

STAT 3680 - 002 (Fall 2026): Applied Statistics Syllabus

Instructor Information

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Teaching Assistant Information

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How to Communicate with Your Instructor/TA

Connect with TA and me through email and/or by attending office hours. All students are required to use their official UNT email account for all course-related communications to ensure security. Emails from non-UNT accounts may not receive a response.

Please ensure that your email subject line begins with “STAT 3680.002” to help us notice and prioritize your message. During busy periods, inboxes can become quite full. If you do not receive a response within two business days, feel free to send a gentle follow-up email.

For routine questions about course content, assignments, grading logistics, or Canvas, please contact the TA first. Questions involving accommodations, personal or sensitive circumstances, grade disputes, or other matters requiring instructor discretion should be directed to the instructor.

Course Description

3 hours, Descriptive statistics, elements of probability, random variables, confidence intervals, hypothesis testing, regression, contingency tables.

Course Structure

This is a 15-week, face-to-face course that will cover selected material from Chapter 1-5, Chapter 7-9, Chapter 10, and Chapter 12. There will be two mid-term exams and a comprehensive final exam.

Course Prerequisites

MATH 1710 and MATH 1720 (may be taken concurrently). Students should have mastered differential and integral calculus of a single variable, including integration by parts.

Course Objectives

By the end of this course, students will be able to:

- Examine how to make intelligent judgments and informed decisions in the presence of uncertainty and variation.
- Investigate randomness and uncertainty.
- Develop probability models for a single discrete/continuous random variable.
- Examine confidence intervals and hypothesis-testing procedures for single data set.
- Examine confidence intervals and hypothesis-testing procedures for two sets of paired/unpaired data.
- Analyze if two variables are related and how strong that relationship is.

Required Course Materials

This course has digital components. To fully participate in this class, students will need internet access to reference content on the [Canvas Learning Management System](https://clear.unt.edu/supported-technologies/canvas/requirements) (<https://clear.unt.edu/supported-technologies/canvas/requirements>).

Students will be expected to bring to class (including exams) a graphing calculator with statistical functions or a laptop computer with a spreadsheet or statistical analysis program installed.

Textbook (Required): Devore, Jay L. *Probability and Statistics for Engineering and the Sciences*, 9th edition. Cengage, 2016.

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| • WebAssign | (6 months = \$128.75) |
| • Cengage Unlimited | (4 months = \$149.99, 1 year = \$229.99) |

Cengage WebAssign Required: WebAssign is an online delivery platform accessed directly through Canvas. WebAssign access includes all online homework assignments, the e-textbook and additional learning resources. **Use the link in Canvas to register immediately.** You must register in WebAssign by the 2nd class day of the semester.

What You Should Do Immediately

Log in to Canvas and click the WebAssign link at the top of the module page. Please use **your UNT E-mail address** to register for this course. See [Video Tutorial: Access WebAssign from Canvas](#) for more information. WebAssign grants **no-cost temporary 14-day access**. You must purchase your access before the temporary access expires. Students who do not purchase WebAssign by the end of the temporary access period may lose credit for all work previously completed with the possibility of no refund.

I strongly encourage you to get started with Enhanced WebAssign as soon as possible. If you delay, you run the risk of unforeseen technical problems that could prevent you from completing the first assignment.

Technology Requirements

- Computer
- Reliable internet access
- Speakers
- Microphone
- Webcam
- Graphing calculator with statistical functions and/or spreadsheet program
- [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements) (<https://clear.unt.edu/supported-technologies/canvas/requirements>)

How to Succeed in this Course

The best way to ensure you pass this course is to work consistently throughout the semester. Course topics always build one upon the other making it very difficult to catch up later if you fall behind. To master the course material, you must exert consistent effort throughout the semester:

- Read the relevant section of the textbook prior to each lecture.
- Start working on each homework assignment as soon as possible after the corresponding lecture.

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and information on how you can be successful at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

There are many academic resources available to help you succeed in this course:

- [Navigate's Study Buddy](https://navigate.unt.edu) (<https://navigate.unt.edu>)
- [Math Lab](https://math.unt.edu/mathlab) (<https://math.unt.edu/mathlab>)
- [UNT Learning Center](https://learningcenter.unt.edu/) (<https://learningcenter.unt.edu/>)
 - [Tutoring](https://learningcenter.unt.edu/tutoring) (<https://learningcenter.unt.edu/tutoring>)

Course Topics

The following chapters and sections of the textbook will be covered according to the projected schedule below. Dates may change as events warrant.

Chapter 1: Overview and Description Statistics

- 1.1 Populations, Samples and Processes
- 1.2 Pictorial and Tabular Methods in Descriptive Statistics
- 1.3 Measures of Location
- 1.4 Measures of Variability

Chapter 2: Probability

- 2.1 Sample Spaces and Events
- 2.2 Axioms, Interpretations, and Properties of Probability
- 2.4 Conditional Probability
- 2.5 Independence

Chapter 3: Discrete Random Variables and Probability Distributions

- 3.1 Random Variables
- 3.2 Probability Distributions for Random Variables
- 3.3 Expected Values
- 3.4 The Binomial Probability Distribution
- 3.5 Hypergeometric and Negative Binomial Distributions

Chapter 4: Continuous Random Variables of Probability Distributions

- 4.1 Probability Density Functions
- 4.2 Cumulative Distribution Functions and Expected Values
- 4.3 The Normal Distribution
- 4.6 Probability Plots

Chapter 5: Joint Probability Distributions and Random Samples

- 5.1 Jointly Distributed Random Variables
- 5.2 Expected Values, Covariance, and Correlation
- 5.4 The Distribution of the Sample Mean
- 5.5 The Distribution of a Linear Combination

Chapter 7: Statistical Intervals Based on a Single Sample

- 7.1 Basic Properties of Confidence Intervals
- 7.2 Large-Sample Confidence Intervals for a Population Mean and Proportion
- 7.3 Intervals Based on Normal Population Distribution
- 7.4 Confidence Intervals for the Variance and Standard Deviation of a Normal Population

Chapter 8: Test of Hypotheses Based on a Single Sample

- 8.1 Hypotheses and Test Procedures
- 8.2 z-Tests for Hypotheses about a Population Mean
- 8.3 The One-Sample t Test
- 8.4 Tests Concerning a Population Proportion

Chapter 9: Inferences Based on Two Samples

9.1 z Tests and Confidence Intervals for a Difference Between Two Population Means

9.2 The Two Sample t Test and Confidence Interval

9.3 Analysis of Paired Data

9.4 Inferences Concerning a Difference Between Population Proportions

Chapter 10: The Analysis of Variance

10.1 Single-Factor ANOVA

Chapter 12: Simple Linear Regression and Correlation

12.1 The Simple Linear Regression Model

12.2 Estimating Model Parameters

12.3 Inferences about the Slope Parameter

12.4 Inferences Concerning the Mean Response and Prediction of Future Y Values

12.5 Correlation

Tentative Face-to-Face Course Schedule

Week	Lecture/Assignment	Topic
Week 1 (8/17 – 8/21)	Lecture 1, 2	Chapter 1: Overview and Descriptive Statistics
	Homework 0	
Week 2 (8/24 – 8/28)	Lecture 3, 4	Chapter 1: Overview and Descriptive Statistics Chapter 2: Probability
	Homework 1 Quiz 0	
Week 3 (8/31 – 9/4)	Lecture 5, 6	Chapter 2: Probability Chapter 3: Discrete Random Variables and Probability Distributions
	Homework 2	
Week 4 (9/7 – 9/11)	Lecture 7, 8	Chapter 3: Discrete Random Variables and Probability Distributions Chapter 4: Continuous Random Variables and Probability Distributions
	Homework 3 Quiz 1	
Week 5 (9/14 – 9/18)	Lecture 9, 10	Chapter 4: Continuous Random Variables and Probability Distributions
	Homework 4	
Week 6 (9/21 – 9/25)	Lecture 11	Chapter 4: Continuous Random Variables and Probability Distributions
	Homework 5 Quiz 2	
9/25	Exam 1	
Week 7 (9/28 – 10/2)	Lecture 12, 13	Chapter 5: Joint Probability Distributions and Random Samples Chapter 6: Point Estimation
	Homework 6	
Week 8 (10/5 – 10/9)	Lecture 14, 15	Chapter 7: Statistical Intervals Based on a Single Sample
	Homework 7 Quiz 3	
Week 9 (10/12 – 10/16)	Lecture 16, 17	Chapter 7: Statistical Intervals Based on a Single Sample Chapter 8: Tests of Hypotheses Based on a Single Sample
	Homework 8	
Week 10 (10/19 – 10/23)	Lecture 18, 19	Chapter 8: Tests of Hypotheses Based on a Single Sample

		Chapter 9: Inferences Based on Two Samples
	Homework 9 Quiz 4	
Week 11 (10/26 – 10/30)	Lecture 20	Chapter 9: Inferences Based on Two Samples
	Homework 10	
10/30	Exam 2	
Week 12 (11/2 – 11/6)	Lecture 21, 22	Chapter 9: Inferences Based on Two Samples
	Homework 11 Quiz 5	
Week 13 (11/9 – 11/13)	Lecture 23, 24	Chapter 12: Simple Linear Regression and Correlation
	Homework 12	
Week 14 (11/16 – 11/20)	Lecture 25, 26	Chapter 12: Simple Linear Regression and Correlation
	Homework 13 Quiz 6	
Week 15 (11/23 – 11/27)	Thanksgiving	No classes
Week 16 (11/30 – 12/2)	Lecture 27, 28	Chapter 10: The Analysis of Variance
12/10	Final	Comprehensive, 8 - 10 am

Attendance and Participation

Attending each lecture is essential to your success in this course. You are expected to attend every lecture and arrive on time. You are responsible for any material covered, any work assigned, or any course changes made during the lecture. To emphasize the importance of regular class participation, attendance will be taken at the beginning of each class. If you anticipate being absent, it is important to communicate with the instructor in advance. University-authorized absences will be counted as attendance if you provide a valid documentation. (See [UNT Policy 06.039](#).) However, please note that late arrivals will not be recorded.

Assessing Your Work

WebAssign Homework	15%
Quizzes	15%
Two midterm exams	20% each
Final exam	30%
Total	100%

A = 90–100 % B = 80–89.9% C = 70–79.9% D = 60–69.9% F = below 60%

Attendance will be recorded using iClicker during class meetings. Students with an attendance rate of at least 70% may earn up to 3 extra points toward their final course grade. The bonus increases linearly from 0 points at 70% attendance to 3 points at 100% attendance. Students with an attendance rate below 70% will not receive any attendance bonus. For example, an attendance rate of 80% earns 1 extra point, 90% earns 2 extra points, and 100% earns 3 extra points.

If you are facing academic challenges, at risk of losing your financial support, or have external expectations for a specific grade at the end of the semester, it is crucial to take action now. Start working diligently today. **I will not entertain any pleas for extra credit or offers to do additional work at the end of the semester.**

Academic Integrity Standards and Consequences

According to UNT Policy 06.003, [Student Academic Integrity](https://policy.unt.edu/policy/06-003) (https://policy.unt.edu/policy/06-003), academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

Quiz Policy

Quizzes are short, individual assessments designed to check your understanding of the concepts and skills practiced in lectures and homework. Although the use of Generative AI is permitted for homework, quizzes are intended to assess your own understanding without outside assistance.

Quizzes will be completed remotely through Canvas using Respondus LockDown Browser and Respondus Monitor. You will need a computer with a functioning webcam and microphone and a reliable internet connection. All quizzes are closed-book, but you may bring a formula sheet using both sides (standard paper size, 8 ½" x 11") that is prepared by yourself. The use of Generative AI, websites, communication with other individuals, or other unauthorized resources is prohibited. A calculator may be used unless otherwise stated.

Specific quiz availability windows and time limits will be announced in Canvas.

Examination Policy

All exams will be administered in person during the scheduled class or examination period using Canvas and Respondus LockDown Browser on your personal laptop. You are responsible for bringing a laptop that is compatible with LockDown Browser and sufficiently charged for the duration of the exam.

Exams are closed-book, but you may use one self-prepared, double-sided formula sheet (standard 8.5 × 11 inch paper) and a calculator unless otherwise stated. The use of Generative AI, websites, communication with other individuals, or other unauthorized resources is prohibited. Mobile phones, smartwatches, tablets, and other electronic devices must remain stored and out of view during the exam.

You are expected to be present, seated, and ready to take the exam before the exam begins. You must install and test Respondus LockDown Browser before the first exam.

The Final Examination will be comprehensive in the sense that problems may come from any of the sections that will be covered during the semester. I reserve the right to test and quiz you on problems which are generalizations of material covered in the class and/or in the text. In short, the problems may not look exactly like the ones in the book. Everything that I say in class is fair game for exam material. Everything on every handout is fair game for exam material. You will be responsible for everything unless I advise you to the contrary.

Once the grading is completed, you will have the opportunity to review your graded exams during office hours. You will have 48 hours to appeal your grade after the review. Appeals submitted after this 48-hour period will not be considered.

I will not drop the lowest exam score; all will count toward the final grade.

There will be no make-up for the midterm exams, even in the case of an emergency. A missed exam counts as a zero unless a valid documentation for University-authorized absence (see [UNT Policy 06.039](#)) is provided to your instructor within 48 hours of the missed exam. Students who miss a scheduled exam for an unforeseen reasons (e.g., family emergency, personal health problems, or similar legitimate reasons) are expected to contact the instructor immediately, and then only at the discretion of the instructor. With an acceptable excuse, a missed exam score will be replaced with the percentage earned on the corresponding portion of the final exam.

Make-up tests for the final exam will be allowed only if I am notified of the University-authorized absence at least a week in advance. A make-up exam can consist of different questions than the regular exam, possibly making the make-up exam more difficult.

Homework Policies

Homework assignments can be accessed via [WebAssign](http://www.webassign.net) (<http://www.webassign.net>).

- When you log in, you will be able to see the due dates.
- Cooperation on homework assignments is encouraged.
- You have **4 submissions** for most questions. Your last submission will count as your final answer. If you use a help option (Read it, Watch it and Talk to a Tutor), it will count as 1 submission.
- You can save your work without using a submission.
- Some exercises will be randomized. In other words, it's possible that every student will have slightly different questions with different answers.
- **A 5% bonus will be awarded** to students who complete their homework more than 48 hours before the due date. However, this bonus will be applied only within the portion of your final grade allocated to homework (which is 15% of the total course grade). In other words, this bonus will not increase the weight of homework beyond its designated 15% of the total grade.

When computing grades, I will **drop ONE lowest homework grade** before computing the homework average. Therefore, in principle, you could get a 100% homework score and not turn in an assignment during the semester. I have this policy in case you get sick, a family emergency arises, etc., during the semester. You will still be responsible for the material in such assignments during the examinations.

Requests for manual extensions will NOT be granted

AI Usage

- General Use
 - Students are encouraged to use Artificial Intelligence (AI) tools to improve their learning and practice throughout this course. These tools can help students grasp complex

concepts, engage in creative problem-solving, and get additional practice with course-related skills.

- Use in Assignments
 - Graded Homework: Generative AI tools may be used as learning aids when completing homework. However, homework is intended as practice, and students remain responsible for understanding and being able to independently apply all concepts and methods covered in the assignments. Quizzes and examinations will assess this individual understanding without AI assistance.
- Quizzes and Examinations
 - The use of AI tools is strictly prohibited during both the quizzes and examinations (midterm and final exams). These assessments are designed to evaluate individual knowledge and problem-solving skills without the aid of external AI assistance.
 - Policy Violation Consequences: Any student found using AI tools during these exams will be considered in violation of the course's academic integrity policies. Such violations will be reported and may result in disciplinary action in accordance with the university's standards.
- Responsibility
 - Regardless of whether AI tools are used, students are completely responsible for ensuring the authenticity and originality of their work submitted for academic evaluation. This includes a full understanding of the material and the ability to discuss and defend all submitted work, irrespective of the tools used in its creation.

Unauthorized Aids During Examinations and Assessments

Students may use only those materials and resources that are expressly authorized by the instructor for a particular examination or assessment. Touching, holding, or accessing any unauthorized aid during the examination period constitutes a violation of the Student Code of Conduct, regardless of whether the aid is used.

Any item that may be considered an unauthorized aid must be kept out of view and in a closed container (e.g. zipped backpack, buttoned purse, etc.) during the entirety of the examination or assessment.

Unless specifically authorized in writing by the instructor, prohibited aids include, but are not limited to:

- Mobile phones and smartphones
- Smartwatches and fitness trackers with communication, recording, or internet capabilities
- Tablets, laptops, and other computing devices other than the laptop being used to take the examination through Respondus LockDown Browser
- Earbuds, headphones, and other audio devices
- Smart glasses, cameras, recording devices, and wearable technology
- Artificial intelligence (AI) tools, chatbots, and other generative AI technologies

- Notes, textbooks, study guides, formula sheets, or reference materials
- Any other device, material, or resource not expressly permitted by the instructor

Emergency Notification & Procedures

UNT uses a system called [Eagle Alert](#) to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to the UNT Learning Management System (LMS) for contingency plans for covering course materials.

ADA Accommodation Statement

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the [Office of Disability Access](#) (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodation at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the [Office of Disability Access](#) website (<https://studentaffairs.unt.edu/office-disability-access>). You may also contact ODA by phone at (940) 565-4323.

Creating an Inclusive Learning Environment

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding ([Code of Student Conduct](#)) (<https://policy.unt.edu/policy/07-012>).