

**Sul Ross State University
CJ 5374 Digital Forensics Syllabus
Fall 2026**

GENERAL COURSE INFORMATION

Instructor: Oguzhan Basibuyuk, Ph.D

Campus Office: MAB 109

Telephone: 432 8378166

E-mail:oguzhan.basibuyuk@sulross.edu

Class hours: Online.

Office hours: Monday, Wednesday, and Thursday between 10:00 AM and 12:00 PM

RECOMMENDED TEXTS

Computer Forensics, Author: William Oettinger. Packt Publishing. ISBN 978-1-80323-830-2

<https://www.packtpub.com/en-us/product/learn-computer-forensics-9781803239071>

<https://www.amazon.com/Learn-Computer-Forensics-searching-analyzing/dp/1803238305>

Guide to Compute Forensics and Investigations (any version from 5 to newest) Author: Bill Nelson, Amelia Phillips, Chris Steuart. Cengage Publication ISBN 978-1337568944

<https://www.amazon.com/Guide-Computer-Forensics-Investigations-Standalone/dp/1337568945>

<https://www.cengage.com/c/guide-to-computer-forensics-and-investigations-6e-nelson-phillips-steuart/9781337568944/>

USEFUL WEBSITES

[The Scientific Working Group on Digital Evidence | Digital Forensics](#)

[NIST Computer Forensics Tool Testing Program \(CFTT\)](#)

[NIST Computer Forensic Reference Data Sets](#)

[National Software Reference Library \(NSRL\)](#)

[National Institute of Justice \(NIJ\) — Digital Evidence Resources](#)

[Cybersecurity and Infrastructure Security Agency \(CISA\)](#)

[Digital Corpora](#)

[Digital Forensics Research Workshop \(DFRWS\)](#)

[International Association of Computer Investigative Specialists](#)

[Autopsy / The Sleuth Kit](#)

[The Volatility Foundation](#)

[Eric Zimmerman's Digital Forensics Tools](#)

[CyberDefenders](#)

[Forensic Focus](#)

Additional readings (e.g., articles, reports) will be posted on Blackboard.

SRSU LIBRARY SERVICES

The Sul Ross Library offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, www.library.sulross.edu . Off-campus access requires your LoboID and password. Check out materials using your photo ID. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

Once you logged in to your Sul Ross Account on Blackboard you should be automatically connected to the library webpage as well. Thus, you can browse the online databases of the University and reach the articles on the reading list.

Syllabus is subject to updates and changes always look to the course announcements and reminders for updates. The faculty member reserves the right to amend this syllabus as needed.

COURSE DESCRIPTION

This graduate course provides an advanced examination of the principles, methods, and technologies used to identify, preserve, acquire, examine, analyze, validate, and present digital evidence. Students investigate computer storage media, file systems, operating-system artifacts, deleted data, Internet activity, volatile memory, network evidence, and selected mobile and cloud artifacts. Emphasis is placed on forensic acquisition, evidence integrity, FAT/exFAT and NTFS analysis, hexadecimal interpretation, artifact correlation, timeline reconstruction, forensic-tool validation, and professional reporting. Students conduct hands-on examinations of realistic forensic datasets and progressively move from guided laboratory exercises to independent investigation. Legal, ethical, evidentiary, and expert-witness issues are incorporated throughout the course.

COURSE LEARNING OBJECTIVES

This course focuses on the use of the most popular forensics tools and provides specific guidance on dealing with civil and criminal matters relating to the law and technology. Includes discussions on how to manage a digital forensics operation in today's business environment.

Upon successful completion of the course, graduate students will be able to:

1. **Apply** accepted forensic procedures to identify, preserve, document, acquire, and maintain the integrity of digital evidence.
2. **Acquire and validate** forensic images and volatile data using appropriate acquisition methods, hashing procedures, write protection, and documentation.
3. **Analyze and interpret** storage structures and file systems, including partition structures, FAT/exFAT and NTFS, through both forensic tools and manual hexadecimal examination.
4. **Examine and correlate** operating-system, file-system, application, browser, email, removable-media, and user-activity artifacts to reconstruct relevant events.
5. **Recover and evaluate** deleted, fragmented, hidden, and carved data while explaining the technical limitations associated with recovery methods.
6. **Analyze** volatile memory, network evidence, and selected mobile/cloud artifacts using appropriate forensic methodologies.
7. **Validate forensic findings** by comparing tools, examining raw data, identifying potential sources of error, and distinguishing direct evidence from examiner interpretation.
8. **Produce and defend** a technically accurate and reproducible forensic report that communicates evidence, methodology, limitations, conclusions, and alternative explanations in a professional and legally defensible manner.

MARKETABLE SKILLS:

This course is designed also to help the students for building various marketable skills to use in their in careers Criminal Justice related professions. Specifically, in this course, the following marketable skills, which are some of the most important skills for such careers, will be emphasized during this course:

MS 1- Verbal and Written Communication Skills

MS 2- Critical Thinking and Observation

MS 3- Multicultural Understanding.

MS 4- Accessing Resources with Crime Data and the most current updates of legal codes and procedures.

MS 5- Teamwork and Working Collaboratively

MS 6- Analyzing the Factors Contributing to Crime

CLASS ATTENDANCE/PARTICIPATION:

Given that this is a fully online course, you cannot attend class in a traditional sense. However, students are expected to log into the class at their earliest convenience to check the course web page every day for announcements. Weekly forum discussions are a required part of class participation.

REACTION PAPERS/ DISCUSSIONS (10 POINTS EACH)

You will write a reaction paper every week. Each paper must be 1 page and 1.5-spaced in 12-point Times New Roman font. Reaction papers will be related to the reading of the week. When there is more than one reading assignment, then the students **SHOULD READ ALL REQUIRED READINGS BUT WRITE REACTION PAPER ON ONE OF THEM**. A reaction paper is not a summary; rather, it should include your perspective, ideas, and critique about the reading. The due dates for the reaction papers will be Sunday 11:00 pm each week.

WEEKLY QUIZZES/ (10 POINTS EACH)

You will take a quiz for every week to measure the knowledge of the week's required readings. The questions will be posted Friday 1:00 pm and due date will be Sunday 11:00 pm every week.

LAB ASSIGNMENTS (10 POINTS EACH).

There will be multiple assignments to practice hands-on experiences with digital forensic tools (e.g., EnCase, Autopsy). Each lab assignment will be conducted within 2-3 hours per each week. You will submit these assignments as Word documents. You will take a series of screen shots and paste them into a Word document. An electronic copy of lab assignments is due by the end of each class. File names for lab exercise documents should be as follows:

CJ 5374-LAB<number>-<student last name>.doc An example lab exercise document file name for student Smith is:

CJ 5374-LAB3-Smith.doc

Students should enter their lab exercise answers directly within each of the lab exercise documents and then submit the completed document appropriately renamed as stated above.

ONLINE CERTIFICATE (150 POINTS)

Students are required to complete the certificate "AWR139 Digital Forensics Basics" offered by the TEEX. The URL for registering the online certificate: <https://teex.org/class/AWR139/> . After you receive (by email) your certificate, upload an e-copy (pdf) of the certificate and the printed email letter (pdf) to the blackboard by the end of the semester.

CAPTURE-THE-FLAG (CTF) CHALLENGE (100 POINTS)

CTF Challenge was created as part of the Digital Forensics course in order to enhance students' capabilities of cybercrime investigation and handling digital evidence. This CTF Challenge is an individual-based competition that will be held during the semester (Instructor will provide specific information during the semester).

CTF WRITTEN REPORT (200 POINTS)

CTF Written Report. In line with the CTF Challenge, there will be one final written report in this course. For this assignment, you will play a role as a digital forensic examiner of a police department. Based on your CTF challenge's result, you will prepare a professional digital forensic examination report documenting the evidence examined, forensic methodology, tools and versions used, integrity verification, findings, supporting artifacts, relevant timestamps and offsets, investigative interpretations, limitations, and conclusions. Every material conclusion must be traceable to documented digital evidence. You should distinguish factual observations from examiner interpretation and identify reasonable alternative explanations when appropriate.

EXPERT WITNESS EXERCISE FOR TRIAL (200 POINTS).

In line with the CTF Challenge, there will be an expert witness exercise for trial in this course. For

this assignment, you will play a role as a digital forensic examiner of a police department who needs to conduct expert witness for a trial. Based on your CTF written report, you will be required to present digital evidences for the CTF challenge case along with a PowerPoint. You must provide a 10-minute presentation that is a recorded video through using Blackboard, PowerPoint record function or other platforms.

ACADEMIC INTEGRITY:

Sul Ross State University students are responsible for reading, understanding, and abiding by the Sul Ross Student Code of Conduct.” Student Code of Conduct, Responsibilities, Procedures, and Rights are found in the University website. Sul Ross State University and the instructor of this course both place a high priority on the academic integrity of their student scholars. As a result, all institutional guidelines and instructional policies concerning academic integrity will be strictly and uniformly enforced with all students regardless of context.

Academic integrity includes, but is not limited to, the following activities: cheating, plagiarism, collusion, fabrication, obtaining an unfair advantage, and falsifying academic records. In addition, academic dishonesty can include both actions and omissions to act in regards to academic exercises and activities. Cheating is defined here as the obtaining of information (electronic or otherwise) during an examination, the unauthorized use of books, notes, or other sources of information prior to or during an examination, the unauthorized use of books, the removal of faculty examination materials, the alteration of documents or records, or actions identifiable as occurring with the intent to defraud or use under false pretenses. Collusion is defined here as helping other students engage in acts of academic dishonesty, whether the student involved obtains any direct academic advantage from these acts. Plagiarism is defined here as the submission of the ideas, words, or artistic productions of another, without giving due credit or when attempting to falsely represent them as one’s own. See <https://sulross.libguides.com/citation/plagiarism> for more information.

POLICY ON THE USE OF ARTIFICIAL INTELLIGENCE TOOLS:

In this course, you are not required to use any form of Artificial Intelligence (AI) tools such as ChatGPT, Gemini, Copilot, etc. However, if you choose to use any AI tools as part of your assignments—other than for brainstorming, proofreading, etc.—you must provide proper citation. We use APA citation format in all of our CJ courses. For more information about proper APA citation, please visit [SRSU Library Teaching and Learning Guides](#).

Using AI tools to complete any assignment without proper citation violates academic integrity and will be considered a form of plagiarism, which is a violation of the SRSU Academic Honesty Policy under the [Student Handbook](#). If you are unsure whether something is considered an AI tool, please check with your instructor.

You are permitted to use AI tools for spell check, grammar check, and proofreading. Rephrasing sentences or reorganizing paragraphs you have drafted yourself is also allowed. However, remember that the most important part is that all work you submit must be your own. You should never include anything in your assignment that was not written directly by you without proper citation. DO NOT copy and paste directly from any AI tools.

APA STYLE:

This course will use the American Psychological Association (APA) formatting and style guide for all written assignments. If you have any questions or concerns regarding the use of APA a number of resources have been provided below. Please note that all external sources must be appropriately cited. A failure to do so constitutes plagiarism and is a violation of the course academic honesty standards. See [SRSU Library Teaching and Learning Guides](#) for help with APA.

STUDENT SUPPORT SERVICES AND BLACKBOARD HELP DESK

Sul Ross State University has established a variety of programs to help students meet the challenges of college life. Support to students includes advising, counseling, mentoring, tutoring, supplemental

instruction, and writing assistance. For a complete list of academic support services, visit the [Student Support Services](#). For more information, students are encouraged to contact SSS at (432) 837-9118 or visit Ferguson Hall Room 105. For Blackboard help visit <https://www.sulross.edu/bb> or call 432-837-8888 (M-F 08:00 am-05:00 pm).

STUDENT RESPONSIBILITIES STATEMENT

All full-time and part-time students are responsible for familiarizing themselves with the [Student Handbook](#) and the [Undergraduate & Graduate Catalog](#) and for abiding by the [University rules and regulations](#). Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize themselves with the requirements of such laws.

DISTANCE EDUCATION STATEMENT

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

SERVICE STATEMENT:

I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of pandemics, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

STUDENTS WITH SPECIAL NEEDS:

SRSU Disability Services. Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mary Schwartze Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email mschwartze@sulross.edu Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

LATE ASSIGNMENT SUBMISSION POLICY:

Students are supposed to finish their coursework on time and assignments must be submitted before the deadlines. Students are expected to show appropriate cause for missing or delaying major assignments or examinations. Late assignments will not be accepted unless there is an excuse that is recognized by the university. Discussion board posts will not be accepted for credit once the discussion board closes.

GRADING:

There will be 1 midterm exam and weekly quizzes throughout the semester, with questions drawn from the readings and the supplemental materials, will be posted on the Blackboard. The midterm exam will

be worth 200 points. There will be no makeup exam. Every week there will be a quiz for the related chapter(s). Each quiz will worth 10 points. The total grade will be 130 for all quizzes. Weekly reaction papers (Including research topic and intro paper assignment) will be 10 points each. The total grade for papers will be 130. Your final paper will worth 400 points.

Weekly Quizzes	130 pts (13 quizzes, 10 points each)
Reaction papers	130 pts (13 papers, 10 points each)
AWR139 Digital Forensics Basics Certificate	150 pts
Capture-the-Flag (CTF) Challenge	100 pts
Lab Assignments	60 pts (6 assignments, 10 each)
CTF Written Report	200 pts
Expert Witness Exercises for Trial Paper	200 pts
Total	970 pts

Scale:

A 970-870 B 869-770 C 769-670 D 6699-570 F569 & below

ASSIGNMENTS AND LABS

Assignments and labs will be based on chapter questions and other class-related materials. All assignments and labs should be submitted to the blackboard. Other submission formats {e.g., via email or hand-written papers) will not be accepted. For lab assignments we will frequently use Autopsy Digital Forensics tool for data acquisition. The software is available from <https://www.autopsy.com/>

ACADEMIC CALENDAR

W	DATES	TOPICS	READINGS
1	August 24-30	Introduction of the course and syllabus	
2	August 31-Sept 6	Understanding the Digital Forensics Profession and Investigations	Oettinger , Chapter1 Nelson, et al Chapter 1 Quiz 1
3	Sept 7-13	The Investigator's Office and Laboratory and Data Acquisition Process	Oettinger , Chapter2 Nelson, et al Chapter 3 Quiz 2
4	Sept 14-20	Th Processing Crime and Incident Scenes e Law and Criminal Investigations	Nelson, et al Chapter 4 Quiz 3
5	Sept 21-27	Acquisition of Evidence	Oettinger , Chapter3 Quiz 4
6	Sept 28-Oct 4	Computer Systems	Oettinger , Chapter 4 Quiz 5
7	Oct 5- 11	Computer Investigation process and Windows Artifact Analysis	Oettinger , Chapter 5-6 Quiz 6
8	Oct 12-18	Recovering Graphics Files	Nelson, et al Chapters 8 Quiz 7
9	Oct 19-Oct 25	Digital Forensics Analysis and Validation MIDTERM EXAM	Nelson, et al Chapters 9 Quiz 8
10	Oct 26-Nov 1	RAM Memory Fornsic Analysis	Oettinger , Chapter 7 Quiz 9
11	Nov 2-8	Email Forensics	Oettinger , Chapter 8 Nelson, et al Chapter 11 Quiz 10
12	Nov 9-15	Internet Artifacts	Oettinger , Chapter 9 Quiz 11

13	Nov 16-22	Report Writing for High Tech Investigations	Oettinger, Chapter 12 Nelson, et al Chapter 14 Quiz 12
14	Nov 23-30	The Investigator's Office and Laboratory and Current Digital Forensics Tools	Nelson, et al Chapter 2-4
15	Dec 1-6	Expert Testimony in High Tech Investigations Ethics for the Investigator and Expert Witness	Oettinger, Chapter 13 Nelson, et al Chapters 15-16 Quiz 13
16	Dec 8	FINAL EXAM	

END OF COURSE EVALUATIONS:

Student evaluations of faculty are administered online at the end of each term/session for all courses with five or more students. Students will receive an email containing a link to a survey for each course in which they are enrolled. All responses are anonymous.