



Course Syllabus: Graduate Topics in Computer and Network Security - Computer Forensics
Department of Computer Science,
McCoy College of Science, Mathematics & Engineering
CMPS 5363 Section 201
Spring 2025 January 21 - May 17, 2025

Contact Information

Instructor: Lopamudra Roychoudhuri, PhD
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Office hours: MWF 12:30-1:30 pm, TR 1:00-2:00 pm
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Classroom: Dillard 335
Class Times: MW 02:00 pm-03:20 pm

Course Description

Study of techniques used to retrieve digital evidence and analyze those as part of a civil or criminal investigation.
The topics will include evaluation of security flaws, network forensics and incident response, examination of hardware, such as disks and memory, information hiding, and protection tools.

Student Learning Outcomes

At the conclusion of this course, students should be able to demonstrate knowledge and proficiency in the following areas:

1. Overview of computer forensics, digital evidence, data acquisition and the forensic investigation process
2. Network forensics fundamentals
3. Web application and email forensics
4. Digital storage and File Systems for Windows and Linux
5. Collection of volatile and non-volatile information
6. Defeating anti-forensic techniques
7. Deliver a project, where a real-life problem is taken from requirements gathering all the way to a complete database system.

Textbook & Instructional Materials

Dr. Darren R. Hayes, A Practical Guide to Computer Forensics Investigations. Pearson IT Certification, 2020.

ISBN 13: 978-0789759917

ISBN 10: 0789759918

Print (paperback): ISBN-13: 978-0789759917 - [link](#).

eBook: ISBN-13: 9780134892948 - [link](#).

Software: We will use various software tools during class. More information will follow as the class proceeds.

Grading

Table 1: Course Grade

Grading Criteria	Dates	Weights	Objectives Assessed
Assignments	Daily/Weekly/biweekly	35%	1-4
Project		30%	5
Midterm Exam	Mon 3/3/25	15%	1-4
Final Exam	Mon 5/7/25	20%	1-4

Table 2: Grading Criteria

Grade	Percentage
A	90 or above
B	80 to 89
C	70 to 79
D	60 to 69
F	Less than 60

Table 3 Tentative Course Schedule

Week	Starting	Topics
1	1/20	Module 1: Overview of Digital Forensics
2	1/27	Module 1 cont.: Digital Evidence and Forensic Investigation, Overview of computer and network security and incident response; Project topics of interest list due – 1/29
3	2/3	Module 2: Network Forensics Fundamentals, Write up on topics of interest due- 2/5
4	2/10	Module 2 cont.; Project topic selection per team – 2/10
5	2/17	Module 3: Web Applications and Email Forensics, Project subtopic selection per team – 2/19
6	2/24	Module 3 cont.
7	3/3	Midterm exam on 3/3 ; Module 3 cont.
	3/10	Spring Break
8	3/17	Module 4: Digital storage and File Systems for Windows and Linux
9	3/24	Project proposal presentation – 3/24 , Module 4 cont.
10	3/31	Module 4 cont.
11	4/7	Module 5: Collection of Volatile and Non-volatile Information
12	4/14	Module 5: cont.
13	4/21	Module 6: Defeating Anti-forensic Techniques
14	4/28	Module 6 cont.
15	5/5	Review; Final exam in class on 5/7
16	5/12	Project presentations: Wed 5/14/25 5:45-7:45 pm, Individual Project Reports due on 5/14 11:59 pm

Class Policies

Teams

Students will form teams of 2 or 3. The teams will be chosen on the first day of class and will be maintained till the end of semester. You will get to work together in your team on class quizzes and team projects.

Flipped Classroom

Readings from the textbook and/or other sources will be announced prior to class sessions. You will complete reading before class. We will work on many kinds of assignments in class based on this material.

Assignments

These fall under following categories.

Quizzes: We will work on quizzes that will validate the readings. The grade from the quizzes will constitute 20% of the total assignment grade.

Short Presentations: You may research announced topics individually or in your team and present your findings. You will also submit a PowerPoint presentation. The grade from the presentation assignments will constitute 10% of the total assignment grade.

In-class Assignments: We will discuss topics in class and work on assignments. You will be able to collaborate with your fellow students to complete these. Assignments that cannot be completed in class will be taken out-of-class and turned in. The grade from these assignments will constitute 30% of the total Assignment grade.

Homework Assignments: The purpose of the homework assignments is to give you individual out-of-class practice on the topics that you are learning, and to explore some ideas more deeply. The grade from the homework assignments will constitute 40% of the total assignment grade.

Exams

We will have two exams – midterm and final. All students must take both exams at the scheduled times.

For planned absences: Exam may be taken early by prior arrangement.

For unplanned absences: Students need a valid university excuse (e.g., excuse from the doctor, death in the immediate family, etc.). The missed exam will be replaced with the final exam grade. **The final exam must be taken on its assigned date and time.**

Team Projects

Each team will select a topic that will allow the group to study some aspect of the “real world” digital forensics topic in detail beyond what is covered in class. The outcome of the project will be a project report as well as a class presentation in the finals week. You will submit your own report that clearly shows your contributions to the project. Each team will prepare a 15-to-20-minute presentation and answer related questions.

General Policies

Computer Requirements

Taking this class requires you to have access to a computer (with Internet access) to access online course material. Personal computer technical difficulties will not be considered a reason for extra time to submit assignments, tests, or online discussion postings. Computers are available on campus in various areas of the buildings. Computers are available on campus in various areas of the buildings. There is also a computer lab in Clark Student Center that is open 24/7, and a lab in Moffett Library that is open during library hours.

Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The university cannot work directly on student computers due to both liability and resource limitations, however they are able to help you get connected to our online services. For help, log into D2L.

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Assignment Submission Policy

All assignments, unless otherwise specified, must be submitted to D2L containing the student's name, course name, the title of the assignment, the due date and the date the assignment was turned in. *No e-mail or in-person submission is accepted.*

No late assignment will be accepted. There are no exceptions to this rule.

Attendance Policy

Attendance will be taken each day. **Anyone missing more than 25% of classes will get an automatic F.** *Attendance will be taken within the first 10 minutes of class. A student will be marked absent if not there when roll is taken.* If a student is absent more than 2 classes without an excuse and is not performing well in class, a report will be submitted to the Dean of Students and the student may be dropped from the class. Classes will not be streamed for absent students, whether it is excused or not.

Behavior in the classroom

Students are to assist in maintaining a classroom environment that is conducive to learning. This means that the presence of electronic devices other than your laptop are not to be seen, heard, or implied, ever. Questions are encouraged and discussion is acceptable, provided it is pertinent and does not distract from the lesson.

Policy on Testing Process

The Department of Computer Science has adopted the following policy related to testing.

- All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- A student who leaves the room during an exam must turn in the test and will not be allowed to return.

Academic Misconduct Policy & Procedures

Academic misconduct is cheating, collusion, and plagiarism: it is the act of using either published or unpublished source material of other students, persons, or generative AI (unless there are instructions that allow it) that do not follow accepted techniques of crediting. The Department of Computer Science has adopted the following policy related to academic misconduct. The policy will be applied to all submission of work for credit as determined by the instructor of the course, e.g., assignments, quizzes, and exams. (See below for link to MSU definitions.)

- 1st instance of cheating in the program: The student will be assigned a non-replaceable grade of zero for the assignment, project, or exam. If the final grade in the course does not result in a one letter grade reduction, the student will receive a one letter grade reduction in course.
- Further instances of cheating in any course within the program: The student will receive a grade of F in the course & be removed from the course.
- All instances of cheating will be reported to the Department Chair, the MCOSME Dean, the Dean of Graduate Students, if a graduate student, and the Office of Rights and Responsibilities, who may decide at their own discretion to impose a stiffer sanction based on knowledge of other instances of cheating at MSU Texas.

Note: Letting a student look at your work is collusion and is academic misconduct!

Also see [MSU Student Handbook](#): page 72: Academic Dishonesty Policy & Procedures.

University Policies and Procedures

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. Two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Student with Disabilities

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible. Students should present appropriate verification from Disability Support Office during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification has been provided. For additional information, contact the Disability Support Office in Clark Student Center 168 - Phone: (940) 397-4140. For more details, please go to [Disability Support Services](#).

Policy on Concealed Handguns on Campus

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Please note, open carry of handguns, whether licensed or not, and the carrying of all other firearms, whether open or concealed, are prohibited on campus. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at [MSU Campus Carry Policy](#). If you have questions or concerns, please contact Interim MSU Chief of Police at steven.callarman@msutexas.edu.

Recording of Class Lectures

Permission must be requested in writing and obtained from the instructor before recording of class lectures. If permission is granted, the recording may only be used by the student making the recording. Recordings (or any class materials) may NOT be posted on any internet source without written permission of the instructor. Failure to adhere to the policy may result in removal from the course with a grade of F or other appropriate punishment.

Midterm Progress Report

In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report for all students in the course. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should a) schedule a meeting with the professor and b) seek out tutoring.

Inclement Weather

In the event of a university closure due to bad weather, please check your email and D2L announcement to find out what your assignment will be. I will not conduct an online lecture, but I will most likely expect out-of-class work.

Important Dates

Visit [MSU's Registrar's website](#) Important Dates.

Grade Appeal Process

Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#).

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.