



Oregon State University
Ecampus

Course Name: Introduction to Digital Forensics

Course Number: CS 477

Credits: 4

Prerequisite: C or higher in CS 344 and CS 370

Instructor name: Dave Nevin

Instructor email: dave.nevin@oregonstate.edu

Course Description

Introduces concepts related to digital forensics, its role and importance, and tools and techniques for collecting and curating digital evidence. The course will also discuss the role of evidence in the justice system and some legal aspects as they pertain to digital forensics. It will introduce tools and techniques for computer forensics.

Communication

Please post all course-related questions in the Q&A Discussion Forum so that the whole class may benefit from our conversation. Please contact me privately for matters of a personal nature. I will reply to course-related questions within 24 hours. I will strive to return your assignments and grades for course activities to you within five days of the due date.

Course Credits

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits

Technical Assistance

If you experience any errors or problems while in your hybrid course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the [IS Service Desk](#) online.

Learning Resources

The instructor will provide students with lecture notes, links to online resources and/or textbooks such as the following...

- Campbell et. Al, *Introduction to Digital Forensics Student Handbook*, University of Illinois
- Michael B. Mukasey, Jeffrey L. Sedgwick, David W. Hagy, *Electronic Crime Scene Investigation: A Guide for First Responders, Second Edition*, U.S. Department of Justice.

- Cichonski et. al, *National Institute of Standards and Technology Special Publication 800-61, Rev. 2, Computer Security Incident Handling Guide.*

Measurable Student Learning Outcomes

At the completion of this course, students will be able to:

1. Distinguish relevant legal structure and laws, including evidentiary rules and criminal investigation techniques
2. Understand and describe the collection and analysis of forensics evidence on digital systems
3. Use legally-sound evidence gathering and curating techniques for digital forensics
4. Apply tools and techniques to acquire, curate and authenticate forensics evidence from digital systems
5. Analyze forensics evidence and demonstrate a complete investigation of a real-world platform/system containing evidence of a cybercrime/incident

Evaluation of Student Performance

- Homeworks/Quizzes/Participation/Hands-on Lab Assignments (approx. 40%)
- Forensic Analysis Final Project (approx. 30%)
- Exams (approx. 30%)

Letter Grade

Grade	Percent Range
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-77
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	0-59

Course Content

- Digital forensics concepts:
 - What is forensics?
 - Branches and applications of digital forensics.
 - Overview of forensics principles: scientific method, evidence principles, documentation, reporting & testimony.
- Sociological and Legal Aspects of Digital Forensics

- Structure of legal system - Disputes/adversarial, Civil vs. criminal justice systems
 - Rules of evidence, chain of custody, best evidence rule etc.
 - Bill of Rights; requirement of warrant; expectations of privacy; exceptions
 - Privacy laws, cyber crime laws, electronic communication laws
- Computer Forensics
 - What is computer forensics?
 - Forensics Investigative Process
 - Introduction to timeline analysis methodology
- Evidence Preservation and hardware fundamentals
 - Forensic duplication, Drive Imaging
 - Write-blockers and related tools; maintaining integrity of evidence; hashing algorithms
 - SSDs vs. HDDs
 - Live memory capture
- Analysis of File Systems
 - Metadata Files/attributes
 - Recovering deleted files/evidence, file carving, fragmentation
- System Configuration Analysis
 - Keys and Values
 - Tracing user activity
 - Device and application installation
- Log Analysis and Reconstruction
- Application Analysis
 - Application metadata
 - Metadata tampering detection
 - Web browser forensics
 - Email forensics
- Additional related topics, time permitting
 - Fraud Investigations
 - Network Forensics
 - Digital Archives
 - Incident Management and Response - Preparation; Detection and Analysis; Containment, Eradication, and Recovery; Post-Incident Activity

Course Policies

Discussion Participation

Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course. You will need to participate in discussions on at least two different days each week, with your first post due no later than Wednesday evening, and your second and third posts due by the end of each week.

Late Work Policy

Sometimes life intrudes, making it impossible to submit a report, paper or other coursework on time. Exceptions to due dates may be granted by the discretion of the instructor when

arrangements are made a minimum of 24 hours before the due date: please, notify your instructor by email to arrange this; in the event of an emergency, please notify the instructor as soon as possible.

For all other late submissions, a 10% point deduction will occur per week. The final project will receive a 10% point deduction per day unless previous arrangement with the instructor.

Makeup Exams

Makeup exams will be given only for missed exams excused in advance by the instructor. For example, excused absences will not be given for airline reservations and common ailments. Excused absences will generally not be given after the absence has occurred, except under very unusual circumstances.

Incompletes

Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 70% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away.

Guidelines for a Productive and Effective Remote Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, in email) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the [Student Conduct Code](#). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

Academic Integrity

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit [Student Conduct and Community Standards](#), or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

- a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.
- b) It includes:
 - i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.
 - ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.
 - iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).
 - iv) TAMPERING - altering or interfering with evaluation instruments or documents.
 - v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.
- c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

TurnItIn

Your instructor may ask you to submit one or more of your writings to Turnitin, a plagiarism prevention service. Your assignment content will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students, for common or borrowed content. Turnitin generates a report that highlights any potentially unoriginal text in your paper. The report may be submitted directly to your instructor or your instructor may elect to have you submit initial drafts through Turnitin, and you will receive the report allowing you the opportunity to make adjustments and ensure that all source material has been properly cited. Papers you submit through Turnitin for this or any

class will be added to the OSU Turnitin database and may be checked against other OSU paper submissions. You will retain all rights to your written work. For further information, visit [Academic Integrity for Students: Turnitin – What is it?](#)

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Accessibility of Course Materials

All materials used in this course are accessible with the exception of certain tools used for forensic analysis assignments. If you require accommodations please contact [Disability Access Services \(DAS\)](#).

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities.

Tutoring and Writing Assistance

TutorMe is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Access TutorMe from within your Canvas course menu.

The Oregon State [Online Writing Suite](#) is also available for students enrolled in Ecampus courses.

Ecampus Reach Out for Success

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about [resources that assist with wellness and academic success](#).

Ecampus students are always encouraged to discuss issues that impact your academic success with the [Ecampus Success Team](#). Email ecampus.success@oregonstate.edu to identify strategies and resources that can support you in your educational goals.

If you feel comfortable sharing how a hardship may impact your performance in this course, please reach out to me.

For mental health:

Learn about [counseling and psychological resources for Ecampus students](#). If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

For financial hardship:

Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (studentassistance@oregonstate.edu or 541-737-8748).

Student Evaluation of Courses

During Fall, Winter, and Spring term The Online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the hybrid learning experience for future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.