

# Math 2345-Spring 2019 Business Statistics

**Professor:** Dr. Kathleen Gilliam

**Office:** Math 117B

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**Office Hours:** MWF 11:00 am to 11:50 am and 2:00 pm to 3:10 pm

**Teaching Assistants:** See announcements for full details on TA's

**WEB Site:** <http://www.math.ttu.edu/~xgilliam>

**Prerequisites:** Math 13xx with at least grade of C. **Textbook:** “Essentials of Modern Business Statistics” (Texas Tech Custom Edition, the 6<sup>th</sup> edition), by Anderson, Sweeney, and Williams.

**Civility in the Classroom:** Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have an opportunity to gain from time spent in class, troublesome behavior will not be tolerated. At a minimum, this includes using cellular phones, making offensive remarks, reading newspapers, sleeping or engaging in any other form of distraction.

**Honesty:** Any acts of scholastic dishonesty such as cheating, plagiarism, and collusion are not allowed.

**Daily Homework, On-line Homework and Quizzes:** Daily Homework will be assigned from the textbook. There will be 9 in-class multiple choice quizzes and 8 on-line Homework sets based on the daily Assignments. For the quizzes, the two lowest quiz scores will be dropped and the remaining scores will be worth 15% of the final grade. For the on-line Homework, you have up to three chances to attempt the questions and the best score will be recorded. Note that the Homework deadline is at 11:45 pm of the due dates. The Homework assignment due dates are made available well in advance. You will also be reminded of these due dates as the time approaches. There is no acceptable excuse for contacting me after the due date expecting me to reopen a set for you. This includes complaints about software problems near the due date. My advice is don't wait until the last minute to turn in the on-line Homework. The best six on-line Homework scores will be worth 10% of the final grade.

**On-line Homework (Aplia Course Key: 9VVT-VGK4-9S9L) Registration:**

1. Connect to <http://login.cengagebrain.com/course/9VVT-VGK4-9S9L>
2. Follow the prompts to register for your Aplia course. Use your official name as listed with TTU.

**Tests:** There will be three midterms and a **Comprehensive** final. For each test you need to bring an orange scantron sheet, pencils, and a calculator. Each of the three midterms will be worth 20% and the final exam will be worth 15%.

**Make-up Exams and Quizzes:** Requests for make-ups will be granted **ONLY** when accompanied by a letter from an appropriate university official, i.e. the Dean of Students. In all other cases, no make-up will be given, and the procedures outlined in this syllabus will be followed. **There are no exceptions to this rule.**

**Grading Policies:** Grades will be assigned based on your overall course average:

90%-100%	A	80%-89.9%	B	70%-79.9%	C
60%-69.9%	D	59.9% and below	F		

**Lectures:** The schedule below indicates the daily topics to be covered in class, the dates for the exams and quizzes.

## Math 2345 Calendar (Spring 2019)

Date	Material Covered	Description	Text Readings (Homework)
Jan. 16	Introduction		Ch 1 (pg26-28: #4, #6, #8, #10)
Jan. 18	Presenting Data Part 1 (Categorical)		Ch 2.1,2.4 (pg45-46: #2, #4)
Jan. 23	Presenting Data Part 2 (Quantitative)		Ch 2.2, 2.3 (pg62: #14, #16)
<b>Jan. 25</b>	About Aplia (on-line Homework) and <b>Quiz 1</b>		
Jan. 28	Measure of Location and Variability		Ch 3.1, 3.2 (pg120: #2, #4; pg132: #24)
Jan. 30	Distribution Shapes and Boxplot		Ch 3.3, 3.4 (pg146: #46, #48)
Feb. 1	Coefficient of Correlation		Ch 3.5 (pg 157: #56)
Feb. 4	Basic Probability and Conditional Probability		Ch 4.2-4.4 (pg199: #22, pg206: #32)
<b>Feb. 6</b>	More Probabilities and <b>Quiz 2</b>		
Feb. 8	Discrete Random Variable and Its Applications		Ch 5.1-3 (pg233-234: #10, #14; pg237: #16)
Feb. 11	Binomial Distribution		Ch 5.4 (pg2490251: #26, #28, #36)
Feb. 13	Normal Distribution		Ch 6.2 (pg287-288: #10, #12, #20, #22)
<b>Feb. 15</b>	Normal Distribution (Cont.) and <b>Quiz 3</b>		Ch 6.2
Feb. 18	Summary and Review for EX1		
<b>Feb. 20</b>	<b>Wednesday</b>	<b>Midterm Exam 1 (Ch1-Ch6)</b>	
Feb. 22	Sampling Distributions		Ch7.1-7.5(pg325-326:#16,#22,#24 pg331:#28)
Feb. 25	Confidence Interval for Mean		Ch 8.1-8.2(pg349-350: #2 #10; pg359:#14,#16)
Feb. 27	Confidence Interval for Proportion		Ch 8.4 (pg369: #32, #36)
<b>Mar. 1</b>	Intro. Hypothesis Tests and <b>Quiz 4</b>		Ch 9.1 9.2 (pg386: #2, #4, pg389: #8)
Mar. 4	Hypotheses Testing for a Single Mean		Ch 9.3-9.4 (pg403: #10, #12 pg411-412: #24, #26)
Mar. 6	Hypotheses Testing for a Single Proportion		Ch 9.5 (pg418: #36, #38)
<b>Mar. 8</b>	Hypotheses Testing for two Means and <b>Quiz 5</b>		Ch 10.1
Mar. 18	Hypotheses Testing for two Means (cont.)		Ch 10.2-3 (pg438-439:#2,#4; pg448: #10)
Mar. 20	Hypotheses Testing for two Proportions		Ch 10.3; 11.1 (pg456: #20; pg497: #2, #8)
<b>Mar. 22</b>	Some Remarks of Testing and <b>Quiz 6</b>		
Mar. 25	Review for EX2		
<b>Mar. 27</b>	<b>Wednesday</b>	<b>Midterm Exam 2 (CH7-CH11)</b>	
Mar. 29	$\chi^2$ Test for proportions		Ch 11.2 (pg507: #11, #12, #14)
Apr. 1	Linear Regression Model		Ch 12.1-3 (pg539: #2; pg551: #16, #18)
Apr. 3	Testing for significance		Ch 12.5 (pg563: #26)
Apr. 5	Interval Estimation		Ch 12.6 (pg569-570: #32, #36)
<b>Apr. 8</b>	Some remarks and <b>Quiz 7</b>		
Apr. 10	Intro to Multiple Regression		Ch 13.1-3 (pg620-621: #1, #4; pg627: #14)
Apr. 12	Testing for Multiple Regression		Ch 13.4 (pg634: #20; pg658: #46)
<b>Apr. 15</b>	Some remarks and <b>Quiz 8</b>		
Apr. 17	Intro to Xbar and R Charts		Ch 15.1-2 (pg755: #2, #4)
Apr. 19	Intro P Chart		Ch 15.2 (pg756: #8)
<b>Apr. 24</b>	Remarks and <b>Quiz 9</b>		
Apr. 26	Review for EX3		
<b>Apr. 29</b>	<b>Monday</b>	<b>Midterm Exam 3 (CH11-CH13, CH15)</b>	

May 1 Intro to Time-Series Analysis  
 May 3 Review for the final (1)  
 May 6 Review for the final (2)

Ch 14 (pg691: #6)

**Final Exam 12:00 MWF Section: Tuesday, May 14, 7:30 AM—10:00 AM, Room: MCOM 67**  
**1:00 MWF Section: Thursday, May 9, 1:30PM—4:00PM, Room: MCOM 67**

Aplia (on-line Homework) Schedules		
ASSIGNMENT #	CHAPTERS	DUE DATES
Assignment 1	Introduction to Using Aplia	Jan. 30
Assignment 2	Ch 3 Numerical Measures	February 6
Assignment 3	Ch 5 Discrete Distribution	February 15
Assignment 4	Ch 6 Normal Distribution	February 22
Assignment 5	Ch 8 Confidence Interval	March 6
Assignment 6	Ch 9 Hypotheses Testing	March 22
Assignment 7	Ch12 Linear Regression	April 10
Assignment 8	Ch13 Multiple Regression	April 24

**Disabled Students:** Please advice me of your condition and provide a letter of verification as soon as possible. I will make necessary accommodation.

**Student absence for Observance of Religious Holy Day:** Please advice me of your absence prior to the event and I will make necessary accommodation.

**Student learning outcomes and assessment:** Students will learn the meanings of, and computational procedures related to, the elementary statistical concepts used for making decisions in business and economics. In particular, students will

1. Appreciate the role of statistics in business decision making.
2. Understand the need to be wary of statistical claims, common pitfalls in sampling, and misrepresentation of conclusions.
3. Understand the meanings of various statistical measures, including the mean, median, mode, standard deviation, variance, and quartiles.
4. Become familiar with various graphical representations of data and learn to recognize misleading graphs.
5. Develop proficiency in real-world probability problems.
6. Understand the concept of a probability distribution and real-world problems, involving the binomial and normal distributions.
7. Understand and apply the Central Limit Theorem.
8. Compute and interpret confidence intervals.
9. Conduct and interpret hypothesis tests.
10. Understand linear regression models.
11. Understand the construction and use of control charts.
12. Understand the based concepts of time series.

**Printing the Class Notes:** Please print the class notes prior to the classes. The notes are available in PDF format on the class website through the box that says **Class Handouts:**

[http://www.math.ttu.edu/~xgilliam/classes/m2345/math\\_2345.htm](http://www.math.ttu.edu/~xgilliam/classes/m2345/math_2345.htm)