

# Texas A&M University - Central Texas

## CIS 3361-110 Intro to Computer Forensics

### INSTRUCTOR AND CONTACT INFORMATION

**Instructor:** Abdul B. Subhani

**Office:** ONLINE Only

**Phone:** 254 213 4740

**Email:** [asubhani@tamuct.edu](mailto:asubhani@tamuct.edu)

#### **Office Hours:**

Tuesday and Fridays – 4:00 PM to 6:00 PM – Appointments Required – Online Only

#### **Mode of instruction and course access:**

This course is a 100% online course and uses the TAMUCT Canvas Learning Management System: <https://tamuct.instructure.com>

#### **Student-instructor interaction:**

Contact me via Canvas Inbox, if you do not hear back from me within 48 hours, please contact me via email.

#### **911 Cellular:**

Emergency Warning System for Texas A&M University-Central Texas

911Cellular is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in 911Cellular through their myCT email account.

Connect at [911Cellular](https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management) [https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management] to change where you receive your alerts or to opt out. By staying enrolled in 911Cellular, university officials can quickly pass on safety-related information, regardless of your location.

### **COURSE INFORMATION**

#### **Course Overview and Description:**

The course focuses on clear and authoritative instructions about the field of computer forensics as it applies to the investigative process; from the collection of digital evidence to the presentation of Computer Forensic Examination findings in a court of law. Upon successful completion of the course, students will have a basic understanding of the computer forensic process, the scientific procedure involved in accounting, law enforcement, and computer sciences. Topics also include the science of computer forensics and how it relates to and is utilized within the judicial system of the United States.

**Course Objective:**

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.

**Student Learning Outcomes:**

After completing this course, students will:

- Understand the digital forensics profession and investigations
- Understand the investigator's office and laboratory
- Understand data acquisition
- Learn the process of crime and incident scenes
- Work with Windows and CLI Systems
- Review current digital forensics tools
- Examine Linux and Macintosh File Systems
- Learn how the recover process of graphic files
- Understand digital forensics analysis and validation
- Review virtual machine forensics, live acquisitions, and network forensics

**Competency Goals Statements (certification or standards):**

- Ability to prepare digital investigations and conduct investigations
- Ability to meet the requirements for a digital forensics lab and building cases for said lab
- Ability to use data acquisition tools for numerous formats, (i.e. RAID, network, etc.)
- Ability to capture, store, and maintain digital evidence
- Ability to understand how Windows and CLI systems function, (such as file systems, NTFS disks, Windows Registry, etc.) and be able to create virtual machines
- Ability to evaluate digital forensics tool needs as well as knowing the validation and testing process
- Ability to understand how Linux and Macintosh file systems work and are structured
- Ability to recognize, understand, locate, recover, and identify graphic and file formats
- Ability to determine which data to collect and analyze, validate said data, and use the different data-hiding techniques
- Ability to work with virtual machines, (such as Type 1 and 2 Hypervisors), perform live acquisitions of Windows, and working with network forensics

**Required Reading and Textbook(s):**

Bill Nelson, Amelia Phillips, Christopher Steuart, *Guide to Computer Forensics and Investigations Fifth Edition*. Cengage Learning, 2016, ISBN-13: 978-1-305-71651-3.

<http://labconnection.net/Login.aspx>

You will need to register to LabConnection using the Access Code with your book. Then you will need to provide this class code:

### **CPUForInv2019**

You will then have access to the labs for the course. Grades for the labs are not automatically transferred to Canvas so you will not see the gradebook reflect it until I manually input your grades from the labs.

### **Course Requirements:**

- All assignments needs to be submitted via canvas assignment to receive the credit.
- All assignments, labs, discussion board, quizzes, midterm and final exam have scheduled due dates.  
Assignments after the due date will NOT be accepted and will receive a grade of zero.
- Missed examinations will receive a grade of zero. Only students who present a compelling and documented explanation MAY arrange for a make-up examination.

### **Grading Criteria Rubric and Conversion**

Assignments	200 points
Labs	200 points
Discussions	150 points
Quizzes	250 points
Midterm	100 points
Final	100 points

TOTAL: 1000 points

<b>Course Grade Calculation</b>					
<b>Grade</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Percent</b>	90-100%	80-89%	70-79%	60-69%	0-59%
<b>Points</b>	900-1000	800-899	700-799	600-699	0-599

**Posting of Grades:**

- All student grades will be posted on the Canvas Grade book and students should monitor their grading status through this tool.
- Grades for quizzes and exams will be posted as soon as they are completed. All other assignments will have their grades posted no later than two weeks after the assignment due date.

**COURSE OUTLINE AND CALENDAR**

**Complete Course Calendar**

	<b>Chapter(s)</b>	<b>Assignments</b>	<b>Due Date</b>
<b>Week 1</b>	<p><b>Chapter 1 &amp; 2</b></p> <ul style="list-style-type: none"> <li>- Describe the field of digital forensics</li> <li>- Explain how to prepare for computer investigations and summarizes the difference between public-sector and private-sector investigations</li> <li>- Explain the importance of maintaining professional conduct</li> <li>- Describe how to prepare a digital forensics investigation by taking a systematic approach</li> <li>- Describe procedures for private-sector digital investigations</li> <li>- Explain requirements for data recovery workstations and software</li> <li>- Summarize how to conduct an investigation, including critiquing a case</li> <li>- Describe certification requirements for digital forensics labs</li> <li>- List physical requirements for a digital forensics lab</li> <li>- Explain the criteria for selecting a basic forensic workstation</li> <li>- Describe components used to build a business case for developing a forensics lab</li> </ul>	<p>Review Questions for Chapter 1 &amp; 2</p> <p>Labs for Chapter 1 &amp; 2</p>	09/01/19
<b>Week 2</b>		<p>Discussions for Chapter 1 &amp; 2</p> <p>Quizzes for Chapter 1 &amp; 2</p>	

<p><b>Week 3</b></p> <p><b>Week 4</b></p>	<p style="text-align: center;"><b>Chapter 3</b></p> <ul style="list-style-type: none"> <li>- List digital evidence storage formats</li> <li>- Explain ways to determine the best acquisition method</li> <li>- Describe contingency planning for data acquisitions</li> <li>- Explain how to use acquisition tools</li> <li>- Describe how to validate data acquisitions</li> <li>- Describe RAID acquisition methods</li> <li>- Explain how to use remote network acquisition tools</li> <li>- List other forensics tools available for data acquisitions</li> </ul>	<p>Review Questions for Chapter 3</p> <p>Labs for Chapter 3</p> <p>Discussion for Chapter 3</p> <p>Quiz for Chapter 3</p>	<p style="text-align: center;">09/15/19</p>
<p><b>Week 5</b></p> <p><b>Week 6</b></p>	<p style="text-align: center;"><b>Chapter 4</b></p> <ul style="list-style-type: none"> <li>- Explain the rules for controlling digital evidence</li> <li>- Describe how to collect evidence at private-sector incident scenes</li> <li>- Explain guidelines for processing law enforcement crime scenes</li> <li>- List the steps in preparing for an evidence search</li> <li>- Describe how to secure a computer incident or crime scene</li> <li>- Explain guidelines for seizing digital evidence at the scene</li> <li>- List procedures for storing digital evidence</li> <li>- Explain how to obtain a digital hash</li> <li>- Review a case to identify requirements and plan your investigation</li> </ul>	<p>Review Questions for Chapter 4</p> <p>Lab for Chapter 4</p> <p>Discussion for Chapter 4</p> <p>Quiz for Chapter 4</p>	<p style="text-align: center;">09/29/19</p>
<p><b>Week 7</b></p> <p><b>Week 8</b></p>	<p style="text-align: center;"><b>Chapter 5</b></p> <ul style="list-style-type: none"> <li>- Explain the purpose of structure of file systems</li> <li>- Describe Microsoft file structures</li> <li>- Explain the structures of NTFS disks</li> <li>- List some options for decrypting drives encrypted with whole disk encryption</li> <li>- Explain how the Windows Registry works</li> <li>- Describe Microsoft startup tasks</li> </ul>	<p>Review Questions for Chapter 5</p> <p>Lab for Chapter 5</p> <p>Discussion for Chapter 5</p> <p>Quiz for Chapter 5</p>	<p style="text-align: center;">10/13/19</p>

	-Explain the purpose of a virtual machine		
<b>Midterm Exam</b>			10/18/19
<b>Week 9</b>	<b>Chapter 6 &amp; 7</b> - Explain how to evaluate needs for digital forensics tools - Describe available digital forensics software tools	Review Questions for Chapter 6 & 7  Labs for Chapter 6 & 7	10/27/19
<b>Week 10</b>	- List some considerations for digital forensics hardware tools - Describe methods for validating and testing forensics tools - Describe Linux file structures - Describe Macintosh file structures - Use Linux forensics tools	Discussions for Chapter 6 & 7  Quizzes for Chapter 6 & 7	
<b>Week 11</b>	<b>Chapter 8</b> - Describe types of graphic file formats - Explain types of data compression	Review Questions for Chapter 8  Lab for Chapter 8	11/10/19
<b>Week 12</b>	- Explain how to locate and recover graphic files - Describe how to identify unknown file formats - Explain copyright issues with graphics	Discussion for Chapter 8  Quiz for Chapter 8	
<b>Week 13</b>	<b>Chapter 9</b> - Determine what data to analyze in digital forensics investigation	Review Questions for Chapter 9  Lab for Chapter 9	11/24/19
<b>Week 14</b>	- Explain tools used to validate data - Explain common data-hiding techniques	Discussion for Chapter 9  Quiz for Chapter 9	
<b>Week 15</b>	<b>Chapter 10</b> - Explain standard procedures for conducting forensic analysis of virtual machines	Review Questions for Chapter 10  Lab for Chapter 10	12/08/19
<b>Week 16</b>	- Describe the process of a live acquisition - Explain network intrusions and unauthorized access - Describe standard procedures in network forensics and network-monitoring tools	Discussion for Chapter 10  Quiz for Chapter 10	
<b>Final Exam</b>			12/13/19

**Important University Dates:**

August 28, 2019	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
September 2, 2019	Labor Day (University Closed)
September 3, 2019	Deadline to Drop First 8-Week Classes with No Record
September 11, 2019	Deadline to drop 16-Week Classes with No Record
October 1, 2019	Deadline for Teacher Education and Professional Certification Applications
October 4, 2019	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
October 4, 2019	Deadline for Graduation Application for Ceremony Participation
October 15, 2019	Deadline for Clinical Teaching/Practicum Applications
October 18, 2019	Classes End for First 8-Week Session
October 18, 2019	Deadline to Withdraw from University for First 8-Week Classes (WF)
October 21, 2019	Add, Drop, and Late Registration Begins for Second 8-Week Classes. \$25 fee assessed for late registrants
October 21, 2019	Classes Begin for Second 8-Week Session
October 21, 2019	Class Schedule Published for Spring Semester
October 22, 2019	Deadline for Faculty Submission of First 8-Week Class Final Grades (due by 3pm)
October 23, 2019	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
October 28, 2019	Deadline to Drop Second 8-Week Classes with No Record
November 4, 2019	Registration Opens for Spring Semester
November 8, 2019	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
November 11, 2019	Veterans Day (University Closed)
November 28-29, 2019	Thanksgiving (University Closed)
November 29, 2019	Deadline to Drop Second 8-Week Classes with a Quit (Q) or Withdraw (W)
December 13, 2019	Deadline for Applications for Tuition Rebate for Fall Graduation (5pm)
December 13, 2019	Deadline for Degree Conferral Applications to the Registrar's Office; \$20 Late Application Fee

December 13, 2019	Deadline to Withdraw from University for 16- and Second 8-Week Classes
December 13, 2019	Fall Semester Ends

## INSTRUCTOR POLICIES

### **Examinations & Quizzes missed, will receive a grade of zero.**

Students who present a compelling reason in ADVANCE may schedule a make-up Quiz or an Exam.

### **Copyright Notice.**

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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## TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements.

This course will use the A&M-Central Texas Instructure Canvas learning management system. Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)  
Password: Your MyCT password

### **Canvas Support**

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

### **Other Technology Support**

For log-in problems, students should contact Help Desk Central.

24 hours a day, 7 days a week:



Email: [helpdesk@tamu.edu](mailto:helpdesk@tamu.edu)

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

*Please let the support technician know you are an A&M-Central Texas student.*

## **COURSE AND UNIVERSITY RESOURCES, PROCEDURES, AND POLICIES**

### **Drop Policy.**

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [[https://www.tamuct.edu/registrar/docs/Drop\\_Request\\_Form.pdf](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf)].

Professors cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed, signed and returned. Once you return the signed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

### **Academic Integrity.**

Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be reported to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

### **Academic Accommodations.**

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion at (254) 501-5831. Any information you provide is private and confidential and will be

treated as such.

For more information please visit our [Access & Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) web page [https://www.tamuct.edu/student-affairs/access-inclusion.html].

**Important information for Pregnant and/or Parenting Students.**

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit the [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) web page [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines online](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf), please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

**Tutoring.**

Tutoring is available to all A&M-Central Texas students, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 519-5796, or by emailing Dr. DeEadra Albert-Green at [deeadra.albertgreen@tamuct.edu](mailto:deeadra.albertgreen@tamuct.edu).

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive FREE online tutoring and writing support. This tool provides tutoring in over 40 subject areas. Access Tutor.com through Canvas.

**The University Writing Center.**

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00

p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.

Students may arrange a one-on-one session with a trained and experienced writing tutor by visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WOnline](https://tamuct.mywconline.com/) at [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) for any assistance needed with scheduling.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

If you have any questions about the UWC, please do not hesitate to contact Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu).

### **University Library.**

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other

events. For more information, please visit our [Library website](http://tamuct.libguides.com/index)  
[http://tamuct.libguides.com/index].