studies		A03 Submission	P03 Release
	04/15/26		Q9		
15	04/20/26				
	04/22/26		Q10		
16	04/27/26				
	04/29/26	Review			P03 Submission
05-06-2026		Final Exam			

Course Policies:
Attendance and Participation: It is highly recommended that you attend each class. When you attend, please arrive on time, attend the full class period, and participate in class activities. It is fine that students may miss a class session for personal reasons (e.g. religious holidays, family matters). In these situations, the student may contact the instructor to discuss alternative ways to grasp the information presented in the missed class session. Students observed with minimum in person class participation will be reported.

Late Submission and Make-up Policies:
The due date/time for all assignments and project phases are presented above on the class schedule. Please note dates/times carefully because there will be no provision for late submissions, except for acceptable proof of a university-approved excuse, such as serious injury, attending a required academic conference, etc. Late submissions will receive zero credit. There will be no provision for make-up exams or assignments, except for acceptable proof of a university-approved excuse, such as serious injury, attending a required academic conference, etc. In addition, accommodations will be made for religious observances provided that students notify the instructor at the beginning of the semester concerning those dates. Students who expect to miss class due to officially university-sanctioned activities should inform the instructor early in the semester.

Students who have legitimate university-approved excuses, such as severe injury, illness, or participation in a legal proceeding that requires your presence, etc., must email satisfactory evidence to the section leader, and copy the instructor and the teaching assistant before or within two days after the absence. Alternative arrangements will generally be made for any examinations and other graded in-class work affected by such absences.

Disability Accommodations.
Suitable accommodations are made for students having disabilities. Students needing accommodations must register with the ASU Student Accessibility and Inclusive Learning Services office and provide documentation of that registration to the instructor. Students should communicate the need for accommodation in enough time for it to be properly arranged. See ACD 304-08 Classroom and Testing Accommodations for Students with Disabilities. (https://policy.asu.eduLinks to an external site.)
Policy regarding expected classroom behavior (e.g., use of pagers, cell phones, recording devices)

Classroom Behavior: Cell phones and pagers must be turned off during class to avoid causing distractions. The use of recording devices is not permitted during class. Any violent or threatening conduct by an ASU student in this class will be reported to the ASU Police Department and the Office of the Dean of Students.

Academic Integrity and Copyright Laws

Academic Integrity
Students in this class must adhere to ASU's academic integrity policy, which can be found at https://provost.asu.edu/academic-integrity/policyLinks to an external site.). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to both the ASU Academic Integrity Honor CodeLinks to an external site. and the Fulton Schools of Engineering Honor CodeLinks to an external site. All academic integrity violations will be reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains a record of all violations and has access to academic integrity violations committed in all other ASU colleges/schools.

All students in this class are subject to ASU's Academic Integrity Policy (available at http://provost.asu.edu/academicintegrityLinks to an external site.) and should acquaint themselves with its content and requirements, including a strict prohibition against plagiarism. All violations will be reported to the Dean's office, who maintain records of all offenses.   Students   are   expected   to   abide   by   the   FSE   Honor   Code (http://engineering.asu.edu/integrity/Links to an external site.).

All work submitted for the course cannot have been submitted for any other course or any previous section of this same course. Student academic integrity violations are reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). Withdrawing from this course will not absolve you of responsibility for an academic integrity violation and any sanctions that are applied. The AIO maintains a record of all violations and has access to academic integrity violations committed in all other ASU college/schools.

Unless explicitly allowed by your instructor, the use of generative AI tools on any course assignment or exam will be considered academic dishonesty and a violation of the ASU Academic Integrity Policy. Students confirmed to be engaging in non-allowable use of generative AI will be sanctioned according to the academic integrity policy and FSE sanctioning guidelines.

Copyright

Course content, including lectures, are copyrighted materials and students may not share outside the class, upload to online websites not approved by the instructor, sell, or distribute course content or notes taken during the conduct of the course (see ACD 304–06Links to an external site., "Commercial Note Taking Services" and ABOR Policy 5-308 F.14 (Links to an external site.) Links to an external site. for more information). You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work

unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Collaboration Policy: I believe that collaboration fosters a community of scholars and is healthy. You will likely learn just as much (or more) from your interaction with other students as you will from the TAs or me. Your classmates are a valuable resource; don't overlook them when you need help. They should be among the first people you turn to for help when you have a question. It may save your time and they will probably learn something as well.

Unless otherwise instructed, feel free to discuss problem sets and projects with other students and exchange ideas about how to solve them. There is a thin line, however, between collaboration and plagiarizing the work of others, i.e. cheating. So that you do not cross that line, you are required to compose your unique solution to each problem and each assignment. You cannot use any code written by any of your classmates or find the code somewhere else. You can be penalized for helping someone else cheat, such as letting someone else copy your code.

Some obvious acts of cheating are:

Turning in work/code done by someone else
Copying work/code done by someone else
Finding work/code somewhere and turning it in as your code

We have no problem failing you in this class for the semester and having the appropriate entries placed in your ASU student records. All instances of cheating will be handled by the Dean's office according to the ASU Student Academic Integrity Policy and the USI 104-01: Student Code of Conduct and Student Disciplinary Procedures. Links to an external site.

Policy against threatening behavior, per the Student Services Manual, SSM 104–02

Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services. Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students.

Harassment and Sexual Discrimination

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

Title IX is a federal law that provides that no person be excluded based on sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex are prohibited. An individual who believes they have been subjected to sexual violence or harassed based on sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed based on sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqsLinks to an external site.

Mandated sexual harassment reporter: As an employee of the University, I am considered a mandated reporter and therefore obligated to report any information regarding alleged acts of sexual discrimination that I am informed of or have a reasonable basis to believe occurred.

ASU Counseling Services, https://eoss.asu.edu/counselingLinks to an external site., is available if you wish to discuss any concern confidentially and privately.

Other Information:

Syllabus changes: Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advance notice.

How Long Students Should Wait for an Absent Instructor: In the event the instructor fails to indicate a time obligation, the time obligation will be 15 minutes for class sessions lasting 90 minutes or less, and 30 minutes for class sessions lasting more than 90 minutes. Students may be directed to wait longer by someone from the academic unit if they know the instructor will arrive shortly.