

CSCI 5348 – DIGITAL FORENSICS

CREDIT HOURS: 3

PREREQUISITES: Admittance into the graduate program in Cyber Security

RECOMMENDED PREREQUISITE COURES:

CSCI 3341 Algorithm Analysis;

CSIT 4355 Enterprise Security or CSCI 4347 Cyber Security Concepts and Practice

CATALOG DESCRIPTION

Study of computer and cyber forensics. Learn and demonstrate understanding of different aspects of computer and cyber-crime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedures, and be able to use them to study and practice forensic investigations.

PURPOSE OF COURSE

To acquire the hands-on skills necessary for computer forensics through the use of case studies, hands-on exercises, and a final project. To study the perspectives of computer and related legal processes for evidence discovery, collection, and protection. To discuss relevant computer crimes from state and federal law, methods of interaction with law enforcement and prosecutors, admissibility of expert witness testimony and the use of forensic reports in civil, regulatory and internal investigations

EDUCATIONAL OBJECTIVES

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

1. Identify the needs for forensic analysis in key critical infrastructure in various segments of our society.
2. Understand the complexity of the networks that make security and forensics a necessity.
3. Distinguish the need for cyber forensics in the use of discovering, protecting, and documenting digital evidence.
4. Demonstrate how to select and utilize appropriate software forensics tools used in forensic analysis.
5. Demonstrate the selection and use of hardware forensics equipment to protect and analyze forensic evidence.

COURSE CALENDAR

This course meets for a minimum of 37.5 lecture contact hours during the semester. Students have significant assignments based on readings from the primary literature, participate in classroom discussions regarding current research topics, complete periodic homework and laboratory/programming assignments, and periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or in the reading material. Successful completion of these activities requires at a minimum six additional hours of outside of classroom work each week.

CONTENT

Hours

Understanding Digital Forensics.....3

The profession and need for forensics
History of forensics

Tools	9
Current software	
Required hardware	
Performing Investigations	9
Data Acquisition	
Crime screen processing	
Processing Windows systems	
Processing LINUX and Macintosh file systems	
Virtual machine forensics	
Detailed Forensics Applications	9
Email and Social Media	
Mobile devices	
Cloud forensics	
Results.....	9
Report writing	
Expert testimony	
Ethics for the expert witness	
Exams (plus final).....	6
	TOTAL 45

REFERENCES

Phillips, Nelson, Enfinger and Steuart, Guide to Computer Forensics and Investigators, 5th Ed. Course Technology 2015

Bunting, EnCase Computer Forensics -- The Official EnCE: EnCase Certified Examiner Study Guide 3rd Edition Sybex, 2012

Casey, Digital Evidence and Computer Crime: Forensic Science, Computers and the Internet, 3rd Edition 3rd Edition Academic Press, 2011

Attendance Policy:

Attendance will be taken at the beginning of each class. If you have 3 unexcused absences, then your final grade will be reduced by one letter grade. If you have 4 unexcused absences, you will receive an "F" in the course. To receive an excused absence a written and signed notice is required within three class days of the absence. If you miss class without approval of your instructor, you will receive a grade of zero on the missed assignment. Authorized absences must be approved by your instructor in advance of the absence unless you have an emergency or illness. Make-up work must be completed outside of normal class hours and within one week following an excused absence. It is your responsibility to see your instructor and make arrangements for make-up work.

Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades - Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to <http://www.sfasu.edu/disabilityservices/>.

Mental Health Statement

SFASU values students' mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students' mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:

SFASU Counseling Services
www.sfasu.edu/counselingservices
3rd Floor Rusk Building
936-468-2401

SFASU Human Services Counseling Clinic
www.sfasu.edu/humanservices/139.asp
Human Services Room 202
936-468-1041

Crisis Resources:

Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741