



***Spring Term 2022***

***F2F Section: MW 12:30 – 1:45 PM***

***January 18 – May 13, 2022***

**Instructor:** Dr. Rick Simmons

**Department Phone:** 254-501-5944

**Email:** [simrick@tamuct.edu](mailto:simrick@tamuct.edu) (please use the course messaging system to send messages about the class).

**Office Hours:** I will be available through the Canvas Classroom at least 5 days per week. I will answer all questions within 24-36 hours of the posting time.

**Course Modality:** This Face-to-Face course meets twice a week for an hour and 15 minutes for lectures and questions, and includes an online component for assignments, exams, and discussion questions. The online component is accessed through the Canvas classroom.

**Access to the [Canvas classroom](https://tamuct.instructure.com/) is at:** <https://tamuct.instructure.com/>

## **SAFEZONE**

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

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](http://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:
  - [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [<https://apps.apple.com/app/safezone/id533054756>]
  - [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 Overview and description:** Descriptive statistics and the foundations of inferential statistics, including statistical methods of sampling, classifying, analyzing, and presenting numerical data; frequency and sampling distributions, averages, dispersion, hypothesis testing and analyzing up to two populations and population proportions will be the focus of this course. Additionally, students will be introduced to ANOVA, correlations, regression, Chi-Square analyses, and statistical process control. Prerequisite(s): MATH 1324 or higher.

**Program Student Learning Outcome (PLSO): *Students will be able to make decisions through business data analysis.*** This outcome was first introduced in previous Principles of Management courses and is being *practiced* in this course. It is part of the Bachelor of Business Management (BBA) and Bachelor of Applied Arts and Sciences (BAAS) for Business degree programs' assessment method for continuous improvement. This PLSO corresponds to Course Objective 3 and Student Learning Outcome 10 and is being measured in a discussion question in each of the modules (Modules 1 – 4).

### **Course Objectives:**

- **CO1:** The student will understand the foundations of statistics, by creating and interpreting basic statistical graphs and charts, calculating and interpreting measures of central tendency and variation, and basic probability, (Module 1), probability distributions (Module 2), and conducting and interpreting hypothesis tests (Module 3).
- **CO2:** The student will be able to apply the statistical foundations in beginning inferential statistics, which include comparing two populations or more populations, comparing two population proportions, comparing two variables or treatments for a single population, and relating two variables. Finally, the student will understand the concepts of statistical applications to process improvement by creating and interpreting control charts. (Modules 3 and 4).
- **CO3:** The student will apply statistical analysis to the phases of decision-making and make recommendations based on given scenarios (Modules 1 – 4).

The student will meet the course objectives and the following student learning outcomes by using the statistical learning software, Hawkes Learning System, and Microsoft Excel. The purpose of HAWKES LEARNING is to provide each student with an online learning environment in which the student is able to learn, master, and apply knowledge while working within a mastery-based pedagogical approach (Hawkes Learning Systems, n.d.). A link to the HAWKES LEARNING student training video is available in the main menu, in the Canvas classroom. Each student will demonstrate mastery of each topic by achieving 80% on each assignment as outlined in each module.

### **Module Goals**

**Module 1:** Review and apply the six steps of decision making. Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software and Microsoft Excel, achieving 80% on each homework assignment and exam. Additionally, apply the learned foundations in a scenario-based discussion question, and make recommendations based on the phases of decision-making learned in Principles of Management. The specific statistical foundations are found in SLOs 1 – 3 and may be found in sections 1.1 – 1.3, 2.1 – 2.6, 3.3 – 3.10, and 4.1 – 4.2a, 4.3, 4.8 of the textbook and in the Hawkes Learning Software (Ch 1 – 4).

**Module 2:** Conduct and interpret statistical methods for discrete and continuous probability distributions, sampling distributions, and estimating means and proportions, using statistical learning software and Microsoft Excel, achieving 80% on each homework assignment and exam. Additionally, apply the learned foundations in a scenario-based discussion question, and make recommendations based on the phases of decision-making learned in Principles of Management. The specific distributions and estimations are found in SLO 4 and may be found in 6.1 – 6.6 and 7.2 – 7.3b, and 8.1 – 8.4 of the textbook and in the Hawkes Learning Software (Ch 6 – 8).

**Module 3:** Conduct and interpret statistical methods of hypothesis testing for comparing means, proportions, and treatments, using statistical learning software and Microsoft Excel, achieving 80% on each homework assignment and exam. Additionally, apply the learned foundations in a scenario-based discussion question, and make recommendations based on the phases of decision-making learned in Principles of Management. The specific hypothesis methods and comparisons may be found in SLOs 5 and 6 and may be found in 9.1 – 9.7, 10.1 – 10.7b, and 11.1 – 11.4 of the textbook and in the Hawkes Learning Software (Ch 9 – 11).

**Module 4:** Conduct and interpret statistical methods of hypothesis testing for comparing three or more means, or treatments (ANOVA). Conduct correlations of two variables or treatments, relate two or more linear variables, and relate two categorical variables. Achieve 80% on each homework assignment and exam, using statistical learning software and Microsoft Excel. Additionally, apply the learned foundations in a scenario-based discussion question, and make recommendations based on the phases of decision-making learned in Principles of Management. The specific methods of testing and comparing three or more populations, correlating, relating continuous and categorical variables may be found in SLOs 7 – 9 and may be found in 12.2-12.4, 13.1 – 13.5, 13.8, 14, 15.2 – 15.3, and 17 of the textbook and in the Hawkes Learning Software (Chs 12 – 15 & 17).

See Appendix A for a more thorough examination of the course objectives, SLOs, and module goals with respect to the course assignments and materials/tools needed to complete those assignments.

### ***Student Learning Outcomes (SLOs)***

1. Demonstrate proficiency in reporting data numerically and graphically by achieving 80% on associated assignments (Chapters 1 – 3).
2. Demonstrate proficiency in identifying and analyzing the following types and levels of data using appropriate statistical methods by achieving 80% on associated assignments (Chapters 1 – 2).
  - a. Identify and analyze qualitative (nominal, ordinal) data using appropriate statistical methods.
  - b. Identify and analyze quantitative (continuous, discrete, interval, ratio) data using appropriate statistical methods.
3. Demonstrate proficiency in calculating the following descriptive statistics by achieving 80% on associated assignments (Chapter 4).
  - a. Identify and calculate descriptive statistics based on measures of central tendency.
  - b. Identify and calculate descriptive statistics based on measures of variation.
4. Demonstrate proficiency in analyzing discrete and continuous probability distributions by achieving 80% on associated assignments (Chapters 4, 6 – 8, 15).
  - a. Use the properties of probabilities to calculate probabilities by using the concepts of probability, specifically: complements, addition rules, mutual exclusivity, multiplication of dependent and independent probabilities, and conditional probabilities.
  - b. Calculate probabilities within binomial and Poisson distributions, normal distributions, F-distributions, and chi-square distributions.
  - c. Calculate probabilities using the Empirical Formula and the Central Limit theorem.
5. Demonstrate understanding and proficiency in calculating confidence intervals, conducting hypothesis tests, and calculating p-values by achieving 80% on associated assignments (Chapters 9 – 10).

- a. Calculate confidence intervals when the population standard deviation is known/unknown and for proportions.
  - b. Conduct hypothesis testing when the population standard deviation is known/unknown and for proportions.
  - c. Calculate p-values for all hypothesis tests.
6. Demonstrate proficiency in calculating inferential statistics (one or two populations) by achieving 80% on associated assignments (Chapter 11).
    - a. Compare means or proportions of two populations.
    - b. Compare means of two treatments within one population.
  7. Demonstrate proficiency in calculating inferential statistics (three or more populations and relationships) by achieving 80% on associated assignments (Chapters 12 – 14).
    - a. Compare means of three or more populations using analysis of variance (ANOVA).
    - b. Correlate two variables or treatments using Pearson's Product Correlation.
    - c. Relate two variables or treatments using simple linear regression.
    - d. Relate two or more predictor variables to a linear response variable using multiple regression.
  8. Demonstrate proficiency in calculating inferential statistics (relationships of categorical variables) by achieving 80% on associated assignments (Chapter 15).
    - a. Test the relationship of two or more categorical variables (tests of independence).
  9. Demonstrate proficiency in creating and analyzing statistical process control charts for both continuous and qualitative variables by achieving 80% on associated assignments and exams (Chapter 17).
    - a. Create and analyze mean and range process control charts (x-barR charts).
    - b. Create and analyze mean and range process control charts (p-charts).
  10. Demonstrate proficiency in analyzing situations and applying statistical methods to make sound decisions.
    - a. Describe the Phases of Decision Making and apply the Phases in an experiential exercise.
    - b. At the end of each module, apply the required Phases of Decision Making in each given scenario, and make recommendations based on the information given in those scenarios.

### ***Meeting the Course Objective and Student Learning Outcomes***

In meeting the course objective and learning outcomes, students must:

- Familiarize themselves with the Hawkes Learning System and MS Excel spreadsheets.
- Select the student-training link and listen to the presentation for HAWKES LEARNING.
- Become familiar with Excel and the Excel tools provided in the Calculation Aids folder on the main Learning Module page (The link is on the main menu on the left side of the online classroom).
- Select and preview the lecture presentations and then listen to the recorded lectures (online and blended courses). Use the textbook as an additional reference for your understanding of the material presented in the lectures.
- Listen to any given appropriate assignment specific tutorial or Question and Answer.
- Complete the homework assignments. In completing the homework assignments follow the instructions given in this syllabus.
- Recommended Study/Practice/Certify Schedule for each chapter (may be completed sooner)
  - Mon-Wed: Attend scheduled lectures. View associated recordings (Lectures and Worked Examples, as well as Excel tutorials as needed).
  - Thurs-Fri: Practice in Hawkes Learning (Use associated Excel Spreadsheets as needed).
  - Sat-Sun: Certify in Hawkes Learning (Use associated Excel Spreadsheets as needed).

- Mon -Sat: Ask clarifying questions in the module discussion threads.

## **Required Textbook and Software**

Text: Nottingham, Q. J. and Hawkes, J. S. (2013). *Discovering Business Statistics*. Charleston, SC: Hawkes Learning Systems. ISBN: Hardcover with Hawkes access: 9781941552858. You may also choose the e-text version at ISBN: 9781941552698.

Hawkes Learning Accessibility statement may be found at [Hawkes Accessibility](http://www.hawkeslearning.com/Accessibility/index.html), URL: <http://www.hawkeslearning.com/Accessibility/index.html>

NOTE: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. If you choose to use other sources to purchase the textbook, you must access the [Hawkes Learning Store](#) and purchase a separate student access code for your use during this course.

Text: Chapter 3, Decision Making: Bateman, T. S., Snell, S. A., & Konopaske, R. (2021). *Management: Leading & collaborating in a competitive world* (14<sup>th</sup> Ed.). McGraw-Hill Education, NY, NY (This chapter is provided in PDF format in the Canvas classroom).

Microsoft Excel: You will be using Microsoft Excel in this course. If you have not downloaded Office 365 from the TAMUCT website: <https://tamuct.onecampus.com/launch-task/all/office365-software>, please do so as the spreadsheets you will use later in the course will require the more advanced functions afforded by Office 365.

## **Course Requirements and Structure**

**Face to Face Course:** This is a face-to-face class. To ensure successful course completion, regular attendance, and participation is expected. Reading and homework assignments will be in accordance with this syllabus and/or as assigned in class. It is important for students to become familiar with HAWKES LEARNING, as all assignments and exams will be conducted in HAWKES LEARNING. Lectures are based on given sections within the text.

**Attendance:** Although attendance is expected, we recognize that not all students are able to attend each class session. If you must miss more than one scheduled class session, contact the instructor or program secretary with information as soon as possible. It is the responsibility of each student to submit assignments, as scheduled, and become aware of other activities missed during absences.

**Canvas Classroom:** The classroom will be in the Canvas Learning Management System (LMS) under this course's name and section number. Please refer all technical problems to the Canvas help desk; contact information is on the Canvas login page.

Login 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 Course Navigation:** Please read the "Start Here" letter (in the Canvas classroom) and become familiar

with the online classroom environment.

**Canvas Discussions:** Select Discussions from the menu found on the left side of the Canvas class home page. All discussions and questions will be placed in their respective topics for ease of understanding by all class members and the instructor. All entries are threaded so that you may easily see a question and the respective responses to that question. All class members are invited to fully participate in the discussions, assisting their class members when they are able. This means class members may answer questions if they know the answers. These discussions are not required as part of your grade but are highly encouraged for better understanding and clarification of the theory and in conducting calculations of specified problems within Hawkes Learning System (these are not Discussion Questions or DQs). The instructor will always read each question and the respective answers to ensure correctness and accuracy. If the instructor is unable to effectively answer the question in the threaded discussions groups, the instructor may provide a recorded answer (similar to the recorded lectures) and post that recorded answer in the Recorded Q&A folder on the main Learning Module webpage, in Canvas.

Please note: In each module there are required (graded) Discussions Questions (DQs).

**Lectures:** All lectures are pre-recorded and can be found in the respective Module folder on the homepage of the Canvas classroom. Recommend you use either an external speaker system or a headset to listen to the lectures. All associated presentations are in Portable Document Format (.pdf) and are also located in the respective Module folder on the homepage of the Canvas classroom. Ensure you listen to the lectures according to the schedule at the end of this syllabus. The schedule is the minimum requirement; there is no penalty for working ahead. However, exams will be provided according to the schedule. In the respective Module, select the link for the recorded lecture. The lecture will automatically play.

**Individual Participation:** To ensure successful course completion, participation is expected. Participation is defined as actual work conducted in the HAWKES learning environment and in discussion threads in the Canvas classroom. Listening to lectures is required and will be in accordance with this syllabus. It is important for students to become familiar with HAWKES LEARNING, as all assignments will be conducted in HAWKES LEARNING. An exception is the assessment exercises. They will be in Canvas and found by clicking the Quizzes menu link. Lectures are based on given sections within the text.

**Access to Hawkes Learning System:** Please select the link for Getting Started with HAWKES LEARNING in the Getting Started menu in Canvas. Hawkes Course ID for business statistics is TAMUCTDBS. If you choose not to purchase a textbook, you will need to purchase the access code from the HAWKES LEARNING website.

Note: HAWKES LEARNING is designed to be used online. Students are responsible to have full internet access throughout this course, to ensure they are able to complete homework assignments.

**Assignments:** All assignments will be accomplished through the Hawkes Learning System. HAWKES LEARNING is a Web-based, artificially intelligent assessment and learning system. There will not be any “traditional” homework assignments, as each student will be required to complete work on the HAWKES LEARNING system and will be graded on the progress made through each chapter, in HAWKES LEARNING. See Grade Computation below. Late assignments can be reduced 20% for each day they are late.

**Chapter Reviews:** The graded portions of the homework assignments will be the chapter review for each of the chapters. Students are advised to work through the practice problems within the chapter review section of each required chapter, prior to certifying in the chapter. Homework feedback is provided automatically when completing the chapter review for a grade (also known as certifying). Students will be given a minimum of “3 strikes”. This means the student may miss up to three questions, before being sent back to practice. If the student is sent back to practice, the program will automatically go to the area in which the student is having problems. If the student successfully completes the certifying chapter review, the HAWKES LEARNING grade book will be automatically updated.

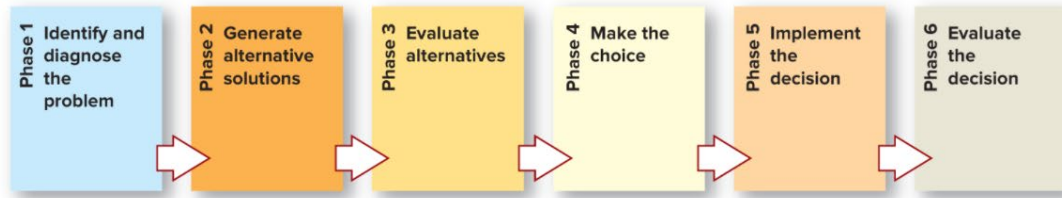
In order to assist you in completing the chapter reviews, recorded videos of selected worked Practice Problems are available for your viewing. You should view these prior to beginning your practice sessions.

**NOTE:** Remember, you are not statisticians (at least not yet....). I do not expect you to totally understand something on your “first go round”! When you begin to have trouble working the problems, go to the discussion threads and ask questions.

**Exams:** There will be five objective exams administered during the semester as indicated on the course calendar. Exams represent the independent work of students. With the exception of emergencies, any exam not made up within three days after the scheduled date, can be scored as a zero. Additionally, a 20% grade penalty may be assessed for each day the exam is late. All exams will be HAWKES LEARNING based and will be completed online. All students will be given minimum of 2 hours to complete 15-20 problems. All exams must be taken, as scheduled, to pass the course. HAWKES LEARNING provides immediate feedback, upon completion of the exam. Reenter the exam to see the problems missed and a correct method of answering the problems.

**NOTE:** You will fail this course if you attempt to only take the exams and not complete the required online homework assignments and DQs. If a missed exam is not taken within three days after the due date, you may not be allowed take the exam, resulting in a 0 for that exam (late penalties apply for missed exams).

**Discussion Questions:** You will begin the first module with the review and experiential exercise for Decision Making. Then, after each module exam, you will be required to respond to the module DQs. Each DQ will present a scenario in which you will apply your learning, within the module, and in previous modules (in modules 2 – 4). You will analyze the given information and respond to the given questions, based on the Phases of Decision-Making, from your Principles of Management Course. In the scenarios, the data will have already been collected and analyzed using a statistical method used in the module. You will have to recognize that method and be able to apply the analysis, making the best recommendation possible with only the given information. Do not “read” into the scenarios, you know only what is given; you may not ask for information that is not there. Only questions clarifying the content of the DQ will be entertained by the instructor. Please note, minor business type calculations (not related to statistics) may have to be made. Each question (minimum of four) is based on one of the phases of decision making, see Exhibit 3.3 (Bateman, T. S., Snell, S. A., & Konopaske, R., 2021, p. 99). You must answer each question with a minimum of at least three well-constructed and grammatically correct statements. The intent behind the minimum statements is so that the instructor has reasonable belief of your understanding of that particular phase of decision-making. Please note, there will be various ways in which a student may respond in his or her recommendations. There is **NOT** a single correct answer; however, there is an expected answer to each question. Overall grading will be based on the assigned Decision Making rubric.



**EXHIBIT 3.3** The Phases of Decision Making

Exhibit 3.3 is from Bateman, T. S., Snell, S. A., & Konopaske, R. (2021). *Management: Leading & collaborating in a competitive world* (14<sup>th</sup> Ed.). McGraw-Hill Education, NY, NY

**Course Tools:** You will find MS Excel Spreadsheets available that will assist you in analyzing data used throughout this course. The aids are found in the Canvas Classroom in Module 0 by selecting the Modules link on the left-side menu. Explanations for the use of these tools are in the recorded worked examples videos.

**Instructor Access:** The instructor will be available during normal office hours, at class time, and online a minimum of 5 days a week and will answer all questions, either in the messages or discussions forums, within 24-36 hours of the question’s posting date. Feedback for assignments and exams will be as written in the Assignments and Exams paragraphs. All students in the online sections: Please use the Canvas message system (personal questions) and discussion threads (course content questions).

**Grading Criteria**

Grade Computation: Students earn their course grades by completing scheduled assignments; no extra credit assignments are given. To pass this course satisfactorily, students must complete each of the graded items listed below. Failure to complete appropriate assignments and exams may result in a failing grade. Refusal to complete homework assignments will result in a failing grade.

**Grading Scale:**

Grade	Percentage	Point Range
A	90- 100%	535.5 – 595
B	80-89.99%	476 – 535.4
C	70-79.99%	416.5 – 475.9
D	60-60.99%	357 – 416.4
F	59.99 % & below	0 – 356.9



Final grades will be calculated as follows:

Assessment	Points	Percentage
Meet and Greet	20	3%
15 Homework Assignments: Chapter Reviews (1-4, 6-15, 17) (15 points each)	225	38%
5 Exams (40 points each)	200	34%
5 DQs (30 points each)	150	25%
TOTAL	595	100%

**Plases note: To pass this course you must complete the assignments and the Exams.**

### **Course Schedule**

<b>COURSE OUTLINE AND ASSIGNMENTS</b>				
WK	Module	Class/Activity	Subject	Homework / Exam Due Dates
1 Jan 17 - 23	1	Intro	Introduction to HAWKES LEARNING and syllabus	Take this week to get to know HAWKES LEARNING, this syllabus, Excel Spreadsheets, and the Canvas classroom.  Online: Meet & Greet: Jan 23
2 Jan 24 - 30	1	Lecture 1 (Ch 1-2)  Chapter 3 (given PDF) Decision Making	Decision Making Using Statistics, Data Reality, and Problem Solving  DQ 1 Decision Making Review and Experiential Exercise	Ch 1, Ch 2 Review: Jan 30  DQ1: Jan 30
3 Jan 31 – Feb 6	1	Lecture 2 (Ch 3)	Organizing, Displaying, and Interpreting Data	Ch 3 Review: Feb 6
4 Feb 7 - 13	1	Lecture 3 (Ch 4.1 – 4.3) Lecture 4 (Ch 4.4, 4.5, 4.7, 4.8) Probability Basics /	Numerical Descriptive Statistics  View recorded “lecturettes” to provide background in probability and proportions	Ch 4 Review: Feb 13

<b>COURSE OUTLINE AND ASSIGNMENTS</b>				
<b>WK</b>	<b>Module</b>	<b>Class/Activity</b>	<b>Subject</b>	<b>Homework / Exam Due Dates</b>
		Proportions		
5 Feb 14 - 20	1 / 2	<b>Exam 1</b>  Practice Decision Making  Lecture 5 (Ch 6)  Mutually Exclusive / Independent Probabilities	<b>Exam 1 (Chapters 1–4)</b>  Module 1 DQ (DQ 2)  Discrete Probability Distributions,  View recorded “lecturettes” to provide background in probability.	<b>Exam 1 (Feb 14)</b>  DQ 2: Feb 18
6 Feb 21 - 27	2	Lecture 6 (Ch 6)  Lecture 7 (Ch 7)	Discrete Probability Distributions,  Continuous Random Variables	Ch 6 Review: Feb 27  Ch 7 Review: Feb 27
7 Feb 28 – Mar 6	2 / 3	Lecture 8 (Ch 8)  Lecture 9 (Ch 9)	Sampling and Sampling Distributions  Confidence Intervals	Ch 8 Review: Mar 6
8 Mar 7 - 13	2 / 3	<b>Exam 2</b>  Practice Decision Making  Wed: Lecture 9 (Ch 9) Lecture 10 (Ch 9)	<b>Exam 2 (Chapters 6–8)</b>  Module 2 DQ (DQ 3)  Confidence Intervals  Sample Sizes	<b>Exam 2: Mar 7</b>  DQ 3: Mar 11  CH 9 Review: Mar 13
<b>Spring Break (Mar 14 – 18)</b>				
9 Mar 21 - 27	3	Lecture 11 (Ch 10) Lecture 12 (Ch 10)	Hypothesis testing	Ch 10 Review: Mar 27

## COURSE OUTLINE AND ASSIGNMENTS

WK	Module	Class/Activity	Subject	Homework / Exam Due Dates
10 Mar 28 – Apr 3	3	Lectures 13-15 (Ch 11)	Comparing Populations	Ch 11 Review: Apr 3
11 Apr 4 - 10	3/4	<b>Exam 3</b>  Practice Decision Making  Lecture 16 (Ch 12)	<b>Exam 3 (Chapters 9–11)</b>  Module 3 DQ (DQ4)  Analysis of Variance (ANOVA)	<b>Exam 3: Apr 4</b>  DQ 3: Apr 8  Ch 12 Review: Apr 10
12 Apr 11 - 17	4	Lecture 17 (Ch 13)	Regression, Inference, and Model Building	Ch 13 Review: Apr 17
13 Apr 18 - 24	4	Lecture 18 (Ch 14)	Regression, Inference, and Model Building	Ch 14 Review: Apr 24
14 Apr 25 – May 1	4	<b>Exam 4</b> Lecture 19 (Ch 15)  Contingency Tables	<b>Exam 4 (Chapters 12–14)</b> Looking for Relationships in Qualitative Data  View recorded “lecturette” to provide background in contingency tables.	<b>Exam 4: Apr 25</b>  Ch 15 Review: May 1
15 May 2 - 8	4	Lecture 20 (Ch 17)	Statistical Process Control	Chapter 17 Review: May 8
16 May 9 - 13	4	<b>Exam 5</b>  Practice Decision Making	<b>Exam 5 (Chapters 15 and 17)</b>  Module 4 DQ (DQ 5)	<b>Exam 5: May 10</b>  DQ 5: May 12

## ***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.**

Logon 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.

## ***Other Technology Support***

For data protection and information privacy TAMUCT uses Single Sign On through TAMUS. To update your password select [Texas A&M University System Single Sign On](#).

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***

### ***General University Resources***

Please select the following link: [University Resources](#), URL:

<https://www.tamuct.edu/University%20Resources.html>

### ***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 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 on 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), [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].

### ***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, 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.

## **University Writing Center**

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. For the Spring 2022 semester, the hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

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!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WOnline](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, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor by making an appointment via [WOnline](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, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

## **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 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].

### ***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].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [https://www.tamuct.edu/bit]. 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.

### ***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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### ***Important University Dates:***

Please use the following link to download the current [Academic Calendar and Registration Schedule](https://www.tamuct.edu/registrar/docs/2020-2021-academic-calendar.pdf): <https://www.tamuct.edu/registrar/docs/2020-2021-academic-calendar.pdf>. You can find previous and updated calendars at: <https://www.tamuct.edu/registrar/academic-calendar.html>

## Appendix A (Course Map: Outcomes to Assessments)

The following tables depict the relationship between the expected student learning outcomes (SLOs), the module objectives, the learning, the instructional materials, and the associated assessment or assignment. Read across the table (left to right). The learning activities are identified on the course schedule and the instructional materials are identified in the instructions for each assignment. The materials or tools may be found in Module 0.

All the materials and tools provided to you is to assist you in the specified assignments. For example, the course textbook (either hardcopy or e-book), presentation slides, recorded lectures, and recorded worked examples are used to provide you information required to successfully complete the Hawkes Learning assignments as well as to provide you with the foundational knowledge needed to successfully complete the assessment preparatory assignments and the final primary case study. Additionally, the Excel spreadsheets are provided as tools for you to successfully completed all of the statistical computations, so that you may effectively make appropriate business decisions based on the statistical analysis. Finally, the discussion threads found in the Canvas classroom is the tool that provides you with the capability to ask questions about the course content, or to read other students' questions and benefit from the subsequent responses.

Table 1. *Student Learning Outcome 1*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in reporting data numerically and graphically by achieving 80% on associated assignments (Chapters 1 – 3).	<b>Module 1:</b> Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 1

Table 2. *Student Learning Outcome 2*



Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in identifying and analyzing the following types and levels of data using appropriate statistical methods by achieving 80% on associated assignments (Chapters 1 – 2).	<b>Module 1:</b> Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 1

Table 3. Student Learning Outcome 3

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in calculating the following descriptive statistics by achieving 80% on associated assignments (Chapter 4).	<b>Module 1:</b> Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 1

Table 4. *Student Learning Outcome 4*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in analyzing discrete and continuous probability distributions by achieving 80% on associated assignments (Chapters 4, 6 – 8, 15).	<b>Module 2:</b> Conduct and interpret statistical methods for discrete and continuous probability distributions, sampling distributions, and estimating means and proportions, using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Discrete and Continuous Probability Distributions	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 2

Table 5. *Student Learning Outcome 5*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate understanding and proficiency in calculating confidence intervals, conducting hypothesis tests, and calculating p-values by achieving 80% on associated assignments (Chapters 9 – 10).	<b>Module 3:</b> Conduct and interpret statistical methods of hypothesis testing for comparing means, proportions, and treatments, using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Foundations of Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 3

Table 6. *Student Learning Outcome 6*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in calculating inferential statistics (one or two populations) by achieving 80% on associated assignments (Chapter 11).	<b>Module 3:</b> Conduct and interpret statistical methods of hypothesis testing for comparing means, proportions, and treatments, using statistical learning software, Microsoft Excel, and calculators, achieving 80% on each homework assignment.	Foundations of Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 3

Table 7. *Student Learning Outcome 7*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in calculating inferential statistics (three or more populations and relationships) by achieving 80% on associated assignments (Chapters 12 – 14).	<b>Module 4:</b> Conduct and interpret statistical methods of hypothesis testing for comparing three or more means, or treatments (ANOVA). Conduct correlations of two variables or treatments and relate two or more linear variables. Test the fit of multinomial probabilities and relate two categorical variables. Achieve	Advanced Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes	Chapter Review Homework Assignments  Exam 4

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
	80% on each homework assignment exam, using statistical learning software, Microsoft Excel, and calculators.		Learning System	

Table 8. Student Learning Outcome 8

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in calculating inferential statistics (relationships of categorical variables) by achieving 80% on associated assignments (Chapter 15).	<b>Module 4:</b> Conduct and interpret statistical methods of hypothesis testing for comparing three or more means, or treatments (ANOVA). Conduct correlations of two variables or treatments and relate two or more linear variables. Test the fit of multinomial probabilities and relate two categorical variables. Achieve 80% on each homework assignment exam, using statistical learning software, Microsoft Excel, and calculators.	Advanced Inferential Statistics	Course Textbook Recorded Lectures / Lecturettes Lecture Presentations Recorded Worked Examples Excel Spreadsheets Hawkes Learning System	Chapter Review Homework Assignments Exam 4

Table 9. *Student Learning Outcome 9*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in creating and analyzing statistical process control charts for both continuous and qualitative variables by achieving 80% on associated assignments and exams (Chapter 17).	<b>Module 4:</b> Conduct and interpret statistical methods of hypothesis testing for comparing three or more means, or treatments (ANOVA). Conduct correlations of two variables or treatments and relate two or more linear variables. Test the fit of multinomial probabilities and relate two categorical variables. Achieve 80% on each homework assignment exam, using statistical learning software, Microsoft Excel, and calculators.	Advanced Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Hawkes Learning System	Chapter Review Homework Assignments  Exam 5

Table 10. *Student Learning Outcome 10*

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
Demonstrate proficiency in analyzing situations and applying statistical methods to make sound decisions	<b>Modules 1 – 4:</b> Apply the learned foundations in a scenario-based discussion question, and make recommendations based on the phases of decision-making learned in Principles of Management.	Practice decision making through business data analysis.	Recorded Lectures / Lecturettes  Lecture Presentations  Excel Spreadsheets	Discussion Questions DQs 1 – 5

## DQ: Decision Making Rubric

PSLO 6: Decision Making using Business Data Analysis

**Description:** Students will be able to make decisions through business data analysis

Sub-Competency/Criteria	Exceeds expectations	Meets expectations	Needs Improvement
<b>Problem Definition:</b> <ul style="list-style-type: none"> <li>• Identify and understand the problem</li> </ul>	Correctly identifies problem and articulates the problem with appropriate reasoning	<ul style="list-style-type: none"> <li>• Correctly identifies the problem, or recognizes and articulates need or opportunity</li> </ul>	<ul style="list-style-type: none"> <li>• Incorrectly identifies problem or fails to recognize the need or opportunity</li> </ul>
<b>Situation Analysis:</b> <ul style="list-style-type: none"> <li>• Identify and interpret symptoms</li> <li>• Determine possible causes</li> </ul>	<ul style="list-style-type: none"> <li>• Applies most appropriate models, tools, and techniques in understanding the situation</li> </ul>	<ul style="list-style-type: none"> <li>• Basic application of some models, tools, or techniques in understanding the situation</li> </ul>	<ul style="list-style-type: none"> <li>• Does not use appropriate models, tools, or techniques in understanding the situation</li> </ul>
<b>Solution Alternatives:</b> <ul style="list-style-type: none"> <li>• Identify and evaluate feasible ways of addressing the situation</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies most of the viable alternatives with thoughtful and creative approach</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies some viable solutions or alternatives</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies no alternatives, one obvious alternative or infeasible alternatives</li> </ul>
<b>Select appropriate solution:</b> <ul style="list-style-type: none"> <li>• Selects the appropriate alternative</li> <li>• Provides support for decision</li> </ul>	<ul style="list-style-type: none"> <li>• Selects the optimal solution with adequate reasoning.</li> </ul>	<ul style="list-style-type: none"> <li>• Selects a good solution</li> </ul>	<ul style="list-style-type: none"> <li>• Does not evaluate alternatives or does so incorrectly</li> </ul>