Course Syllabus

Jump to Today

CMPS 3650 - Digital Forensics (Spring 2024)

Instructor and Contact Information

Instructor: Dr. Melissa Danforth (she/her)
Office Hours: MW 5:30-6:30pm (after class), TuTh 12:00-1:30pm (after meetings)
Office: Science III 319 and virtually by Slack, Discord, and email
Office Phone: (661) 654-3180
Email: mdanforth@csub.edu (mailto:mdanforth@csub.edu)
Website: https://www.cs.csub.edu/~melissa/ (https://www.cs.csub.edu/~melissa/)
Other: Links to my Discord server and the course Slack workspace are available in the General Course Information (https://csub.instructure.com/courses/30072/modules/219299) module
Note: Please give at least 2 business days for replies to emails and direct messages. Emails and direct messages will not be responded to during approved faculty union strikes.

Class Information

Course meets MW 4:00-5:15pm (lecture) in Science III 240 and Zoom [hyflex mode], and Fr 4:00-6:30pm (lab) in Science III 240 [face-to-face mode]

Zoom link is available on Canvas in the General Course Information (https://csub.instructure.com/courses/30072/modules/219299) module and can be used by anyone signed up for class, regardless of lecture section

Attendance and General Class Structure

Attendance is optional in this course. The topics covered in lecture and the lab assignments will be listed on Canvas. Recordings of lectures and of some lab demos (not all labs have demos) will also be provided after post-processing (give 2-3 business days for post-processing). It is your responsibility to watch the recording if you cannot attend class.

Class structure:

- Mondays and Wednesdays (lecture days): Lectures will be on textbook material and additional materials relevant to the week's topics. Slides and recordings will be posted to Canvas.
- Fridays (lab days): Attendance is optional, but strongly encouraged since the classroom computers will be pre-configured for the labs. If you opt to not attend lab, you will be responsible for configuring your computer to run the lab software and/or using Rm 240 when it is available between other classes.

Please be mindful of the evolving risks with the pandemic and other illnesses. If you are feeling sick, please stay home and either attend lecture via Zoom or watch the recordings later. Likewise, if I am feeling sick and need to cancel class or convert a class to a Zoom session, I will let everyone know by email, Canvas announcement, and Slack announcement.

Note: Class session will also be canceled on days when the faculty union authorizes a strike. Notification of any such action will also be given.

Team/Group Assignments

Working in teams or groups is optional for lab assignments in this course. If you do opt to work in groups on the lab assignments, collaboration options include git, Slack, Discord, Zoom, MS Teams, and so on. If you opt for a face-to-face team or group meeting, you must adhere to all current campus COVID-19 policies and procedures regarding face-to-face meetings.

Important Caveat: If you want a private channel on the course Slack workspace for your lab team, you must contact me to create that channel. Any Slack private channels created directly by students will be considered a violation of the campus academic integrity policy (unauthorized collaboration).

Catalog Description

Investigative techniques, evidence handling procedures, forensics tools, digital crime reconstruction, incident response, ethics, and legal guidelines within the context of digital information and computer compromises. Hands-on case studies cover a range of hardware and software platforms and teach students how to gather evidence, analyze evidence, and reconstruct incidents. Each week lecture meets for 150 minutes and lab meets for 150 minutes.

Prerequisite or corequisite: CMPS 2010 with a grade of C- or better or CMPS 2650

Prerequisites by Topic

Knowledge of programming languages in C/C++ family AND/OR
Knowledge of Linux command-line interface

Units and Contact Time

4 semester units. 3 units lecture (150 minutes per week), 1 unit lab (150 minutes per week).

Class Expectations

This course is a hands-on elective course. This means it's very important to remain engaged in the course assignments, which will apply the theory from lecture to assignments that are primarily small examples of potential real-world scenarios (essentially, mini case studies). If something comes up, please communicate with me as soon as possible to avoid falling behind in the course.

Also, as an elective course, students are expected to engage in independent learning in this course and to stay up-to-date on the reading assignments. Critical thinking, independent evaluation, and troubleshooting are important traits for the cybersecurity profession. There will be many cases where there is no one "right answer" to a situation, and showing me your reasoning is as important as the conclusion you've drawn.

Since the textbook is freely available online, lectures will assume that you have completed the reading assignments. While the lectures will cover some of the textbook concepts, particularly the more complicated concepts, the lectures will primarily focus on applications of the concepts and providing a deeper understanding of the concepts. Additional materials may also be brought in from other sources during the lectures to provide more breadth and/or depth on the concepts.

Most labs will require the use of virtual machines (VMs) and/or the department server (Odin). The department has a subscription service to VMware which provides students with a free one-year license to VMware software for Linux, Windows, and Mac, if you wish to install the virtual machine software at home. (Note: The provided virtual machine only works on Intel/AMD CPUs. There is no pre-configured virtual machine provided for M1/M2 Mac systems.)

Plan to spend an average of 8-12 hours outside of class each week on this course.

Class Principles

The following principles will guide this course:

- *Communication*: I understand if something unexpected has come up that interferes with your course work. Please communicate with me as soon as possible though, so we can discuss extensions and other options for moving forward in the course. Similarly, should something come up unexpectedly in my life that affects a class meeting, I will let the course know by Canvas announcements, Slack announcements, and email. Please keep the lines of communication open.
- *Respect*: There are many situations in cybersecurity where differing, but equally valid, opinions may exist. Respect the rights of others to form different opinions and conclusions than your own.
- *Critical Thinking*: While there may be some rote assignments in this course, many assignments will require applying critical thinking and analysis skills. My grading approach for those "thinking questions" is more about seeing your thought process than seeking "perfect" answers. It is also okay to state what you don't understand in an assignment submission. That is all part of the learning process.
- *Compassion*: Remember that other people in the class (and me) are balancing many competing priorities beyond this course. Exercise compassion, kindness, and consideration when interacting with others.

Disclaimer

Please note that I am not a legal professional, and I am also not a licensed digital forensics investigator. The course is arranged as an academic's view of the field of digital forensics. We are also using Linux

tools to keep course costs low, instead of one of the commercial tools more commonly used amongst practitioner.

Class Type

Selected elective for CS - Computer Information Systems (CIS) and CS - Information Security (IS) students. Also an upper-division course for the CS minor.

NOTE: This course is **NOT** an elective course for CS - Traditional students. It will only count for general university units, but will not meet the CS - Traditional technical elective requirements.

Required Textbook(s)

All books used for this course are freely available through the CSU O'Reilly Safari Tech Books subscription. To access that subscription, first log in to Safari with the following link: **https://go.oreilly.com/california-state-university-bakersfield/ (https://go.oreilly.com/california-state-university-bakersfield/)** . Then click on the following links to load the e-book (if you forget to log in, you'll just get a summary instead of the e-book).

- Lecture textbook: Digital Archaeology: The Art and Science of Digital Forensics. Michael W. Graves. Addison-Wesley Professional, 2013, ISBN-13: 978-0-321-80390-0 (print book). Safari link: **https://learning.oreilly.com/library/view/digital-archaeology-the/9780132853774/ (https://learning.oreilly.com/library/view/digital-archaeology-the/9780132853774/)**
- Lab reference book: Practical Linux Forensics: A Guide for Digital Investigators. Bruce Nikkel. No Starch Press, 2021, ISBN-13: 978-1-7185-0196-6 (print book) and 978-1-7185-0197-3 (e-book). Safari link: **https://learning.oreilly.com/library/view/practical-linux-forensics/9781098129781/ (https://learning.oreilly.com/library/view/practical-linux-forensics/9781098129781/)**

Recommended Textbook and Other Supplemental Materials

The following book takes more of a system administration approach to investigating cybersecurity breaches and incidents. It is written by a team of founders and security engineers from the cybersecurity firm Mandiant.

- Incident Response & Computer Forensics, 3rd Edition. Jason Luttgens, Matthew Pepe, and Kevin Mandia. McGraw-Hill, 2014, ISBN-13: 978-0-07-179869-3 (print book). Safari link: **https://learning.oreilly.com/library/view/incident-response/9780071798686/ (https://learning.oreilly.com/library/view/incident-response/9780071798686/)**

The author of the lab reference book also has an earlier book on using Linux for forensic duplication, which is useful if you want to know more about that process (we'll have one lab on this topic):

- Practical Forensic Imaging. Bruce Nikkel. No Starch Press, 2016, ISBN-13: 978-1-59327-793-2. Safari link: **https://learning.oreilly.com/library/view/practical-forensic-imaging/9781492018049/ (https://learning.oreilly.com/library/view/practical-forensic-imaging/9781492018049/)**

Supporting articles and current events relating to the course will be posted on the Canvas site.

Coordinator(s)

Melissa Danforth

Student Learning Outcomes

This course covers the following ACM/IEEE CS2013 (Computer Science) Body of Knowledge student learning outcomes:

- CS-IAS/Foundational Concepts in Security
  - [Familiarity] Describe the concepts of risk, threats, vulnerabilities and attack vectors (including the fact that there is no such thing as perfect security).
  - [Familiarity] Describe important ethical issues to consider in computer security.
- CS-IAS/Digital Forensics
  - [Familiarity] Describe what a digital investigation is, the sources of digital evidence, and the limitations of forensics.
  - [Familiarity] Describe the legal requirements for use of seized data.
  - [Familiarity] Describe the process of evidence seizure from the time when the requirement was identified to the disposition of the data.
  - [Familiarity] Describe how data collection is accomplished and the proper storage of the original and forensics copy.
  - [Familiarity] Describe a person's responsibility and liability while testifying as a forensics examiner.
  - [Usage] Conduct data collection on a hard drive.
  - [Usage] Recover data based on a given search term from an imaged system.
  - [Usage] Reconstruct application history from application artifacts.
  - [Usage] Reconstruct web browsing history from web artifacts.
  - [Usage] Capture and interpret network traffic.
  - [Familiarity] Discuss the challenges associated with mobile device forensics. (if sufficient time at end of course)
  - [Familiarity] Identify anti-forensics methods. (if sufficient time at end of course)
- CS-SP/Professional Ethics
  - [Familiarity] Describe the mechanisms that typically exist for a professional to keep up-to-date.
  - [Familiarity] Describe the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
  - [Familiarity] Describe the consequences of inappropriate professional behavior.
  - [Usage] Examine various forms of professional credentialing. (if sufficient time at end of course)
- CS-SP/Security Policies, Laws and Computer Crimes
  - [Familiarity] Identify laws that apply to computer crimes.

- [Familiarity] Examine the ethical and legal issues surrounding the misuse of access and various breaches in security.
- [Familiarity] Discuss the professional's role in security and the trade-offs involved.

ABET Outcome Coverage

The course maps to the following student learning outcomes for Computer Science (CAC/ABET):

1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

Critical thinking and analyzing a situation are foundational skills for cybersecurity which will be developed throughout this course.

4. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

Cybersecurity is intrinsically tied to ethics and legal principles. A strong ethical foundation and an understanding of relevant legal issues will be developed in this course.

Lecture Topics and Rough Schedule

Week	Chapter(s)	Lecture Topics	Lab Topic
1	N/A	N/A - Faculty Strike	N/A - Faculty strike
2	Ch 1 & 2	Digital forensics overview, Legal foundations	Binary representation of data
3	Ch 3	Search warrants and subpoenas	Linux overview
4	Ch 4 & 5	Privacy and professional ethics, Admissibility, Evidence handling	Shell scripts and forensic toolkit
5	Ch 6 & 7	Incident response, Data acquisition - order of volatility, live data	Live Linux data acquisition
6	Ch 7	Forensic duplication - theory and overview of tools	Using dd for duplication
7	Ch 9	Analyzing document and file data	Finding data hidden in files
8	Ch 8	Deleted and unlinked files, data hidden in unallocated space	Recovering deleted files
9	Ch 10	Email basics and email forensics	Recovering data from slack & unallocated spaces
10	Ch 11	Web server and browser details, and web forensics	Analyzing application data (email and browser)
11	Ch 12	Network data and artifacts	Network packet capture
12	Ch 13	Cloud-based data and artifacts	Linux logs and configuration

13	Ch 14	Mobile device forensics	Mobile devices and peripherals
14	Ch 15	Anti-forensics techniques	Anti-forensics
15	Ch 17, 20, 18	Report writing (if time): Licensing and certification, and software tools	N/A - Lab time set aside to work on Final Exam - Part 2 (Culminating Lab Practicum)

Specific reading assignments and laboratory assignments are posted to the Canvas site with links to the textbook chapter(s), outside information, and other relevant materials.

Civility During Discussions

Over the course of the term, there will be classroom discussions on contentious issues in cybersecurity, such as discussing various approaches to disclosing vulnerabilities. Opinions will differ, sometimes drastically, during these discussions, hence why they are matters of debate within the cybersecurity field. Students are expected to be civil to, and respectful of, one another during these discussions.

Course Academic Integrity Policy

Lab assignments may be optionally completed in groups. For a group lab assignment, one person in the group can turn in one submission for the entire group, but make sure everyone's name is on the submission so all members of the group receive credit for the assignment.

All other assignments are individual assignments. That means you may discuss the assignments with one another, but each student must turn in their own work in their own words. It is also okay to reference external sources in your submission, but you must appropriately paraphrase that source by expressing the information you researched in your own words.

For example, you cannot copy-and-paste from a website (including generative AI responses) or copy another student's submission, but you can refer to that website and summarize what you've learned, or summarize your discussion with the other student. I even encourage you to add questions you still have, and, if I have time during grading, I'll try to customize my grading comments to answer those questions.

In summary, no direct copying from any source (other students, external sources, textbook, etc.) is allowed. Instances of direct copying that are detected may be referred to the Dean of Students as an academic integrity violation.

Additionally, any Slack private channels created directly by students will be considered a violation of the academic integrity policy (unauthorized collaboration) and may be referred to the Dean of Students.

Campus Academic Integrity Policy

Certain forms of conduct violate the university's policy of academic integrity and the student conduct code. Academic dishonesty (cheating) is a broad category of actions that use fraud and deception to improve a grade or obtain course credit. Academic dishonesty is not limited to exams alone but arises

whenever students attempt to gain an unearned academic advantage. Plagiarism is claiming the published or unpublished work of someone else as your own. This includes handing in someone else's work; turning in copied or purchased compositions; using paragraphs, sentences, phrases, words, or ideas, including paraphrasing, written by another writer; or using data and/or statistics compiled by someone else as your own without giving appropriate credit to the original writer. Plagiarism also includes using your work submitted in another class without permission of your current instructor.

When a faculty member discovers a violation of the university's policy of academic integrity, the faculty member will meet with the student(s) involved and is required to notify the Dean of Students Office and detail the alleged violation, including the name(s) of the student(s) suspected, the class in which the alleged violation occurred, the circumstances of the alleged violation, and the evidence (including witnesses) supporting the allegation. The faculty member will also formally notify the student(s) suspected of violating the university's policy of academic integrity, the department chair for the course involved in the incident, and the appropriate school dean. The Dean of Students or designee will investigate; confer with the faculty member, student(s), and any witnesses identified; and review all evidence submitted by the faculty member and student(s) to impose an administrative sanction, beyond the academic penalty already placed by the faculty member. Students who perform dishonestly in this course may earn zero credit on the assignment/exam or a failing grade in the course, depending on the level of severity of the offense.
Students are expected to uphold the standards of academic integrity. Cheating in any form will not be tolerated and will result in a formal report to the University Dean of Students. You are always expected to follow the student conduct code and uphold the CSUB Guiding Principles while learning on this campus.

Academic Accommodations

To request academic accommodations, please contact the Office of Services for Students with Disabilities (SSD) and either email me or bring me an accommodations letter from the SSD Office. Policies from the SSD Office relating to accommodations, such as scheduling policies for using their testing center, must also be followed. For more information about the services and policies of the SSD Office, contact their staff by email and/or visit their website at **https://www.csub.edu/ssd/ (https://www.csub.edu/ssd/)**

Basic Needs Assistance

If you are experiencing challenges related to basic needs, such as food insecurity, housing insecurity, or other challenges, there are resources available to you.

The campus Food Pantry, located next to the Student Union, is open and available to all students, staff, and faculty. Please visit the Food Pantry website for hours and information at **https://www.csub.edu/basicneeds/food-pantry (https://www.csub.edu/basicneeds/food-pantry)**

Information about food distributions, CalFresh, and other food resources can be found at **https://www.csub.edu/basicneeds/food-security (https://www.csub.edu/basicneeds/food-security)**

. Information about food assistance at the Antelope Valley campus is at **https://www.csub.edu/basicneeds/resources-students-csub-av-campus (https://www.csub.edu/basicneeds/resources-students-csub-av-campus)**

The campus also has emergency housing available for full-time students on a first-come, first-served basis. For housing concerns, please contact Jason Watkins, Assistant Director for Basic Needs. You can find more information about housing assistance and contact information at **https://www.csub.edu/basicneeds/housing-stability (https://www.csub.edu/basicneeds/housing-stability)**

More information on basic needs assistance is on the Basic Needs website: **https://www.csub.edu/basicneeds (https://www.csub.edu/basicneeds)**

Health and Well-Being

This continues to be a trying time mentally, physically, and with work / life balance issues. If you need additional time for assignments due to your current situation, please contact me to discuss the options available to you. Similarly, should something come up unexpectedly in my life that affects a class meeting, I will let everyone know through email / Slack / Canvas.

The CSUB Counseling Center has both regular-hours and after-hours counseling services available. Call 654-3366 to connect with their services. After their normal operating hours, you can press 2 at any time to connect to the after-hours service. More information is at **https://www.csub.edu/counselingcenter/ (https://www.csub.edu/counselingcenter/)**

CSUB's Student Health Services is available for basic health care needs, at little to no cost for CSUB students. You can find more information about their services at **https://www.csub.edu/healthcenter/ (https://www.csub.edu/healthcenter/)**

Current information about CSUB's COVID-19 plans, policies, and resources can be found at **https://www.csub.edu/covid-19 (https://www.csub.edu/covid-19)**

Technology Assistance and Software

If you need help with technology, such as a loaner laptop and/or hotspot, ITS has programs to provide technology assistance to students. Go to the following ITS webpage to learn more about their programs: **https://its.csub.edu/step (https://its.csub.edu/step)**

The CEE/CS Department has academic software subscriptions available to students enrolled in CMPS and ECE courses. This currently includes Microsoft, VMware, and Mathematica. Go to the following page for more information: **https://www.cs.csub.edu/downloads.php (https://www.cs.csub.edu/downloads.php)**

CSUB ITS also many software products available to students through the Virtual Computer Lab (VCL). You will need to use your myCSUB credentials to access VCL. To see the full list of software and to

access VCL, go to **https://its.csub.edu/VCL (https://its.csub.edu/VCL)**

Grading

Category	Weight	Drop
Academic Integrity Quizzes	5%	None
Reading Assignments	10%	Lowest 2
Quizzes on Class Topics	10%	Lowest 1
Lab Assignments	25%	Lowest 1
Checkpoint Assignments	25%	Lowest 1
Final Exam	25%	None

Grades are posted on Canvas. It is your responsibility to check Canvas before an assignment is due to make sure Canvas uploaded your work correctly and to check Canvas after assignments are due for grades and any comments on assignments.

Late Policy

Canvas is configured to record a 0 grade if an assignment is not received by the due date. That 0 will remain on late submissions until I grade the submission (except for quizzes, which are auto-graded on submission).

End-of-term deadline: All assignments except for the final exam must be submitted to Canvas by May 17th at 11:59pm to give me sufficient time to grade before grades are due on May 22nd.

Late policies for specific assignment categories are:

- Academic Integrity Quizzes: Due on May 10th, and may be completed by the above end-of-term deadline without a late penalty.
- Reading Assignments: Assignments may be submitted late, but questions from late submissions will not be incorporated into lectures. Assignments will be assessed a 10% late penalty for each week they are late, with a grace period of 3 days. For example, if you turn the assignment in 2 days late, there will be no penalty. But if you turn the assignment in 4 days late, there will be a 10% late penalty.
- Quizzes on Class Topics: Quizzes have individual due dates (refer to each quiz), and may be completed by the above end-of-term deadline without a late penalty.
- Lab and Checkpoint Assignments: Assignments may be submitted late through the above end-of-term deadline. Assignments turned in more than 2 weeks late will be assessed a 10% late penalty for every week they are late. For example, if you turn an assignment 1 week after the deadline, there will be no late penalty. If you turn an assignment in 4 weeks after the deadline, there will be a 20% late penalty. If you turn the assignment in 6 weeks after the deadline, there will be a 40% late penalty.
- Final Exam: Contact me if you are unable to take the final exam during its scheduled time.

If your reason for being late with an assignment falls under the university excused absence policy (e.g., illness, campus event, etc.), contact me to discuss an extension to the submission deadline.

Canvas Submission Guidelines

Submissions must be in a standardized document format (e.g., ODT, DOC, DOCX, PDF, PNG, JPEG, etc.). Avoid RTF format, as it has caused issues in the past.

Make sure to check your files after they have uploaded to be sure there were no upload errors and the files display correctly. Don't forget to check that Canvas is displaying all embedded images in the file too.

If you have drawn something out by hand, take a picture or use a scanner to incorporate the image into your submission. Please keep the file sizes reasonable, but also make sure the image is legible.

If you submit multiple files, please name them in a fashion that indicates what they contain and what order I should read them in, e.g. q2_drawing.jpg, part1.pdf, part2.docx, and so on.

If you have any difficulties submitting to Canvas, contact me or ITS for help. Emailed submissions are not guaranteed to be accepted since my email volume is so high and the spam detection software can silently drop emails.

Academic Integrity Quizzes

The campus academic integrity module is required for this course. While you can complete the modules and quizzes at any time, I recommend you complete them at the start of the semester, as the resources will be useful for other assignments in this course.

Reading Assignments

As an elective course, you are expected to spend the time before class on the reading assignments. For each reading assignment, you will need to turn in your thoughts and questions from the assignment. Questions that many students have about the reading assignment will be incorporated into that week's lecture, so this is your best avenue for letting me know what you'd like to be covered during lecture.

Reading assignments are graded on an effort basis, which means you will receive full points if you submit something that shows honest effort by the assignment deadline. An honest effort should include at least a paragraph (or three bullet points if you prefer that format) of thoughts/questions.

Reading assignments are generally due on Sundays at 11:59pm (unless Monday is a holiday) to give me sufficient time to incorporate common questions into the lecture materials for the week.

The lowest reading assignment grade will be dropped from the overall grade calculation.

Quizzes on Class Topics

There are six quizzes on class topics which will be posted periodically through the semester. The quizzes are through the Canvas quiz functionality and are automatically graded when submitted.

The lowest quiz score will be dropped from the overall grade calculation.

Lab Assignments

Lab assignments reinforce concepts from lecture and give you an opportunity to practice hands-on skills. The lab reports are due at 11:59pm on the Thursday following the lab. Partial credit will be given for incomplete lab reports.

You may work on labs in groups of up to 3 students. If you work in a group, only one student needs to submit the lab report, but make sure to put everyone's names on the submission. Only the students whose names are on the submission will get credit for the lab. If you are in a group but are not the one submitting the report to Canvas, you may add a comment to the Canvas assignment indicating who did submit the report for your group.

The lowest lab assignment grade will be dropped from the overall grade calculation.

Checkpoint Assignments

Checkpoint assignments will be a mix of theoretical questions and reinforcement of hands-on skills learned in labs. Assignments and due dates will be posted on the course website. Partial credit will be given for incomplete submissions.

Assignments must be turned in via Canvas. Do NOT email your submission as the campus spam system sometimes silently blocks emails with attachments.

Assignments may be discussed with others in the class, but every student must turn in their own assignments in their own words. Copying from other students, the Internet (including generative AI), previous solutions, the textbook, etc. are all considered violations of the Academic Integrity Policy (see above).

The lowest checkpoint assignment grade will be dropped from the overall grade calculation.

Final

The final exam is in two parts: Part 1 is a Canvas quiz module with theoretical questions from both lecture and lab, as well as the question banks from the quizzes on class topics. Part 2 is a culminating lab practicum where you will conduct the given analysis and upload your written report.

The campus final exam schedule says that the final exam time slot for this course is Wednesday May 15, 2024 from 5:00-7:30pm. However, I am giving you the following windows to complete each part of the exam:

- Part 1 will be available from 12:01am Tuesday May 14th until 11:59pm Wednesday May 15th. This part is an auto-graded Canvas quiz. (2 day window)
- Part 2 will be posted to Canvas on Wednesday May 8th and will be due at 11:59pm on Wednesday May 15th. There will be no lab on Friday May 10th so you can use lab time to complete this part of the final exam. This part is a Canvas assignment where you will need to upload a report as your submission and I will need to manually grade the submission. (1 week window)

It is your responsibility to log into Canvas during these windows and to complete both parts of the final exam.

If you have any connectivity, power, or technology issues that cause you to get locked out of your attempt for Part 1 of the exam and/or that prevent you from uploading a submission to Part 2, contact me as soon as possible to get that resolved.

Prepared By

Melissa Danforth on 15 January 2024

Approval of Course Outline

Approved by CEE/CS Department in Spring 2014
Effective Fall 2016

Course Summary:

Date	Details	Due
Sun Jan 28, 2024	Reading Assignment 1 (for Lectures in Week 2) (https://csub.instructure.com/courses/30072/assignments/502358)	due by 11:59pm
Thu Feb 1, 2024	Lab 0: Introduction to Linux and VMware (https://csub.instructure.com/courses/30072/assignments/520692)	due by 11:59pm
Sun Feb 4, 2024	Reading Assignment 2 (for Lectures in Week 3) (https://csub.instructure.com/courses/30072/assignments/502359)	due by 11:59pm
Thu Feb 8, 2024	Lab 1: Binary Representation of Data and Files (https://csub.instructure.com/courses/30072/assignments/501405)	due by 11:59pm
Fri Feb 9, 2024	Quiz 1: Legal Foundations - Part 1 (Ch 2 & 3)	due by 11:59pm

Date	Details	Due
	(https://csub.instructure.com/courses/30072/assignments/501396)	
Sun Feb 11, 2024	Reading Assignment 3 (for Lectures in Week 4) (https://csub.instructure.com/courses/30072/assignments/502360)	due by 11:59pm
Thu Feb 15, 2024	Lab 2: Linux Overview - Users, Processes, Threads, Memory, and Other Commands (https://csub.instructure.com/courses/30072/assignments/501406)	due by 11:59pm
Sun Feb 18, 2024	Reading Assignment 4 (for Lectures in Week 5) (https://csub.instructure.com/courses/30072/assignments/502361)	due by 11:59pm
Thu Feb 22, 2024	Lab 3: Shell Scripts and Creating a Forensics Toolkit (https://csub.instructure.com/courses/30072/assignments/501407)	due by 11:59pm
Fri Feb 23, 2024	Checkpoint Assignment 1 (https://csub.instructure.com/courses/30072/assignments/501397)	due by 11:59pm
	Quiz 2: Legal Foundations - Part 2 (Ch 4 to 6) (https://csub.instructure.com/courses/30072/assignments/501394)	due by 11:59pm
Sun Feb 25, 2024	Reading Assignment 5 (for Lectures in Week 6) (https://csub.instructure.com/courses/30072/assignments/502362)	due by 11:59pm
Thu Feb 29, 2024	Lab 4: Linux Live Data Acquisition (https://csub.instructure.com/courses/30072/assignments/501408)	due by 11:59pm
Sun Mar 3, 2024	Reading Assignment 6 (for Lectures in Week 7) (https://csub.instructure.com/courses/30072/assignments/502363)	due by 11:59pm
Thu Mar 7, 2024	Lab 5: File, Partition, and Device Duplication (https://csub.instructure.com/courses/30072/assignments/501409)	due by 11:59pm
Fri Mar 8, 2024	Checkpoint Assignment 2	due by 11:59pm

Date	Details	Due
	(https://csub.instructure.com/courses/30072/assignments/501398)	
	Quiz 3: Data Acquisition (https://csub.instructure.com/courses/30072/assignments/501393)	due by 11:59pm
Sun Mar 10, 2024	Reading Assignment 7 (for Lectures in Week 8) (https://csub.instructure.com/courses/30072/assignments/502364)	due by 11:59pm
Thu Mar 14, 2024	Lab 6: Finding Hidden File Data (https://csub.instructure.com/courses/30072/assignments/501410)	due by 11:59pm
Sun Mar 17, 2024	Reading Assignment 8 (for Lectures in Week 9) (https://csub.instructure.com/courses/30072/assignments/502365)	due by 11:59pm
Thu Mar 21, 2024	Lab 7: Recovering Deleted Files (https://csub.instructure.com/courses/30072/assignments/501411)	due by 11:59pm
Fri Mar 22, 2024	Checkpoint Assignment 3 (https://csub.instructure.com/courses/30072/assignments/501399)	due by 11:59pm
	Quiz 4: Forensic Techniques for Files and Devices (https://csub.instructure.com/courses/30072/assignments/501392)	due by 11:59pm
Tue Apr 2, 2024	Reading Assignment 9 (for Lectures in Week 10) (https://csub.instructure.com/courses/30072/assignments/502366)	due by 11:59pm
Thu Apr 4, 2024	Lab 8: Recovering Data from Slack Space and Unallocated Space (https://csub.instructure.com/courses/30072/assignments/501412)	due by 11:59pm
Sun Apr 7, 2024	Reading Assignment 10 (for Lectures in Week 11) (https://csub.instructure.com/courses/30072/assignments/502367)	due by 11:59pm
Fri Apr 12, 2024	Quiz 5: Analyzing Application Data	due by 11:59pm

Date	Details	Due
	(https://csub.instructure.com/courses/30072/assignments/501391)	
	Checkpoint Assignment 4 (https://csub.instructure.com/courses/30072/assignments/501400)	due by 11:59pm
Thu Apr 18, 2024	Lab 9: Network Packet Capture (https://csub.instructure.com/courses/30072/assignments/501402)	due by 11:59pm
Sun Apr 21, 2024	Reading Assignment 11 (for Lectures in Week 13) (https://csub.instructure.com/courses/30072/assignments/502369)	due by 11:59pm
Thu Apr 25, 2024	Lab 10: Linux Logs and Configuration (https://csub.instructure.com/courses/30072/assignments/501403)	due by 11:59pm
Sun Apr 28, 2024	Reading Assignment 12 (for Lectures in Week 14) (https://csub.instructure.com/courses/30072/assignments/502370)	due by 11:59pm
Fri May 3, 2024	Quiz 6: Network and Cloud Investigations (https://csub.instructure.com/courses/30072/assignments/501390)	due by 11:59pm
Sun May 5, 2024	Reading Assignment 13 (for Lectures in Week 15) (https://csub.instructure.com/courses/30072/assignments/502371)	due by 11:59pm
Thu May 9, 2024	Lab 11: Email and Web Forensics (https://csub.instructure.com/courses/30072/assignments/501452)	due by 11:59pm
Fri May 10, 2024	Quiz: Academic Integrity (https://csub.instructure.com/courses/30072/assignments/501540)	due by 11:59pm
	Quiz: Cheating (https://csub.instructure.com/courses/30072/assignments/501541)	due by 11:59pm
	Quiz: Ethical Writing (https://csub.instructure.com/courses/30072/assignments/501542)	due by 11:59pm
	Quiz: Plagiarism	due by 11:59pm

Date	Details	Due
	(https://csub.instructure.com/courses/30072/assignments/501543)	
Wed May 15, 2024	Final Exam - Part 1 (Canvas Quiz) (https://csub.instructure.com/courses/30072/assignments/501395)	due by 11:59pm
	Final Exam - Part 2 (Culminating Lab Practicum) (https://csub.instructure.com/courses/30072/assignments/501401)	due by 11:59pm