



# **BUSA 533: Cyber Security and IT Auditing**

## **SUMMER I – 2020 (JUNE 1 – JULY 2)**

**Instructor:** DR. ZAKI MALIK

**Office Hours:** By Appointment

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Please use emails to ask me questions, and use BUSA-533 in the subject line of the email. This is the fastest way to reach me.

## **COURSE INFORMATION**

### **Required Textbook**

#### **Computer Security & Penetration Testing**

by A. Basta, N. Basta, M. Brown

ISBN: 9780840020932

## **COURSE DESCRIPTION**

In this course, you will develop and gain an understanding of the principles, concepts, and methods to prevent and detect outside attack in business environment.

### **Learning Objectives**

The purpose of this course is to give students of all backgrounds and experience levels a well-researched and engaging introduction to the realm of network security. With real-world examples that reflect today's most important and relevant security topics, this course addresses how and why people attack computers and networks, so that students can be armed with the knowledge and techniques to successfully combat hackers. Because the world of information security changes so quickly and is often the subject of much hype, this course also aims to provide a clear differentiation between hacking myths and hacking facts. Hands-on exercises are included, which allow students to practice skills as they are learned.

### **Student Learning Outcomes**

Students will:

1. Develop a security mindset
2. Get familiar with various attack techniques
3. Learn hands-on methods of attack prevention and detection
4. Demonstrate knowledge and proficiency in:
  - a. Ethics of Hacking and Cracking
  - b. Cryptography

- c. Reconnaissance
- d. Sniffers
- e. Malware
- f. Linux
- g. General hacking skills and knowledge
- h. Vulnerability scanning

## GRADING

### Assignments (A Maximum of 50 Points)

You will have about 10 assignments to help you master materials in the class. These application assignments will count as 50% of your final grade.

- Assignments are very important to your final grade! Please be sure to complete and submit every assignment by the deadline.
- The weightage of assignments “may differ”. If any assignment weighs more, it will be communicated to the students in advance.

### Exams (A Maximum of 50 Points)

Two exams will be given during the semester. You can get a maximum of 25 points for each exam. Each exam will be open for a few days on D2L. You can choose any time during the open time period to take the online exam. Once you start the exam, you will have about 90 to 120 minutes to complete the exam. You can't pause or retake the exam once it is started. These exams will be open-book, open-notes, and open-internet. However, they are not open-neighbor, and you can't discuss with your friends including people who are and aren't taking the class.

### Final Grade

At the end of this semester, if your total is between 90 and 100, you will get an A; if it's between 80 and 89, you will get a B, and so on. **Please note that the actual points will be used to calculate your final grade.** No curving will be used in this class.

| Points   | Grade |
|----------|-------|
| 90-100   | A     |
| 80-89    | B     |
| 70-79    | C     |
| 60-69    | D     |
| below 60 | F     |

## Student Responsibilities/Tips for Success in the Course

1. Students are expected to:
  - a. Read the text related to the topic listed for each week on D2L.
  - b. Complete all required assignments as scheduled
  - c. Watch any tutorial/recorded videos as posted
  - d. Read the slides for each week/topic

2. This syllabus is tentative for the semester. Certain topics maybe stressed more, or less than indicated in the schedule. Depending on the class progress, certain topics may be omitted or added.
3. Behavior: "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Book). During your collaboration with me and your fellow students online or in class, professionalism and respect will be expected.
4. Any form of cheating – copying, sharing files, submitting the work of another as your own – is not permitted. Students who participate (as givers/receivers) in any form of cheating will fail the course.

## TECHNOLOGY REQUIREMENTS

The following information is provided to assist you in successfully using technology to complete the assignments and class activities:

- The course will require you to download and install open-source software. Specifically, you may be asked to install Virtual Machines (VMs). It is the student's responsibility to follow the given instructions and get the system ready in due time. You cannot come to the instructor only a few days before the assignment is due and say that you have NOT installed the required software. You WILL HAVE ample time for all tasks !
- To fully participate in online courses you will need to use a current Flash enabled internet browser.
- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - **2+ GB of RAM (4+GB preferred), 20 GB or more (EMPTY Hard-disk space).** You will need to install Linux VMs, so make sure your system has the capability. If you do not have a system with empty hard-disk space, you WILL need to buy an External hard-drive. If you cannot, please DROP this class. All assignments/labs are run on the Linux VM, and if you cannot have a VM, you will lose 50% of the grade.
  - Broadband connection required courses are heavily video intensive
  - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - \*For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.
- For additional information about system requirements, please see: <https://secure.D2L.com/tamuc/index.learn?action=technical>

## LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

## COMMUNICATION AND SUPPORT

- If you ask me questions by emails, I will reply within 48 hours. However, I usually answer them much faster than this.
- If you have questions about software operations, please be sure to include the screenshots of the questions in the emails.

- All assignment due dates, project deadlines, and exam time are central time in the United States.

## **COURSE AND UNIVERSITY POLICIES**

### ***Course Specific Procedures/Policies***

The class schedule will be provided and updated in D2L. A tentative topics list with each week is listed at the end of this document. Each assignment will be listed with its due date. Since assignments make up the majority of your grade, you should make every effort to complete them on time. Late assignments are **highly** discouraged. For each day an assignment is late it will be deducted 15%. Under **NO** circumstances will I accept an assignment more than FOUR DAYS late.

### **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

### ***University Specific Procedures***

#### ***Student Conduct***

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: [Netiquette](#)  
<http://www.albion.com/netiquette/corerules.html>

#### ***TAMUC Attendance***

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

#### ***Academic Integrity***

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

## **ADA Statement**

### **Students with Disabilities**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835      Fax (903) 468-8148

Email: [Rebecca.Tuerk@tamuc.edu](mailto:Rebecca.Tuerk@tamuc.edu)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### **Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

## **COURSE CALENDAR (Tentative)**

**Note:** Summer is a VERY condensed semester. About 4 months of work, required/completed in 4 weeks. So you WILL have multiple labs due each week. Do NOT complain about the amount of work, as you have decided to take this course over a month. You are more than welcome to take the course in the regular semester at a slower pace.

| <b>Week</b> | <b>Topics</b>   | <b>Chapter Readings</b> | <b>Exams</b>         |
|-------------|---|-------------------------|----------------------|
| 1           | Introduction to Penetration Testing<br>Ethics of Hacking and Cracking<br>Reconnaissance | Chapter 1<br>Chapter 2  |                      |
| 1           | Scanning Tools<br>Sniffers  | Chapter 3<br>Chapter 4  |                      |
| 2           | TCP/IP Vulnerabilities  | Chapter 5               |                      |
| 2           | Encryption and Password Cracking  | Chapter 6               |                      |
| 2           | Spoofing  | Chapter 7               |                      |
| 2           | <b>Review</b>   |                         | <b>Mid-term Exam</b> |
| 3           | Session Hijacking<br>Hacking Network Devices  | Chapter 8<br>Chapter 9  |                      |
| 3           | Web Security<br>Malware / Trojan Horses   | Chapter 10              |                      |
| 4           | Denial-of-Service Attacks<br>SQL Injection  | Chapter 11              |                      |
| 4           | Programming Exploits  | Chapter 13              |                      |
| 4           | <b>Review</b>   |                         | <b>Final Exam</b>    |

This is only a tentative class schedule. Updates will be communicated and maintained in D2L