

**CIS 4348-110 Security Trends and Malware Analysis**  
Fall 2018  
Texas A&M University - Central Texas

**INSTRUCTOR AND CONTACT INFORMATION**

**Instructor:** Emmet Gray

**Office:** no office

**Phone:** no phone, COBA Admin - (254) 519-5437

**Email:** Canvas Inbox (preferred) or TAMUCT email (e.gray@tamuct.edu)

**Office Hours:**

No office hours, but I can meet with students at the university by appointment.

**Mode of instruction and course access:**

This is a face-to-face course that makes extensive use of the TAMUCT Canvas Learning Management System (<https://tamuct.instructure.com>). The course syllabus, schedule, supplemental readings, class announcements, power point slides, learning modules, homework assignments, exams and other course related documents will be posted on Canvas. Each student is responsible for the posted material, and should check Canvas several times a week for updates.

**Student-instructor interaction:**

I typically respond to Canvas email within 24 hours except on weekends. I can meet with students at the university by appointment.

**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 911 Cellular through their myCT email account.

Connect at 911Cellular [<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:

Examine different malware concepts and the technologies these malicious software use to achieve their directive. Discusses how to hunt down and collect malware samples from different sources. Use a malware analysis lab to analyze malware using the right set of tools.

### Course Objective:

This course analyzes and investigates security threats and ethical hacking methods. It will introduce students to modern malware analysis techniques through a detailed examination of malware, virus, and malicious code operation by examining case studies and hands-on interactive analysis of real world samples. The course will also examine in detail current trends in the threat environment and the most current attack exploits. Student will use a variety of methods to investigate current security threats and their mitigation. Topics include malware morphology, disassembly of malware, ethical hacking methods on systems including penetration, and trends in the threat-scape.

### Student Learning Outcomes:

The student will gain an understanding of the following topics:

- The malware concepts and technologies
- The types of malware and how they are categorized
- How malware protects itself from security products
- The things that malware depends upon to operate
- How to collect malware from different sources
- How to setup a static and dynamic analysis lab
- Introduction to the Portable Executable file format
- How to use techniques and tools for malware analysis

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

Section not used

### Required Reading and Textbook(s):

Required:

*Advanced Malware Analysis 1st Edition*

Author: Christopher C. Elisan

Publisher: McGraw-Hill Education; 1 edition (August 13, 2015)

ISBN-13: 978-0071819749

*Note: An electronic version of the book may be available.*

*Note: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent*

*retailer, including an online retailer.*

**Supplemental Material:**

The course textbook will be supplemented with other materials including lecture notes, handouts, oral presentations, industry articles, research paper readings, case studies, Power Point presentations etc.

**Required Reading:**

The student is expected to read and review all material presented in the assigned chapter prior to class.

# COURSE REQUIREMENTS

## Course Requirements

**Examinations:** There will be two exams, one midterm and one final exam. Each is worth 15 points. The midterm covers chapters 1-7 and the final covers chapters 8-13. Exams will be conducted in class.

**Quizzes:** There will be 6 take-home small quizzes. Each quiz is worth 5 points. The quizzes will be available via Canvas for a short period of time (typically 1 week), must be completed in one session, and be will timed.

**Assignments:** There will be 6 take-home assignments. Each assignment will be worth 5 points. Assignments will typically be available on Canvas for 2 weeks. Multiple submissions are typically allowed. If an assignment has multiple files, you will be required to “zip” the files prior to submission via Canvas.

**Term Project:** There will be 1 term project that is worth 10 points. This assignment will typically be available on Canvas for 4 weeks.

Item	Quantity	Points	Total	Percent
Exams	2	15.00	30.0	30%
Quizzes	6	5.00	30.0	30%
Assignments	6	5.00	30.0	30%
Term Project	1	10.00	10.0	10%
Total			100.0	100%

## Grading Criteria Rubric and Conversion

**Exams & Quizzes:** Exams and quizzes will receive a numeric score (0-100) each. Scores will be converted to points and totaled as shown in the example below:

Quiz	Score	Percent	Max Points	Points
Quiz 1	95	95%	5.00	4.75
Quiz 2	100	100%	5.00	5.00
Quiz 3	80	80%	5.00	4.00
Quiz 4	85	85%	5.00	4.25
Quiz 5	86	86%	5.00	4.30
Quiz 6	88	88%	5.00	4.40

**Requirements for Assignments:** Assignments must follow the requirements as stated in the Canvas assignment system, demonstrate the concepts, pass validation, be organized, meet accessibility guidelines, and use proper English.

The following grading rubric is used for assignments:

Criterion	% of Grade	Excellent (100%)	Adequate (80%)	Poor (60%)	Not Met (0%)
Assignment Requirements	25%	Meets all of the requirements of the assignment	Minor details of the requirements are missing	Significant details of the requirements are missing	Significant portions of the requirement are not met
Topic-specific Objectives	30%	Fully demonstrates the concepts of the topic	Applies major and minor concepts of the topic	Applies major concepts of the topic	Topic concepts not in evidence
Valid Project features	30%	No issues	1 or 2 issues	3 or 4 issues	5 or more issues
Readable, Organized	10%	Page is well organized, easy to understand	Minor issues with formatting, organization	Majority of assignment has formatting issues	No formatting found
Spelling, punctuation, grammar	5%	No issues	1 or 2 issues	3 or 4 issues	5 or more issues

**Conversion:** Numeric scores are converted to letter grades as follows:

*Note: I do not round up numeric scores*

Grade	Points	Percent
A	90 - 100 points	90 - 100%
B	80 - 89 points	80 - 89%
C	70 - 79 points	70 - 79%
D	60 - 69 points	60 - 69%
F	0 - 59 points	0 - 59%

**File Naming Convention:** Submit your assignments via Canvas using file names with the following format:

CIS4348 [AssignmentID] [LastName.FirstName].[extension]

Example:

CIS4348 Assignment1 Doe.John.docx

**Late Policy:** Quizzes, and Assignments are due by midnight on the date assigned in Canvas. Typically, this is 11:59 PM on Thursdays. A 5-point penalty will be assessed for each day a requirement is late.

**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 will be posted within 7 days after of the due date.

## COURSE OUTLINE AND CALENDAR

### Complete Course Calendar

Week	Class	Date	DOW	Class Activity	What's Due	Notes
1	1	08/28/2018	Tue	Intro & Chapter 1		
1	2	08/30/2018	Thu	Chapter 1	Syllabus Quiz	
2	3	09/04/2018	Tue	Chapter 2		
2	4	09/06/2018	Thu	Chapter 2	Assignment 1	
3	5	09/11/2018	Tue	Chapter 3		
3	6	09/13/2018	Thu	Chapter 3	Quiz 1	
4	7	09/18/2018	Tue	Chapter 4		
4	8	09/20/2018	Thu	Chapter 4	Assignment 2	
5	9	09/25/2018	Tue	Chapter 5		
5	10	09/27/2018	Thu	Chapter 5	Quiz 2	
6	11	10/02/2018	Tue	Chapter 6		
6	12	10/04/2018	Thu	Chapter 6	Assignment 3	
7	13	10/09/2018	Tue	Chapter 7		
7	14	10/11/2018	Thu	Chapter 7	Quiz 3	
8	15	10/16/2018	Tue	Review		
8	16	10/18/2018	Thu	Midterm Exam	Exam (in class)	
9	17	10/23/2018	Tue	Chapter 8		
9	18	10/25/2018	Thu	Chapter 8	Assignment 4	
10	19	10/30/2018	Tue	Chapter 9		
10	20	11/01/2018	Thu	Chapter 9	Quiz 4	
11	21	11/06/2018	Tue	Chapter 10		
11	22	11/08/2018	Thu	Chapter 10	Assignment 5	
12	23	11/13/2018	Tue	Chapter 11		
12	24	11/15/2018	Thu	Chapter 11	Quiz 5	
13	25	11/20/2018	Tue	Chapter 12		
13		11/22/2018	Thu		Assignment 6	Thanksgiving
14	26	11/27/2018	Tue	Chapter 12		
14	27	11/29/2018	Thu	Chapter 13	Quiz 6	
15	28	12/04/2018	Tue	Chapter 13		
15	29	12/06/2018	Thu	Chapter 13	Term Project	
16	30	12/11/2018	Tue	Review		
16	31	12/13/2018	Thu	Final Exam	Exam (in class)	

## University Calendar

Date	Activity
08/24/2018	Deadline for Tuition and Fee Payments (16- & First 8-Week Classes)
08/27/2018	Add, Drop, and Late Registration Begins for 16- and First 8-Week Classes.
08/27/2018	Classes Begin for Fall Semester
08/29/2018	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
09/03/2018	Labor Day
09/04/2018	Deadline to Drop First 8-Week Classes with No Record
09/12/2018	Deadline to drop 16-Week Classes with No Record
10/05/2018	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
10/05/2018	Deadline for Graduation Application for Ceremony Participation
10/05/2018	Student End of Course Survey Opens (First 8-Week Classes)
10/12/2018	Deadline for Fall Admissions Applications
10/15/2018	Deadline for Clinical Teaching Applications
10/19/2018	Classes End for First 8-Week Session
10/19/2018	Deadline for Tuition and Fee Payments (Second 8-Week Classes)
10/19/2018	Deadline to Withdraw from University for First 8-Week Classes (WF)
10/22/2018	Add, Drop, and Late Registration Begins for Second 8-Week Classes
10/22/2018	Classes Begin for Second 8-Week Session
10/22/2018	Student End of Course Survey Closes (First 8-Week Classes)
10/23/2018	Deadline for Faculty Submission of First 8-Week Class Final Grades (due by 3pm)
10/24/2018	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
10/29/2018	Deadline to Drop Second 8-Week Classes with No Record
11/01/2018	Deadline for GRE/GMAT Scores to Office of Graduate Studies
11/01/2018	Deadline for Teacher Education Program Applications
11/09/2018	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
11/12/2018	Veterans Day (Observed) - No Class
11/16/2018	Deadline for Final Committee-Edited Theses with Committee Approval
11/22/2018	Thanksgiving
11/23/2018	Thanksgiving
11/30/2018	Deadline to Drop Second 8-Week Classes with a Quit (Q) or Withdraw (W)
12/01/2018	Student End of Course Survey Opens (16- and Second 8-Week Classes)
12/14/2018	Commencement Ceremony Bell County Expo Center 7:00 p.m.
12/14/2018	Deadline for Applications for \$1,000 Tuition Rebate for Fall Graduation (5pm)
12/14/2018	Deadline for Fall Degree Conferral Applications to the Registrar's Office
12/14/2018	Deadline to Withdraw from University for 16- and Second 8-Week Classes
12/14/2018	Fall Semester Ends
12/17/2018	Student End of Course Survey Closes (16- and Second 8-Week Classes)
12/18/2018	Deadline for Faculty Submission of 16-Week and Second 8-Week Final Class Grades



## **INSTRUCTOR POLICIES**

### **Policies related to absence, grading, etc.**

- You are responsible for all class material presented during an absence.
- All work is submitted through Canvas and due on the specified due date/time.
- A penalty of 5 points per day is applied to late Exams, Quizzes, and Assignments.
- Most assignments can be submitted multiple times, even after grading
- Late penalties are also applied to resubmitted items
- Missed exams, quizzes, and assignments will receive a grade of zero.

### **My Personal Statement**

- You will receive feedback in the form of graded assignments within 7 days after the due date.
- I want you to read the feedback that I provide to you (your personal grading notes, Canvas emails, and Canvas discussion forums).
- I am almost always available via email and typically respond within 24 hours except on weekends.
- I prefer email over phone conversations

### **Copyright Notice.**

Section Not Used

## TECHNOLOGY REQUIREMENTS AND SUPPORT

### Technology Requirements.

This course will require that you get a DreamSpark/Imagine account so that you can download multiple versions of Windows for installing in the classroom. Students need to go to the computer lab in Warrior Hall and complete the paperwork for DreamSpark/Imagine access. *I highly recommend that you do NOT wait until the first day of class to request access.*

You will also need a way to transport your work to/from school. There are generally two ways to do this:

- Use a personal laptop that you carry to class every day (and not use the PCs in the classroom)
- Use an external hard drive that use on both your home PC and the university's PCs

If you choose to get an external hard drive, I'd recommend that you get a "self-powered" USB 3.0 based hard drive of at least 250 Gb in size. *I do NOT recommend that you use a USB-Flash drive.*

You will need to install VirtualBox on your PC at home. See: <http://www.virtualbox.org>

This course will be using Microsoft Word. Students may be able to obtain copies of Microsoft Office products through the University (see: <https://tamuct.onecampus.com/task/all/office365-software>)

This course will use the TAMUCT Instructure Canvas learning management system.

Logon to TAMUCT Canvas [<https://tamuct.instructure.com>]

Username: Your MyCT username

(xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

### Technology Support.

For technology issues, 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>

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

For issues with Canvas, select "chat with Canvas support," submit a support request to Canvas Tier 1, or call the Canvas support line: 1-844-757-0953, links to all are found inside of Canvas

using the “Help” link. For issues related to course content and requirements, contact your instructor.

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

## **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, found through the [Registrar's web page](#):

<https://www.tamuct.edu/departments/business-office/droppolicy.php>

Professors cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the University 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-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 Department 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 Department 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 webpage](#):

<http://www.tamuct.edu/departments/access-inclusion>.

TAMUCT supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and 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. For more information, please visit <https://www.tamuct.departments/index.php>. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](#), please visit: <http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf>.

### **Tutoring**

Tutoring is available to all TAMUCT students, both on-campus and online. On-campus subjects tutored 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 any other question, contact Academic Support Programs at 254-519-5796, or by emailing Kim Wood at [k.wood@tamuct.edu](mailto:k.wood@tamuct.edu).

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

### **The University Writing Center**

Located in 416 Warrior Hall, the University Writing Center (UWC) at Texas A&M University – Central Texas is a free workspace open to all TAMUCT students from 10am-4pm Monday-Thursday during the Summer semester (June 5, 2017 to July 27, 2017). 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). 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 University Writing Center is here to help!

If you have any questions about the University Writing Center, 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 72,000 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 TAMUCT 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 twenty-four 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 TAMUCT 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 [homepage](https://tamuct.libguides.com/): <https://tamuct.libguides.com/>