Course Syllabus

Jump to Today

Course Readings and Other Materials

Course Textbook and MindTap Security Lab

- ## Guide to Computer Forensics and Investigations , 6th Edition

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Note: MindTap provides a live virtual machine lab environment, with digital forensic tools, for completing hands-on projects associated with each chapter in the *Guide to Computer Forensics and Investigations.* For information on getting started with MindTap, see the following links:

- **LMS MindTap Student Brief Start Guide (http://embed.widencdn.net/pdf/plus/cengage/jwsvqu5wla/gui_mt-lms-stu-brief-user-guide.pdf?u=c8lcjz)**
- **MindTap Student User Guide (http://assets.cengage.com/pdf/gui_MindTap-Student-User-Guide-CB.pdf)**

Course Description

Course Catalog Description
This course introduces the basic concepts and technologies of digital forensics. Students will learn the fundamental techniques and tools utilized for collecting, processing, and preserving digital evidence on computers, mobile devices, networks, and cloud computing environments. Students will also engage in oral and written communication to report digital forensic findings and prepare court presentation materials.

Course Developer's Description
This course introduces students to Computer forensics. Now most commonly called "digital forensics," has been a professional field for many years, but most well-established experts in the field have been self-taught. Computers can be used to commit crimes, and crimes can be recorded on computers, including company policy violations, embezzlement, e-mail harassment, murder, leaks of proprietary information, and even terrorism. Law enforcement, network administrators, attorneys, and private

investigators now rely on the skills of professional digital forensics experts to investigate criminal and civil cases. In the course we will cover:

- **Identification**: The investigator or the analyst must understand the circumstances of the incident and collect the data that is important to the investigation.
- **Acquisition and preservation:** The acquisition methods of digital evidence must ensure integrity preservation of the evidence and justify this when needed.
- **Assessment Objectives and Analysis**: The different platforms and technologies mean different types of evidence, which need to be examined. Therefore, the analyst or the investigator needs to have the required technical and investigation skills to find and extract the related information to the case under investigation.
- **Reporting and presentation of the digital evidence**: This should summarize the first three phases of the process. It should include the steps taken in order to identify, seize, and examine the digital evidence.

Goals and Objectives

Course Goals

This course is designed to provide students with the basic knowledge and skills necessary for:

- Working in the field of digital forensics,
- Identifying, collecting, processing, and preserving digital evidence on various types of devices, networks, and computing environments, and
- Reporting digital forensic findings and preparing court presentation materials.

Course Objectives

At the end of this course students will be able to:

1. Recognize the duties of a digital forensic investigator and the requirements of a lab environment.
2. Utilize data collection tools and methods necessary for recovering and identifying different digital forensic artifacts left by attacks.
3. Utilize appropriate methods to preserve the integrity of digital evidence and acquire a forensically sound image.
4. Analyze different types of digital evidence to extract the related information important to a case under investigation.
5. Prepare evidence findings and results of analysis in a digital forensic report.

How the Course Works

Delivery Method

- The course is web-based.

- There are no face-to-face classroom meetings. However, web conference meetings may be conducted to help answer student questions about the lab exercises and other content.
- All interaction and communication is via the Internet through email, and discussion board forums (or other tools).
- Course management is delivered through Canvas.

Note: This course is fully asynchronous, meaning that you and other students in the course may never be required to meet in real-time. The key benefit of an asynchronous course is the flexibility, but that flexibility can also be a major challenge for some students. Students taking asynchronous courses need to be far more self-motivated than students in synchronous courses. It is strongly recommend that you work on each module a little at a time and don't wait until the last moment, or it will seem overwhelming. If you have questions about course content feel free to send an email.

Instructional Approach

- Instructional content is delivered through assigned readings, text, graphics, videos, and web links.
- Assessments are through quizzes, hands-on lab exercises, discussion questions, and written papers (a mid-term and final) based on a case study.
- Participation is through discussion board forums.

Course Sequence
Modules should be completed in the following sequence and during the course schedule:

- Module 1 – Understanding the Digital Forensics Profession and Investigations
- Module 2 – The Investigator's Office and Laboratory
- Module 3 – Data Acquisition
- Module 4 – Processing Crime and Incident Scenes
- Module 5 – Working with Windows and CLI Systems
- Module 6 – Current Digital Forensics Tools
- Module 7 – Linux and Macintosh File Systems
- Module 8 – Recovering Graphics Files
- Module 9 – Digital Forensics Analysis and Validation
- Module 10 – Virtual Machine Forensics, Live Acquisitions, and Network Forensics
- Module 11 - E-mail and Social Media Investigations
- Module 12 - Mobile Device Forensics and the Internet of Anything
- Module 13 - Cloud Forensics
- Module 14 - Report Writing for High-Tech Investigations
- Module 15 - Expert Testimony in Digital Investigations
- Module 16 - Ethics for the Expert Witness

Note: To be successful in this course it is critical that you read the textbook and complete the virtual hands-on lab exercises. The

module content is designed to supplement and support the information and concepts conveyed in the textbook.

Student Responsibilities

You, the student, are responsible for reviewing the schedule in this syllabus, knowing the due dates and times of assignments, completing the overviews of each module, completing the topics of each module, and completing all assignments such as—

Readings
You are required to complete all required readings as assigned for each module. Reading assignments can be found in the Week description of each module.

Note: The reading assignments are very important. All questions on a quiz are based on the content from the textbook.

Quizzes
Each module has a quiz consisting of multiple-choice questions. After completing the assigned reading(s) you should complete the associated module quiz in Mindtap.

Hands-on Lab Exercises
There will be virtual lab exercises for every module. Refer to the Week description page of a module for information on which labs to complete.

Mid-term Paper and Final Paper
The mid-term paper and a final paper are each based on a case study. The instructions for completing the papers appear in the Canvas site. The due dates are stated on the Course Schedule page of the Canvas site.

Discussion Forums
The Discussion Board tool in Blackboard will be used for introducing yourself, for asking questions about the course requirements and content, for interacting with other students, and for discussion questions pertaining to module content. Refer to the Discussion Board Forum Grading Rubric for how initial and peer posts will be evaluated.

You are also responsible for learning how to navigate through the Canvas site and the Live Virtual Machine Lab from Cengage

Grading Criteria

Final Course Grade
The final course grade will be determined by performance on the following:

Graded Items	%

Quizzes	30%
Discussion Forums	10%
Hands-on Lab Exercises	40%
Mid-term Paper	10%
Final Paper	10%
Total	**100%**

Grading Scale

The final letter grade for this course will be based on the following grading scale:

Letter Grade	%
A	94 - 100
A-	90 - 93.99
B+	87 - 89.99
B	83 - 86.99
B-	80 - 82.99
C+	77 - 79.99
C	73 - 76.99
C-	70 - 72.99
D+	67 - 69.99
D	63 - 66.99
D-	60 - 62.99
F	59.99 and below

Course Policies

Academic Integrity

You are responsible for understanding the policies and procedures in the undergraduate catalog that pertain to academic integrity. Violations of the academic honesty code will be dealt with in the strictest terms. Students are advised to become familiar with the university's academic honesty code (also posted on Blackboard). It is the student's responsibility to ensure that both the letter and intent of this code are met in all circumstances. Ignorance of this code, or of proper rules of citation, provides no defense. The instructor’s policy concerning enforcement of this code is inflexible; no exceptions will be made. Cheating or plagiarizing an assignment will result in an automatic “F” for the course and a referral to university authorities.

Course Disclaimer

Every attempt is made to provide a complete syllabus that provides an accurate overview of the courses. However, circumstances and events may make it necessary for me to modify the syllabus during the

semester. This may depend, in part, on the progress, needs, and experiences of the students who registered for the course.

University Policies

Honor Pledge

"*I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned.*" By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. Refer to the Student Honor Council: Office of Student Conduct & Academic Integrity at **http://www.odu.edu/oscai (http://www.odu.edu/oscai)** .

Special Needs

In compliance federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must be identified, as "special needs" by the university and provide a letter from the Office of Educational Access, located at 1525 Webb Center. Any accommodations will be based upon written guidelines from the Office of Educational Access. All students are expected to fulfill all course requirements.

University Email Policy

The Old Dominion University e-mail system is the official electronic mail system for distributing course-related communications, policies, announcements and other information. A University e-mail user ID and password are necessary for authentication and access to numerous electronic resources (Blackboard, faculty websites, etc.). Refer to MIDAS: Monarch Identification and Authorization at **https://midas.odu.edu/ (https://midas.odu.edu/?4)** and ITS - Student Email at **http://www.odu.edu/academics/student-computing/student-email (http://www.odu.edu/academics/student-computing/student-email)** .

Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the University Registrar.

Student Acknowledgement

"I, _____, have completely read this syllabus and understand and agree to the course requirements."

About Plagiarism

Strome College of Business Statement on Plagiarism
Old Dominion University

What is it?

The Old Dominion University (ODU) Undergraduate Catalogue (2008]2009, p. 13, F) defines plagiarism as follows:

A student will have committed plagiarism if he or she reproduces someone else's work without acknowledging its source; or if a source is cited which the student has not cited or used. Examples of plagiarism include: submitting a research paper obtained from a commercial research service, the Internet, or from another student as if it were original work; making simple changes to borrowed materials while leaving the organization, content, or phraseology intact; or copying material from a source, supplying proper documentation, but leaving out quotation marks. Plagiarism also occurs in a group project if one or more of the members of the group does none of the group's work and participates in none of the group's activities, but attempts to take credit for the work of the group.

Hints for Avoiding Plagiarism:

- *More than three words is plagiarism.* This is a good yardstick to use when wondering whether or not quotes are appropriate. They are, if you are copying more than three words in sequence.
- *One source is not "common knowledge."* Common knowledge does not require citation, but information is not commonly known if you have found just one source for it.
- *When in doubt, cite!* If you have any doubt about whether or not to cite a source, err on the side of making the attribution.
- *If your co-author sounds surprisingly eloquent, make sure the contribution is his or her own.* We often work in groups and co]author papers and projects. You should ask the question of your co]author if you are unsure the work is their own. In group work you are responsible for a project/paper in its entirety.
- *Look away.* When you are writing, do not have open books or papers in front of you as you type. Read your sources, and then put what you have read into your own words.
- *Writing is hard work.* Paraphrasing is relatively easy but writing is hard. Learning to be a good writer is an important part of a university education. Staring at an empty screen in MS Word does become less daunting over time!
- *Just because it's on the Internet, doesn't mean it's yours.* The Internet is a fantastic resource and search engines are terrific research tools. However, the information you find on the Internet was written by someone. You must cite Internet web sites, and if you use a quote, use appropriate quotation procedures.
- *Paraphrasing is more than changing a verb tense or reordering a list.* There is a difference between citing a source for a fact and creating a poor quote.

- *Use a Style Guide.* Purchase a style guide and refer to it. Your teacher may suggest one or look for one at an online book source. Popular and timeless guides are by the American Psychological Association, Strunk and White, and Kate Turabian.

The High Cost of Plagiarism

In your professional career, you will find that reputation is everything. Plagiarism can ruin your reputation and cost you your professional career, along with the respect of your peers and family. Plagiarism at Old Dominion University is an act of academic dishonesty that has serious consequences. Note that plagiarism is specifically covered in the ODU Honor Pledge. Refer to the Student Handbook and Student Affairs for details about sanctions and penalties for this behavior.

Course Summary:

Date	Details	Due
	Discussion10 - Expert Witness (https://canvas.odu.edu/courses/115986/assignments/486328)	
	Discussions1 - Day in the life (https://canvas.odu.edu/courses/115986/assignments/486319)	
	Discussions2 - Evidence (https://canvas.odu.edu/courses/115986/assignments/486320)	
	Discussions3 - Digital Forensic Investigations (https://canvas.odu.edu/courses/115986/assignments/486321)	
	Discussions4 - Forensic Tools (https://canvas.odu.edu/courses/115986/assignments/486322)	
	Discussions5 - File Systems (https://canvas.odu.edu/courses/115986/assignments/486323)	
	Discussions6 - Metadata (https://canvas.odu.edu/courses/115986/assignments/486324)	
	Discussions7 - Analysis and Validation (https://canvas.odu.edu/courses/115986/assignments/486325)	

Date	Details	Due
	Discussions8 - Virtual Machines (https://canvas.odu.edu/courses/115986/assignments/486326)	
	Discussions9 - Cloud Based Machines (https://canvas.odu.edu/courses/115986/assignments/486327)	
	Final (https://canvas.odu.edu/courses/115986/assignments/486329)	
	Lab 1-1: Understanding the Digital Forensics Profession and Investigation (https://canvas.odu.edu/courses/115986/assignments/486330)	
	Lab 10-1: Virtual Machine Forensics, Live Acquisitions, and Network Forensics (https://canvas.odu.edu/courses/115986/assignments/486331)	
	Lab 11-1: E-mail and Social Media Investigations (https://canvas.odu.edu/courses/115986/assignments/486332)	
	Lab 12-1: Mobile Device Forensics (https://canvas.odu.edu/courses/115986/assignments/486333)	
	Lab 13-1: Cloud Forensics (https://canvas.odu.edu/courses/115986/assignments/486334)	
	Lab 14-1: Report Writing for High-Tech Investigations (https://canvas.odu.edu/courses/115986/assignments/486335)	
	Lab 15-1: Expert Testimony in Digital Investigations (https://canvas.odu.edu/courses/115986/assignments/486336)	
	Lab 16-1: Ethics for the Expert Witness (https://canvas.odu.edu/courses/115986/assignments/486337)	

Date	Details	Due
	Lab 3-1: Data Acquisition (https://canvas.odu.edu/courses/115986/assignments/486338)	
	Lab 4-1: Processing Crime and Incident Scenes (https://canvas.odu.edu/courses/115986/assignments/486339)	
	Lab 5-1: Working with Windows and CLI Systems (https://canvas.odu.edu/courses/115986/assignments/486340)	
	Lab 6-1: Current Digital Forensics Tools (https://canvas.odu.edu/courses/115986/assignments/486341)	
	Lab 7-1: Linux and Macintosh File Systems (https://canvas.odu.edu/courses/115986/assignments/486342)	
	Lab 9-1: Digital Forensics Analysis and Validation (https://canvas.odu.edu/courses/115986/assignments/486343)	
	Live Virtual Machine Lab Prerequisite (https://canvas.odu.edu/courses/115986/assignments/486344)	
	Midterm (https://canvas.odu.edu/courses/115986/assignments/486345)	
	Module 1 Quiz (https://canvas.odu.edu/courses/115986/assignments/486346)	
	Module 10 Quiz (https://canvas.odu.edu/courses/115986/assignments/486347)	
	Module 11 Quiz (https://canvas.odu.edu/courses/115986/assignments/486348)	
	Module 12 Quiz (https://canvas.odu.edu/courses/115986/assignments/486349)	

Date	Details	Due
	Module 13 Quiz (https://canvas.odu.edu/courses/115986/assignments/486350)	
	Module 14 Quiz (https://canvas.odu.edu/courses/115986/assignments/486351)	
	Module 15 Quiz (https://canvas.odu.edu/courses/115986/assignments/486352)	
	Module 16 Quiz (https://canvas.odu.edu/courses/115986/assignments/486353)	
	Module 2 Quiz (https://canvas.odu.edu/courses/115986/assignments/486354)	
	Module 3 Quiz (https://canvas.odu.edu/courses/115986/assignments/486355)	
	Module 4 Quiz (https://canvas.odu.edu/courses/115986/assignments/486356)	
	Module 5 Quiz (https://canvas.odu.edu/courses/115986/assignments/486357)	
	Module 6 Quiz (https://canvas.odu.edu/courses/115986/assignments/486358)	
	Module 7 Quiz (https://canvas.odu.edu/courses/115986/assignments/486359)	
	Module 8 Quiz (https://canvas.odu.edu/courses/115986/assignments/486360)	
	Module 9 Quiz (https://canvas.odu.edu/courses/115986/assignments/486361)	