QMB 5311 - 001: Quantitative Methods - Business

CRN: 27369

Spring 2026: Jan 13 – Feb 17

Dr. Feng Liu

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Classroom: GBC Room 110C

Class Hours: Tuesday 5:30 pm - 9:30 pm, Saturday 8:00 am – 12:00 pm

Office Room: BUSN 212

Office Hours: By appointments

Course Description

This course aims to introduce students to statistics and its many applications. We will cover a range of techniques that can be used to support data-driven decision-making, and we will walk students through the procedures for statistical analysis using Excel.

Course Objectives

By the end of this course, students should be able to identify business and economic problems, formulate empirically testable hypotheses, gather, manage, and analyze data, and effectively communicate their findings.

Textbook

Essentials of Statistics for Business & Economics

by Camm/Cochran/Fry/Ohlmann/Anderson/Sweeney/Williams, 10th Edition

ISBN-13: 9780357716045

Course key: UTEP94597278

Course Assignments

Work	Points	Due Date
Attendance	10*10 = 100	every class
Problem Sets	40 * 4 = 160	Jan 19; Jan 26; Feb 2; Feb 13.
Group Projects	60 * 2 = 120	Jan 20; Feb 14.
Exams	100*2 = 200	Feb 6; Feb 17.
Quiz	20*1 = 20	Feb 17
Total	600	---

1. Attendance is required. Students will take full responsibility to catch up on any missed work.

2. There will be four problem sets. The problem sets will be available on the Cengage homework platform (WebAssign), and they must be completed before or on the due date. No late work will be accepted without an acceptable excuse.
3. There will be two group projects. Details will be provided separately. There will be no late acceptance of the projects.
4. There will be one midterm and one final exam. No make-up exams will be given without an acceptable excuse.

Grading Scale

Letter Grade	Percentages	Points
A	[90, 100]	[540, 600]
B	[80, 90)	[480, 540)
C	[70, 80)	[420, 480)
D	[60, 70)	[360, 420)
F	below 60	below 360

1) There are no exceptions to the grading policy. I sympathize with students who are close to the cutoff for the next higher grade. However, it is unfair to others to give special consideration to any student.
2) Grades will be posted on Blackboard, so students can monitor their status throughout the semester. Any end-of-semester adjustments on final grades will be administered at the instructor's discretion and are extremely unlikely.
3) A student may officially withdraw from this class in accordance with UTEP policy and within the UTEP academic calendar dates (**The course drop deadline is Feb 12, 2026**). Automatic withdrawals will NOT be made by the instructor. To be withdrawn from the class, students must take the appropriate actions on or before the university deadlines.

Classroom Decorum

The learning process is more productive when there is a positive classroom environment. Part of the responsibility for maintaining that environment rests with students. What I ask is less for my benefit than for the benefit of your fellow students. Students should follow the simple guidelines below:

1) Treat class time as if it were a professional meeting. Disruptive student behavior, such as having personal conversations during lectures, is unacceptable.
2) Silence cell phones and other electronic devices before class starts. Electronic devices are permitted for taking notes or conducting data analysis.

3) Academic dishonesty is a serious offense. Cheating, plagiarism, collusion, or falsification will result in a **zero mark**. The University defines academic dishonesty at https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html.

Note: Failure to adhere to course rules and expectations may result in a student being administratively dropped from the course or being downgraded to the next grade letter, say, from B down to C.

Communication

The best way to reach me is via email. I strongly prefer to communicate through emails rather than Blackboard course messages or WebAssign messages. Please email fliu@utep.edu and always put "QMB 5311- 001 - full name" in the subject line. I will make every attempt to respond to your message within 24 to 48 hours of receipt. For email etiquette, see https://www.unr.edu/writing-s peaking-center/student-resources/writing-speaking-resources/email-etiquette-for-students.

Academic Integrity and Scholastic Dishonesty

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures (HOOP). It includes but is not limited to cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, processing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline. All students are responsible for knowing and adhering to UTEP's policy on academic honesty.

Accommodations Policy

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services, and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship for the University. Students requesting accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148 or email them at cass@utep.edu, or apply for accommodation online via the CASS portal.

Course Evaluation

Your constructive assessment of this course plays an indispensable role in shaping education at UTEP. Upon completing the course, please take the time to fill out the course evaluation.

Copyright Statement

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

Tentative Course Content

The instructor will attempt to adhere to the tentative course schedule below. She may alter course content, class assignments, and activities as deemed necessary.

Module 1 (Jan 13 – 20, Chapters 1, 2, 3)

- HW1, **due Jan 19**, 11:59pm.
- Project 1 presentation, **Jan 20**, in class.

Date	Topics	In-class Activities
- Before-class reading: sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5		
Jan 13 (Tuesday)	1.1 Applications in Business and Economics 1.2 Data 1.3 Data source 1.4 Descriptive statistics 1.5 Statistical Inference 1.6 Analytics 1.9 Ethical Guidelines for Statistical Analysis 2.1 Summarizing data for a categorical variable 2.2 Summarizing data for a quantitative variable	1) Self-introduction 2) Team formation 3) Exercise with textbook data and online data - Summarize data for a categorical variable - Summarize data for a quantitative variable 4) Discussion of Project 1
- Before-class reading: sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6		
Jan 17 (Saturday)	2.3 Summarizing data for two variables using tables 2.4 Summarizing data for two variables using graphical displays 2.5 Data visualization: best practices in creating effective graphical displays 3.1 Measures of location 3.2 Measures of variability 3.3 Measures of distribution shape, relative location, and detecting outliers 3.4 Five-number summaries and boxplots 3.5 Measures of association between two variables 3.6 Data Dashboards: Adding numerical measures to improve effectiveness	1) Exercise with textbook data and online data - Summarize data for a categorical variable - Summarize data for a categorical variable 2) Final Q&A for Project 1
Jan 20 (Tuesday)	Project 1 due and presentations	

Module 2 (Jan 21 – Feb 7, Chapters 4, 5, 6, 7, 8, 9, 10, 12)

- HW2, **due Jan 26**, 11:59pm.
- HW3, **due Feb 2**, 11:59pm.
- Midterm, **due Feb 6**, 11:59pm.

Date	Topics	In-class Activities

- Before-class reading: sections 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 7.2, 7.3, 7.4, 7.5, 7.6, 1.5, 8.1, 8.2, 8.4		
Jan 24 (Saturday)	5.3 Expected value and variance 5.4 Bivariate distributions, covariance, and financial portfolios 6.2 Normal distribution 7.4 Introduction to Sampling distribution (7.9 Sampling error) 7.5 Sampling distribution of sample mean $\bar{X}$ (xbar) 7.6 Sampling distribution of sample proportion $\bar{P}$ (pbar) 1.5 Statistical Inference 7.3 Point estimation 8.1 Population mean μ: sigma unknown 8.2 Population mean μ: sigma unknown 8.4 Population proportion	1) Exercise with textbook data
- Before-class reading: sections 9.1, 9.2, 9.3, 9.4, 9.5, 9.6		
Jan 27 (Tuesday)	Guest Speaker: Ross Rotwein, senior director of Strategy and Analytics at the EP Chihuahuas, 5:45pm 9.1 Developing null and alternative hypotheses 9.2 Type I and Type II errors 9.4 Population mean: sigma unknown 9.5 Population proportion 9.6 Hypothesis testing and decision making	
- Before-class reading: sections 10.1, 10.2, 10.3, 10.4, 12.1, 12.2, 12.3		
Jan 31 (Saturday)	10.2 Inferences about the difference between two population means: sigma1 and sigma2 unknown 10.3 Inferences about the difference between two population means: matched samples 10.4 Inferences about the difference between two population proportions 12.1 Testing the equality of population proportions for three or more populations 12.2 Test for independence 12.3 Goodness of fit test	
Take-home (Due Feb 6)	Midterm Exam	

Module 3 (Feb 3 – Feb 17, Chapters 14, 15)

- HW4, **due Feb 13**, 11:59pm.
- Project 2 presentation, **Feb 14**, in class.
- Final exam, **Feb 17**, in class.

Date	Topics	In-class Activities
- Before-class reading: sections 14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6		
Feb 3 (Tuesday)	14.1 Simple linear regression model 14.2 Least squares method 14.3 Coefficient of determination 14.4 Model assumptions 14.5 Testing for significance	1) Excel 2) Discussion of Project 2

	14.6 Using the estimated regression equation for estimation and prediction 14.7 Computer solution ---------- 15.1 Multiple regression 15.2 Least squares method 15.3 Multiple coefficient of determination 15.4 Model assumptions 15.5 Testing for significance 15.6 Using the estimated regression equation for estimation and prediction	
- Before-class reading: sections 14.8, 14.9, 15.7, 15.8, 15.9		
Feb 7 (Saturday) Feb 10 (Tuesday)	14.2 Least squares method; 14.3 Coefficient of determination; 14.5 Testing for significance; 15.3 Multiple coefficient of determination; 15.5 Testing for significance (calculation by hand) ---------- 14.8 Residual analysis: validating model assumptions 14.9 Residual analysis: outliers and influential observations 15.8 Residual analysis ---------- 15.7 Categorical independent variables 15.9 Logistic regression	1) Final Q&A for Project 2
Feb 14 (Saturday)	Project 2 due and presentations	
Feb 17 (Tuesday)	Quiz: 5:30 – 5:45 Final Exam: 5:50-8:50 pm	