

DATA MINING  
CIS 4303-110, 80517  
FALL 2022

TEXAS A&M UNIVERSITY-CENTRAL TEXAS

**COURSE DATES, MODALITY, AND LOCATION**

This 100% online course uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>] and McGraw Hill Education Connect (which integrates with the A&M-Central Texas Canvas Learning Management System). The course syllabus, schedule, supplemental readings, class announcements, presentations, learning modules, assignments, and other course materials will be posted to Canvas. Course Dates: August 22, 2022 – December 09, 2022

**INFORMATION**

Instructor: Alex Burnett-Hayes  
Phone: 737-444-7333 (Please use for emergencies only.)  
Email: [alex.burnett-hayes@tamuct.edu](mailto:alex.burnett-hayes@tamuct.edu) (Preferred method of communication.)

**Office Hours**

I am available to all students on an appointment basis. Please send an email to [alex.burnett-hayes@tamuct.edu](mailto:alex.burnett-hayes@tamuct.edu) to schedule an appointment. Meeting options are either via in-person on-campus, WebEx, or telephone. All appointments will be confirmed with an email from me to your Warrior email account. When sending an email to me, please utilize only your Warrior account. Emails sent from other providers will not be answered.

**Student-Instructor Interaction**

I will respond to all student emails within 24 hours of receipt.

**WARRIOR SHIELD**

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

**SAFEZONE.** SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts.

Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the [SafeZone](http://www.safezoneapp.com) website [www.safezoneapp.com].

To register SafeZone on your phone, please follow these 3 easy steps:

1. Download the SafeZone App from your phone store using the link below:
  - o [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [https://apps.apple.com/app/safezone/id533054756]
  - o [Android Phone / Tablet](https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp)  
[https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
3. Complete your profile and accept the terms of service

## **COURSE INFORMATION**

### **Course Overview and Description**

Examine the theory and application of data mining in accounting, finance, marketing, management, and other business disciplines. Develop basic analytical skills to gain insights and make better decisions. Particular emphasis on supervised data mining, including k-nearest neighbors, naïve Bayes, and decision trees; unsupervised data mining; and forecasting with time series data.

### **Course Objective or Goal**

#### **Student Learning Outcomes**

At the conclusion of the course, the student will be able to:

CL01: Describe the data mining process, implement similarity measures, assess the predictive performance of data mining models, and conduct principal component analysis.

CL02: Explain key differences among supervised data mining techniques, apply the k-nearest neighbors method to classify new records, and apply the naïve Bayes method to classify new records.

CL03: Apply classification trees to classify new records, apply regression trees to predict new records, and apply ensemble tree models to classify new records.

CL04: Conduct hierarchical cluster analysis, conduct k-means cluster analysis, and conduct association rule analysis.

CL05: Describe the time series forecasting process, use smoothing techniques to make forecasts, use linear regression models to make forecasts, use nonlinear regression models to make forecasts, apply cross-validation techniques for model selection, and use advanced smoothing methods to make forecasts.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## REQUIRED READING AND TEXTBOOK

**Title:** Business Analytics: Communicating with Numbers

**Authors:** Sanjiv Jaggia, Alison Kelly, Kevin Lertwachara, and Leida Chen

**Edition:** 1<sup>st</sup>

**Publisher:** McGraw Hill Education

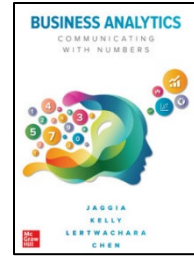
**Loose-Leaf Textbook Only ISBN:** 9781260784954

**Connect Access Card Only ISBN:** 9781260784930

**Connect Access Card and Loose-Leaf Textbook Bundle ISBN:** 9781264091683

**Connect Access Card and Loose-Leaf Textbook Bundle University Bookstore ISBN:**  
9781265216115

\*NOTE: CONNECT IS REQUIRED



## COURSE REQUIREMENTS

**Meet & Greet Discussion Forum:** There will be one (1) Meet & Greet Discussion Forum to be completed in the A&M-Central Texas Canvas Learning Management System. Students must make an initial post introducing themselves to the class (noting it would be nice if you also responded to your classmates). For the Meet & Greet Discussion Forum, please only share what you are comfortable with. The Meet & Greet discussion forum is worth a maximum of 5 points.

**Quizzes:** There will be five (5) quizzes to be completed in Connect as accessed through the A&M-Central Texas Canvas Learning Management System. Each quiz (*solely based on textbook material*) includes 20 multiple-choice and/or True/False to be answered in a 55-minute timeframe. Each quiz includes two (2) attempts with the highest score recorded in the grade book. If you decide to pursue a second attempt, you will have to start the quiz over. Each quiz is worth a maximum of 10 points each for a maximum total of 50 points.

**Homework:** There will be five (5) homework assignments to be completed in Connect as accessed through the A&M-Central Texas Canvas Learning Management System. The homework assignments include a selection of the most relevant and engaging assets from each chapter and are further configured to cover all the chapter objectives. You may be asked to access a data file/table/chart to answer a homework assignment question and have to click a link to download said information. Each homework assignment includes seven (7) questions, and some questions will have multiple parts. The homework assignments are not timed, and you are allowed three attempts with the highest grade recorded as your final grade for each homework assignment. If you decide to pursue a second or third attempt, you will not have to start over; instead, you can revise any previous attempt. You can begin any homework assignment, Save & Exit, and resume at a later time. Each homework is worth a maximum of 15 points each for a maximum total of 75 points.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

**Group Exercises:** There will be five (5) group exercises to be completed in Connect as accessed through the A&M-Central Texas Canvas Learning Management System. The group exercises include a selection of the most relevant and engaging assets from each chapter and are further configured to cover all the chapter objectives. You may be asked to access a data file/table/chart to answer a group exercise question and have to click a link to download said information. Each group exercise includes five (5) to seven (7) questions, and some questions will have multiple parts. The group exercises are not timed, and you are allowed two attempts with the highest grade recorded as your final grade for each homework assignment. If you decide to pursue a second attempt, you will not have to start over; instead, you can revise the previous attempt. You can begin any group exercise, Save & Exit, and resume at a later time. Each group exercise is worth a maximum of twenty (20) points each for a maximum total of 100 points. Note: The group exercises are progressively more difficult than the homework requiring a team effort (leveraging collective knowledge). Note: Students will self-enroll in groups no later than the last day of the third week. The size of the groups will be determined by the instructor and is dependent on course enrollment. The instructor will inform the students of the group sizes no later than the end of the first week. Note: Students fully participating in the group exercises will not be penalized for those students not fully participating.

**Exams:** There will be two (2) exams to be completed in Connect as accessed through the A&M-Central Texas Canvas Learning Management System. The exams include 12 to 15 questions each and are modeled similarly to the homework assignments and group exercises. Each exam includes one (1) attempt. You can begin any exam, Save & Exit, and resume at a later time. Each exam is worth a maximum of 25 points, each for a maximum total of 50 points. Note: The exams are open for an entire module period.

**Comp Exam:** There will be one (1) exam to be completed in Connect as accessed through the A&M-Central Texas Canvas Learning Management System. The comp exam (*solely based on textbook material*) includes 30 multiple-choice and/or True/False to be answered in a 75-minute timeframe. The comp exam includes one (1) attempt. The comp exam is worth a maximum of 20 points for a maximum total of 20 points.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## Grading Criteria Rubric and Conversion

Required Activity		Quantity	Points	Total
Meet & Greet Discussion Forum	(1.66%)	1	5	5
Quizzes	(16.67%)	5	10	50
Homework	(25%)	5	15	75
Group Exercises	(33.33%)	5	20	100
Exams	(16.67%)	2	25	50
Comp Exam	(6.67%)	1	20	20
Total				300

Point Range	Letter Grade
300 - 270	A
269 - 240	B
239 - 210	C
209 - 180	D
179 - 0	F

### Posting of Grades

Grades will be posted to the Canvas grade book as assignments are graded. This will typically be done once all students have submitted the assignment.

### Grading Policies

All assignments must be submitted before the posted deadline. No late assignments will be accepted.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## COURSE OUTLINE AND CALENDAR

Week	Dates	Learning Materials	Deliverables
1	08/22/22 - 08/28/22	Syllabus Chapter 8 Textbook Chapter 8 PPTs	Meet & Greet Discussion Forum Quiz #1
2	08/29/22 - 09/04/22	Chapter 8 Video Lectures	Homework #1
3	09/05/22 - 09/11/22		Group Exercise #1
4	09/12/22 - 09/18/22	Chapter 9 Textbook Chapter 9 PPTs	Quiz #2
5	09/19/22 - 09/25/22	Chapter 9 Video Lectures	Homework #2
6	09/26/22 - 10/02/22		Group Exercise #2
7	10/03/22 - 10/09/22	Chapter 10 Textbook Chapter 10 PPTs	Quiz #3
8	10/10/22 - 10/16/22	Chapter 10 Video Lectures	Homework #3
9	10/17/22 - 10/23/22		Group Exercise #3 Exam #1
10	10/24/22 - 10/30/22	Chapter 11 Textbook Chapter 11 PPTs	Quiz #4
11	10/31/22 - 11/06/22	Chapter 11 Video Lectures	Homework #4
12	11/07/22 - 11/13/22		Group Exercise #4
13	11/14/22 - 11/20/22	Chapter 12 Textbook Chapter 12 PPTs	Quiz #5
14	11/21/22 - 11/27/22	Chapter 12 Video Lectures	Homework #5
15	11/28/22 - 12/04/22		Group Exercise #5 Exam #2
16	12/05/22 - 12/09/22		Comp Exam

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

### **Important University Dates**

Please see the attached link for the A&M-Central Texas Academic Calendars, which track important deadlines and dates for the school year and semesters: <https://www.tamuct.edu/registrar/academic-calendar.html>

### **TECHNOLOGY REQUIREMENTS AND SUPPORT**

This course will use Microsoft Office 365 software. As a University student, you can download the software at no cost. Please access this University link for download instructions: <https://tamuct.onecampus.com/task/all/office365-software>

This course uses Frontline Solvers Analytic Solver and Frontline Solvers Data Mining, Excel add-in software. You will be provided detailed instructions, in advance of the course start date, on how you can obtain and download the Frontline Solvers suite of products separate and apart from this syllabus.

#### **Technology Requirements**

This course will use the A&M-Central Texas Instructure Canvas learning management system. **We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.**

Log on to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email 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.

#### **ONLINE PROCTORED TESTING**

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with its custom plug-in.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## 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.*

---

## UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

### Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2FSubmit%2FForm%2FStart%2F53b8369e-0502-4f36-be43-f02a4202f612>].

Faculty 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. Once you submit the completed 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 a 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. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt about collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](#), [<https://www.tamuct.edu/student-affairs/student-conduct.html>].

If you know of potential honor violations by other students, you may [submit a report](#) [[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\\_id=0](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0)].

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*



## **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 Warrior Center for Student Success, Equity 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, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

## **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 [Student Affairs](https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html) [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, 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 virtually and in-person. Student success coaching is available online upon request. If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing [WarriorCenter@tamuct.edu](mailto:WarriorCenter@tamuct.edu).

To schedule tutoring sessions and view tutor availability, please visit [Tutor Matching Services](https://tutormatchingservice.com/TAMUCT) [https://tutormatchingservice.com/TAMUCT] or visit the Tutoring Center in 111 Warrior Hall.

Chat live with a remote 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 online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## University Writing Center

University Writing Center: The University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free service open to all TAMUCT students. For the Spring 2022 semester, all services will be online as a result of the COVID-19 pandemic. The hours of operation are from 10:00 a.m.-4:00 p.m. Monday thru Thursday with satellite hours Monday thru Thursday from 6:00-9:00 p.m. The UWC is also offering hours from 12:00-3:00 p.m. on Saturdays.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. 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. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. 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!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WConline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) if you have any questions about the UWC and/or need any assistance with scheduling.

## 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 400,000 eBooks and 82,000 journals, in addition to the 96,000 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 virtually through WebEx, Microsoft Teams or in-person at the library. [Schedule an appointment here](https://tamuct.libcal.com/appointments/?g=6956) [https://tamuct.libcal.com/appointments/?g=6956]. 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 workspaces, 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].

\*\*\*\*\* The rest of this page is left intentionally blank \*\*\*\*\*

## **OPTIONAL POLICY STATEMENTS**

### **A Note about Sexual Violence at A&M-Central Texas**

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [<https://www.tamuct.edu/compliance/titleix.html>].

### **Behavioral Intervention**

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) online [[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\\_id=2](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2)].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/student-affairs/bat.html) website for more information [<https://www.tamuct.edu/student-affairs/bat.html>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

---

## **OTHER POLICIES**

The instructor reserves the right to modify the course syllabus during the semester for the benefit of the students.

The instructor reserves the right to supplement materials presented in the text with additional course material that may help the students better understand a topic(s).

### **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.

Copyright. 2022 by Alex Burnett-Hayes at Texas A&M University-Central Texas, College of Business; 1001 Leadership Place, Killeen, TX 76549; 254-519-5437; Fax 254-501-5825; [alex.burnett-hayes@tamuct.edu](mailto:alex.burnett-hayes@tamuct.edu)