



***Spring Term 2021  
Blended (F2F / Online) Section  
Founders Hall 304: M/W 12:30-1:45 PM  
January 19 – May 14, 2021***

**Instructor:** Dr. Rick Simmons

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

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

**Office:** FH 217B

**Office Hours:** I will be conducting virtual office hours M-W from 2:30-4:30 PM. Access the office hours via the Canvas course WebEx feature. Additionally, 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 course uses a blended modality (see course requirements for more information for this modality).

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

### **WARRIOR SHIELD**

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

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

Connect to Warrior Shield by [911Cellular](https://portal.publicsafetycloud.net/Account/Login) [<https://portal.publicsafetycloud.net/Account/Login>] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

### **COVID-19 SAFETY MEASURES**

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University-Central Texas has adopted policies and practices to minimize virus transmission. All members of the university community are expected to adhere to these measures to ensure their own safety and the safety of others. Students must observe the following practices while participating in face-to-face courses, course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.) and co-curricular programs:

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction. Students required to quarantine must participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.

- Face Coverings— Face coverings must be worn inside of buildings and within 50 feet of building entrances on the A&M-Central Texas Campus. This includes lobbies, restrooms, hallways, elevators, classrooms, laboratories, conference rooms, break rooms, non-private office spaces, and other shared spaces. Face coverings are also required in outdoor spaces where physical distancing is not maintained. The university will evaluate exceptions to this requirement on a case by case basis. Students can request an exception through the Office of Access and Inclusion in Student Affairs.
  - o If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Office of Student Conduct. Additionally, the faculty member may choose to teach that day's class remotely for all students.
- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in the course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- The university will notify students in the event that the COVID-19 situation necessitates changes to the course schedule or modality.

**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.

**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).

The student will meet the course objectives and the following student learning outcomes by using the statistical learning software, Hawkes Learning System, Microsoft Excel, or by using Minitab statistical software. 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:** Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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, Minitab, Microsoft Excel, or calculators. 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 text book 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).

### ***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 MS Excel spreadsheets, and Minitab software (if used).
- Select the student-training link and listen to the presentation for HAWKES LEARNING.
- For those students who would like to use Minitab, read the Minitab documents (Meet Minitab) to familiarize with the software functions. These documents are found at the bottom of the main Learning Module page, in Canvas.
- 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: View associated recordings (Lectures and Worked Examples, as well as Minitab/Excel tutorials as needed)
  - Thurs-Fri: Practice in Hawkes Learning (Use associated Excel Spreadsheets or Minitab, as needed).
  - Sat-Sun: Certify in Hawkes Learning (Use associated Excel Spreadsheets or Minitab, 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: Hardcopy w/Minitab software: 9781941552780. You may also choose the e-text version with Minitab at ISBN: 9781941552797. These ISBNs may be purchased only through the TAMUCT Hanik Bookstore.

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. Purchasing the textbook and software package either from the university bookstore or from Hawkes Learning System will ensure you have the most current software bundle. Additionally, you will have to rent Minitab on your own (use the link in Module 0).
- The use of Minitab statistical software is no longer mandatory, but its use will provide you notable training in a separate software package, which can be identified in job resumé's.
- The use of MS Excel is mandatory.
- If you desire to use Minitab v. 19 statistical software: The software is bundled with the textbook. You will receive a card with the bundled textbook purchased from the Hanik Bookstore. You need only open the Minitab envelop and follow the instructions on the card. If you do not purchase from the Hanik bookstore but you still desire to use Minitab, you will need to access e-Academy [OnTheHub](#) website using the following URL: <http://www.onthehub.com/Minitab> (also see Module 0 in Canvas for a link).
  - Recommended: Laptop computer, with Windows or MAC OS and MS Office suite. Additionally, you will need consistent access to the Internet.
  - Please view Minitab's (v.19) accessibility statement, posted in Module 0.
  - You will have to register with OnTheHub with your student email address in order for you to download the software (this could take 24-48 hours for OnTheHub to verify your email address).

Hand-held calculator (optional). Must have square root key in addition to the basic functions of addition,

subtraction, multiplication, and division – at a minimum. I do not provide instruction on the use of calculators.

MS Excel. Access to a computer with Microsoft EXCEL (you will use MS Excel).

Internet Access. Constant access to the internet is required to complete all assignments and exams. (It is your responsibility to ensure you have constant access to the internet).

## ***Course Requirements and Structure***

**Blended Course:** This course is blended which is a combination of the synchronous and asynchronous modes. The synchronous portion of this course will require students to attend class as started in the course schedule and the asynchronous portion does not require the students or the instructor to be online at any specified day or time.

**Synchronous Mode:** Students are expected in class each Wednesday during the term.

**Asynchronous Mode:** Daily work (including listening to the recorded lectures) is completed by the student according to the weekly schedule in this syllabus, but at a time that is convenient to the student (Exception: see Lectures paragraph). This mode does require the instructor to be available (online), at least 5 days a week, to answer questions. Students are responsible for ensuring constant access to the Internet and operability of their personal computers.

**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. Please note 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. 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

**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. The recorded lectures were conducted by each of the statistics faculty in the Management and Marketing Department. Each of the lectures are based on the concepts presented in the textbook but will not necessarily follow the textbook verbatim (use the textbook as a reference source of clarifying information).

Formal lectures will not be conducted during the synchronous portion of this course. The intent is to provide a review of concepts, answer questions concerning the concepts, and demonstrate problems in the Hawkes Learning system.

As a complement to the recorded lectures, concept associated presentations are in Portable Document Format (.pdf) and are also located in the respective Module folder on the homepage of the Canvas classroom. These presentations will not exactly follow the recorded lectures but will provide additional clarifying information regarding the topics in the recorded lectures.

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.

**NOTE:** Students must view all recorded lectures and read all presentations scheduled for the week prior to attending class on Wednesday of the same week.

**Individual Participation:** To ensure successful course completion, participation is expected. Participation is defined as actual work conducted in the HAWKES learning environment, in discussion threads in the Canvas classroom, and in the face to face 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. Grading is based 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.

**NOTE:** Students will earn full points for each chapter review completed (to approximately 80% mastery). Students will not earn any points (zero) if a chapter review is not completed to 80% mastery. When completed, the system will automatically award a completion certificate and enter points in the Hawkes grade book.

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. 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. 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).

**Course Tools:** In addition to Minitab v. 19, you will find MS Excel Spreadsheets (Primary tools for this course) 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:**

<b>Grade</b>	<b>Percentage</b>	<b>Point Range</b>
A	90- 100%	400.5-445
B	80-89.99%	356-400.4
C	70-79.99%	311.5-355
D	60-60.99%	267-311.4
F	59.99 % & below	0-266

Final grades will be calculated as follows:

<b>Assessment</b>	<b>Points</b>	<b>Percentage</b>
Meet and Greet	20	4%
15 Homework Assignments: Chapter Reviews (1-4, 6-15, 17) (15 points each)	225	51%
5 Exams (40 points each)	200	45%
TOTAL	445	100%

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

## Course Schedule

COURSE OUTLINE AND ASSIGNMENTS				
WK	Module	Class/Activity	Subject	Homework / Exam Due Dates
1 19-24 Jan  MLK: 18 Jan	1	Intro  <b>F2F: W (No class on 18 Jan)</b>	Introduction to HAWKES LEARNING and syllabus	Take this week to get to know HAWKES LEARNING, this syllabus, Minitab/Excel, and the Canvas classroom.  Online: Meet & Greet (24 Jan)
2 25-31 Jan	1	Lecture 1 (Ch 1-2) <b>No F2F</b>	Decision Making Using Statistics, Data Reality, and Problem Solving	Ch 1, Ch 2 Review (31 Jan)
3 1-7 Feb	1	Lecture 2 (Ch 3) <b>F2F: W</b>	Organizing, Displaying, and Interpreting Data	Ch 3 Review (7 Feb)
4 8-14 Feb	1	Lecture 3 (Ch 4.1 – 4.3) Lecture 4 (Ch 4.4, 4.5, 4.7, 4.8) Probability Basics / Proportions <b>F2F: W</b>	Numerical Descriptive Statistics  View recorded “lecturettes” to provide background in probability and proportions	Ch 4 Review (14 Feb)
5 15-21 Feb	1 / 2	<b>Online (M): Exam 1</b>  Lecture 5 (Ch 6)  Mutually Exclusive / Independent Probabilities <b>F2F: W</b>	<b>Exam 1 (Lectures 1 – 4; Chapters 1-4)</b> Discrete Probability Distributions,  View recorded “lecturettes” to provide background in probability.	<b>Exam 1 (15 Feb)</b>
6 22-28 Feb	2	Lecture 6 (Ch 6)  Lecture 7 (Ch 7) <b>F2F: W</b>	Discrete Probability Distributions,  Continuous Random Variables	Ch 6 Review (28 Feb)

<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>
7 1-7 Mar	2 / 3	Lecture 8 (Ch 8)  Lecture 9 (Ch 9) <b>F2F: W</b>	Sampling and Sampling Distributions  Confidence Intervals	Ch 7 Review, Ch 8 Review (7 Mar)
8 8-14 Mar	2 / 3	<b>Online (M):</b> <b>Exam 2</b> Wed: Lecture 9 (Ch 9) Lecture 10 (Ch 9) <b>F2F: W</b>	<b>Exam 2 (Lectures 5-8; Chs 6-8)</b> Confidence Intervals  Sample Sizes	<b>Exam 2 (8 Mar)</b>  CH 9 Review (14 Mar)
<b>Spring Break (15 – 19 March 2021)</b>				
9 22-28 Mar	3	Lecture 11 (Ch 10) Lecture 12 (Ch 10) <b>F2F: W</b>	Hypothesis testing	Ch 10 Review (28 Mar)
10 29 Mar – 4 Apr Easter: 4 Apr	3	Lectures 13, 14 (Ch 11) <b>F2F: W</b>	Comparing Populations	Ch 11 Review (3 Apr)
11 5-11 Apr	3/4	<b>Online (M):</b> <b>Exam 3</b>  Lecture 15 (Ch 12) <b>F2F: W</b>	<b>Exam 3 (Lectures 9-15; Chapter 9-11)</b> Analysis of Variance (ANOVA)	<b>Exam 3 (6 Apr)</b>  Ch 12 Review (11 Apr)
12 12-18 Apr	4	Lecture 16 (Ch 13) <b>F2F: W</b>	Regression, Inference, and Model Building	Ch 13 Review (18 Apr)
13 19-25 Apr	4	Lecture 17 (Ch 14) <b>F2F: W</b>	Regression, Inference, and Model Building	Ch 14 Review (25 Apr)
14 26 Apr -2 May	4	<b>Online (M):</b> <b>Exam 4</b>  Lecture 18 (Ch 15)	<b>Exam 4 (Lectures 16 -18; Chs 12-14)</b> Looking for Relationships in Qualitative Data	<b>Exam 4 (26 Apr)</b>  Ch 15 Review (2 May)

## COURSE OUTLINE AND ASSIGNMENTS

WK	Module	Class/Activity	Subject	Homework / Exam Due Dates
		Contingency Tables <b>F2F: W</b>	View recorded "lecturette" to provide background in contingency tables.	
15 3-9 May	4	Lecture 19 (Ch 17) <b>F2F: W</b>	Statistical Process Control	Chapter 17 Review (9 May)
16 10-14 May	4	<b>Exam 5</b> <b>No F2F</b>	<b>Exam 5 (Lectures 18-19; Chs 15, 17)</b>	<b>Exam 5 (10-11 May)</b>

## ***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%2FStar%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. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, working with others in an unauthorized manner, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be referred to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

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/index.html) [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](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, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing [studentsuccess@tamuct.edu](mailto:studentsuccess@tamuct.edu).

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive 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***

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 2021 semester, all services will be online as a result of the COVID-19 pandemic. The hours of operation are from 10:00 a.m.-5:00 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 [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 and/or need any assistance with scheduling.

### ***Other Academic Support***

**New Students:** If you are new to either TAMUCT, Canvas, or both, please contact Academic Support your new student orientation and the Student Success Workshops in the Academic Support Canvas Community.

**English as a Second Language Students:** Please contact Academic Support for additional support needed as required.

**Academic Support Contact:** You may contact Academic Support through their Canvas community at: <https://tamuct.instructure.com/courses/714> or by calling their office at 254-519-5836.

## ***University Library***

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

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

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group 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].

**For Spring 2021, all reference service will be conducted virtually. Please go to our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index] to access our virtual reference help and our current hours.**

## ***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 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/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.



### ***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, Minitab statistical software and 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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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).	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook Recorded Lectures / Lecturettes Lecture Presentations Recorded Worked Examples Excel Spreadsheets Minitab Statistical Software 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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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).	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Minitab Statistical Software  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).	Conduct and apply the statistical foundations (data, populations, samples, central tendency, measures of variation, and basic probability concepts), using statistical learning software, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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	Descriptive Statistics / Graphical Displays Foundations of statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets	Chapter Review Homework Assignments  Exam 1

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
	textbook and in the Hawkes Learning Software (Ch 1 – 4).		Minitab Statistical Software  Hawkes Learning System	

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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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).	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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework	Foundations of Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture	Chapter Review Homework Assignments  Exam 3

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
	assignment and exam. 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).		Presentations  Recorded Worked Examples  Excel Spreadsheets  Minitab Statistical Software  Hawkes Learning System	

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, Minitab, Microsoft Excel, or calculators, achieving 80% on each homework assignment and exam. 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).	Foundations of Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Minitab Statistical Software  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, relate two or more linear variables, and relate two categorical variables. Achieve 80% on each homework assignment and exam, using statistical learning software, Minitab, Microsoft Excel, or calculators. 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 text book and in the Hawkes Learning Software (Chs 12 – 15 & 17)..	Advanced Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Minitab Statistical Software  Hawkes Learning System	Chapter Review Homework Assignments  Exam 4

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, relate two or more linear variables, and relate two categorical variables. Achieve 80% on each homework assignment and exam, using statistical learning software, Minitab, Microsoft Excel, or calculators. The specific	Advanced Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel	Chapter Review Homework Assignments  Exam 4

Student Learning Outcome	Module-Level Learning Objective	Learning Activity	Instructional Materials	Assessment
	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 text book and in the Hawkes Learning Software (Chs 12 – 15 & 17).		Spreadsheets  Minitab Statistical Software  Hawkes Learning System	

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, relate two or more linear variables, and relate two categorical variables. Achieve 80% on each homework assignment and exam, using statistical learning software, Minitab, Microsoft Excel, or calculators. 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 text book and in the Hawkes Learning Software (Chs 12 – 15 & 17).	Advanced Inferential Statistics	Course Textbook  Recorded Lectures / Lecturettes  Lecture Presentations  Recorded Worked Examples  Excel Spreadsheets  Minitab Statistical Software  Hawkes Learning System	Chapter Review Homework Assignments  Exam 5