Course Syllabus

Jump to Today ✎ Edit

MIAMI UNIVERSITY
OXFORD, OH • EST. 1809

CSE 467/567 Computer and Network Security
Department of Computer Science and Software Engineering

Course Information:

- **Instructor**: Dr. Suman Bhunia
  - E-mail: bhunias@miamioh.edu
  - Office: 205-H Benton Hall
  - Office hours: Monday & Wednesday 10 AM - 11 AM. If you can't make it to my office hours, send me an email to schedule a meeting.
  - Zoom personal Room: https://miamioh.zoom.us/j/4221413978 (https://miamioh.zoom.us/j/4221413978)
  - Phone: (513) 529 0339
- **Class Interaction:**
  - **Lectures**: Monday and Wednesday at 8:30 AM - 9:50 AM
  - **Zoom Link**: https://miamioh.zoom.us/j/83998982816?pwd=NWdWSm0vbmN3em5BNm5tcjFZb3NWUT09 (https://miamioh.zoom.us/j/83998982816?pwd=NWdWSm0vbmN3em5BNm5tcjFZb3NWUT09)
- **Course Site**: Canvas
- **TA help sessions**:
  - Nick Hagerty(hagertnl@miamioh.edu) - Thursdays 7-9 PM.
  - **Zoom meeting link**: https://miamioh.zoom.us/j/82266124622?pwd=cUFRTERlOHF0ZzM4NE1ydEVwVlNzUT09
- **Required Materials:**

- **Textbook:** Computer Security: Principles and Practice by William Stallings, 4th Edition
- **Reference Book:** Computer & Internet Security: A Hands-on Approach by Wenliang Du, 2nd Edition

Course Description

Overview:

Fundamentals of network, operating system and application security. Students will study and implement a variety of security techniques including defense, response and forensics. Extensive analysis, reading and writing will be integral to this course.

Prerequisites:

- CSE 383

Student Learning Objectives:

1. Students shall be able to describe Security Policies and Practices
2. Students shall be able to describe the role of security and security policies in the development of software systems
3. Students shall be able to describe the role of security and security policies in operating systems
4. Students shall be able to describe the role of security and security policies in networks
5. Students shall be able to describe and implement methods for protecting information and systems using encryption
6. Students shall implement security best practices.

Class Attendance Policy

All students are required to attend the Lecture sessions over Zoom, and complete the associated quiz(zes) by the appropriate deadlines; this constitutes participation in the content dissemination portion of the course.

Course Webpage & Communication

All course content (videos, announcements, handouts, assignments, etc.) will be posted on the Canvas page for this course. We will use Canvas for all assignment submissions, as well as for the use of discussion boards, grading, and other means of communication. **You should ensure that your settings enable you to receive course announcements directly to your Miami email address so that you are immediately notified of any updates.**

Important dates:

- First day of class: 25 January
- Final day to drop (no letter grade assigned): Thursday, February 11
- Tentative Midterm Exam March 16 (8-9:20 PM EST)
- Last day to withdraw (grade of "W" assigned): Thursday, April 1
- Endterm exam: W 8:00 AM - 10:00 AM - 05/12/21 To 05/12/21

Course Grading

Your grade will be determined as follows

Deliverable	Weightage
Midterm exam	25%
Final Exam	20%
HomeWorks	15%
Projects	20%
Quizzes	20%
Total	100%

Exams: There will be one midterm exam and one final exam. All exams are cumulative, closed-book. **No make-ups for missed exams**. If you are absent on an exam, your grade for that exam will be zero.

HomeWorks: There will be homework on alternate weeks throughout the semester.

Projects: The content covered will be applied through guided lab/ project assignments every alternate week.

Quizzes: There will be quizzes every week. **Online quizzes** are given using the course website.

Assignment Submission Policies:

- All assignments must be submitted through Canvas only.
- **Late Submission:** Late work, submissions sent by e-mail, and so on will not be accepted. **Always back up your electronic work!** Computer/network failures are a fact of life and are not justification for an extension. WRITE YOUR CODE ALONE…learn to help one another without sharing any code.
- If you are submitting a scanned copy of a handwritten page, please scan it properly and make sure all the contents are clearly readable.

Letter Grading Conversion:

Grade	Percentage Range	Grade	Percentage Range	Grade	Percentage Range

A+	97-100%	A	94-96.9%	A-	90-93.9%
B+	87-89.9%	B	84-86.9%	B-	80-83.9%
C+	77-79.9%	C	74-76.9%	C-	70-73.9%
D+	67-69.9%	D	64-66.9%	D-	60-63.9%
F	Less than 60%				

Tentative Topics:

- Security Policies and Practices
  - Security Policies and their uses
  - Incident responses
  - Common Policies and Top Attacks
  - Vulnerability Analysis
- Application Security
  - Writing secure programs
  - Security at the requirements gathering
  - Security testing
  - Buffer Overflow
  - Data Input parsing and checking
  - Error handling/logging
- Cryptography
  - Email encryption
  - Network Encryption
  - Digital Signatures
  - Key Infrastructures
  - SSl & certificates
  - Public and Private Key systems
  - File encryption
- Network Security

- Protecting machines
- Protecting websites
- Protecting local networks
- Secure Sockets
- Terminal Security (SSH)
- Levels of Protection
- Firewalls
- IPTables and IPFW

- Operating System Security
  - Tokens
  - Passwords
  - One Time Passwords
  - Password generating devices
  - Synchronized password devices
  - Physical security
  - Backup and recovery
  - Authentication
  - Boot Security
  - File Security

Notices and Resources

Copyright Disclaimer

Course materials provided to you, including presentations, tests, outlines, and similar materials, are copyright protected by the faculty member(s) teaching this course. You may make copies of course materials solely for your own use. You may not copy, reproduce, or electronically transmit any course materials to any person or company for commercial or other purposes without the faculty member's express permission. Violation of this prohibition may subject the student to discipline/suspension/dismissal under the Miami's Code of Student Conduct or Academic Integrity Policy.

Recording of Course Interactions

Synchronous sessions in this course (Lecture and Laboratory sessions) will be recorded or live-streamed. Such recordings/streaming will only be available to students registered for this class. The faculty member will provide you notice if any of these recordings/streaming will be shared with anyone outside of this course, and will obtain your prior written consent before sharing. These recordings are the intellectual property of the

faculty member and Miami University and may not be shared or reproduced without the explicit, written consent of the faculty member and Miami University. Further, students may not share these sessions with those not in the class, or upload them to any other online environment. Doing so would be a breach of the Code of Student Conduct.

Disability Services

If you are a student with a physical, learning, medical and/or psychiatric disability and feel that you may need a reasonable accommodation to fulfill the essential functions of the course that are listed in this syllabus, you are encouraged to contact the Miller Center for Student Disability Services at 529-1541 (V/TTY), located in the Shriver Center, Room 304.

If you have an accommodation you think you will not need to use for this course, request it anyway. We cannot honor accommodation requests until they have gone through Student Disability Services.

Mental Health Services

If you are a student who may be experiencing mental or emotional distress, you are encouraged to call Student Counseling Service (513-529-4634). For emergencies outside of business hours, the Community and Counseling and Crisis Center (844-427-4747) has a 24-hour hotline.

Academic Support

The following resources are available for you as a student:

- **Rinella Learning Center Academic Support. (https://miamioh.edu/student-life/rinella-learning-center/academic-support/index.html)**
- **Howe Center for Writing Excellence. (http://miamioh.edu/hcwe/)**
- **International Student Resources. (https://miamioh.edu/academics/intl-student-resources/index.html)**
- **Student Success Center. (https://miamioh.edu/emss/offices/student-success-center/about/index.html)**

Taking notes

- You will sometimes be provided with electronic presentations to give you basic information. These are not a substitute for taking notes.
- Take notes during videos and activities.
- Lab activities will often depend on you to use what you wrote in your notes.
- "Good notes" does not mean "Write everything". Be selective.
- Focus on writing sample code, diagrams, "notes to self".

Academic Integrity Information

The Department of Computer Science and Software Engineering is committed to maintaining strict standards of academic integrity. The department expects each student to understand and comply with the **University's Policy on Academic Integrity (http://www.miamioh.edu/integrity/)** and the undergraduate student handbook and graduate student handbook. Students may direct questions regarding academic integrity expectations to their instructor or to the department chair. All work submitted must be original for that class. Submitting the same project for two different classes is grounds for charging a student with academic misconduct unless prior written permission is received from both instructors.

"Problem Solving Assignments" are assignments that involve programming, math, proofs, derivations, and puzzles.

The purpose of a problem-solving assignment is for you to develop the skills necessary to solve similar problems in the future. To learn to solve problems you must solve the problems and write your solutions independently.

It is worth reiterating that the important aspect of the assignment is that you actually create the solution from start to finish; simply copying a solution and then understanding it after the fact is not a substitute for actually developing the solution.

The notion of academic integrity can be confusing in courses with substantial problem solving because certain forms of collaboration and investigation are permitted, but you are still required to complete your assignment independently. The following scenarios are meant to help distinguish between acceptable and unacceptable levels of collaboration and research, but are not all-inclusive:

ACCEPTABLE:

- Consulting solutions from the current course textbook, but not from other published sources.
- Seeking help on how to use the programming environment such as the editor, the compiler, or other tools.
- Seeking help on how to fix a program syntax error or how a certain language feature works.
- Discussing strategies with a fellow student on how to approach a particular problem. This discussion should not include significant sections of completed work or source code (including printouts, email, viewing on a monitor). Discussions should begin with a clean sheet of paper and end with conceptual drawings and/or pseudo-code.

UNACCEPTABLE:

- Looking at another solution including those written by current students, past students, or outside sources such as code or solutions found on the Web, or in publications other than the current class textbook.
- Using another solution as a starting point and then modifying the code or text as your own work.
- Providing a copy of your solution or a portion of your solution, in any form (electronic, hard copy, allowing another student to view your code on a monitor), to another student.
- Giving or receiving code fragments to fix a problem in a program.

If you are stuck on a problem and you are tempted to search for a solution on the Web or to look at another student's solution STOP and email or ask your instructor for help.