QMB 3301: Quantitative Methods in Business

Section 007, CRN 11359, Fall 2022

University of Texas at El Paso

Time and Location: T, TH 1:30 – 2:50 pm, BUSN 309

Instructor: Feng Liu, Ph.D.

Email: fliu@utep.edu (Students should contact me using their UTEP emails and putting "QMB 3301 007 + full name" in the subject line.)

Office Hours: T, TH: 9:30 – 11:00 am, BUSN 212 (Students are welcomed to meet me during office hours or by appointment.)

Blackboard course site: https://blackboardlearn.utep.edu (Students will find assignments and other class matters on BB. Students should visit BB on a regular basis for updates.)

Required Materials: MindTap (Cengage learning platform), Excel, R Studio, and stable internet connection

Course Description

An introduction of regression and applied forecasting techniques, without the burden of mathematical and theoretical details. Topics include a review of descriptive statistics and statistical inference, as well as new materials on regression analysis and forecasting methods. Students will analyze data and perform statistical analyses mainly on computers. The software packages we will use in class include Excel (Data Analysis tool) and R studio. The main challenge will be to interpret results in a valid and meaningful way.

Course Goals

The primary goal of this course is to help students develop business analytics skills. The course focuses on the understanding and mastering various well-referenced quantitative methods such as linear regression and forecasting techniques. After taking this course, students are expected to be able

- to develop interval estimates and to conduct hypothesis tests,
- to build/construct analytical models in various business situations,
- to quantify the underlying relation using regression analysis, and to predict a variable of interest using different forecasting techniques,
- to interpret statistical results from software output,
- to develop problem-solving, presentation, and writing skills.

At the end of this course, student will be able to extract information and gain insights from historical data as well as make prediction about its future outcomes.

Course Assignments and Grades

1. Assignments

Assignment	*Points*	*Material*	*Date*
Exam 1	100	Module 1	TBD
Exam 2	100	Module 2	TBD
Group Project	100	—	TBD
Final Exam	100	Modules 3, 4, (and 5)	Dec 8th, 4:00-6:45pm
Homework	200 = 25 points × 8	—	Schedule
Attendance	50 = 10 points × 5	—	Random
Total	650		

- Homework assignments will be delivered through the MindTap online learning platform. I strongly urge students to use the homework assignments as preparation for exams. Homework assignments must be submitted before or on the due date. The due dates are not flexible, and no late work will be accepted without an acceptable excuse.
- Group project information will be distributed later.
- Three exams will be given. Students are allowed to make up exams if they missed them. However, for every exam they make up, a **20-point penalty** will apply.
- Class attendance is required. Five random in-class attendance checks will be taken throughout the semester. Students are responsible to catch up on any missed work. Data also shows that students who attend class regularly perform better on exams than those who don't attend.

2. Grading Scale

Letter Grade	*Percentages*	*Points*
A	[90, 100]	[585, 650]
B	[80, 90)	[520, 585)
C	[70, 80)	[455, 520)
D	[60, 70)	[390, 455)
F	below 60	below 390

- Extra credit opportunities will be offered at the instructor's discretion. Two extra credits will be given each time to students, for example, who ask good questions. However, extra credits won't exceed 20 points per person per semester, and there will be no extra credit assignments available at the end of the semester.
- **Grades will be posted on Blackboard**, so students can monitor their status themselves. Any end-of-semester adjustments on final grades will be administered at the instructor's discretion and are extremely unlikely.

Textbook and Software (Required)

1. Camm/Cochran/Fry/Ohlmann/Anderson/Sweeney/Williams' Business Analytics, 3rd edition, 2021, Cengage Learning. **MindTap is required.**

- Log in our Blackboard course site and click on "MindTap-Blackboard Pairing" which will direct students to the publisher's website. Students can create account from there.
- Students are expected to read over the textbook and be familiar with the materials before class.

2. Students must have a computer device, Excel, R studio, and reliable internet connection throughout the semester.

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 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. Electronic devices are permitted only if students are using them to take notes or view the textbook. Please silence cell phones and other electronic devices before class starts.
3. Academic dishonesty is a serious offense. Cheating, plagiarism, collusion, or falsification will result in **a zero mark**. Academic dishonesty is defined by the University 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, for example, 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. Please send emails to fliu@utep.edu and always put "QMB 3301 007 + 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-speaking-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 on the University. Students requesting an 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.

Withdrawal and Incomplete Grade Policy

A student may officially withdraw from this class in accordance with UTEP policy and within the UTEP academic calendar dates. 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.

The policy of the College of Business Administration is that incomplete grades are to be given only to students who need additional time to complete the specified assignments and are typically only assigned in extreme circumstances with documentation. Incompletes will NOT be given to those students who are not passing the course and wish to retake the course at a later date. It is your responsibility to know what the effect of a withdrawal will have on your academic standing, financial aid, scholarships, etc. International students are encouraged to go to the Office of International Program to discuss any schedule changes.

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 online 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.

COVID-19 Precautions

If you have tested positive for COVID-19, you are encouraged to report your result to covidaction@utep.edu, so that the Dean of Student Office can provide you with support and help with communication with your professors. It is important to follow all instructions that you receive as part of the diagnosis, including isolation and staying at home until a negative test is produced.

If you experience COVID-19 symptoms, please follow the isolation protocol by staying at home and getting tested as soon as possible. If the test is negative but you are still seeking accommodations, please contact the Dean of Students Office for guidance in a timely manner. Your instructor will work with Dean of Students Office to determine the extent of any such accommodations.

Final Note

The contents of the syllabus are tentative and subject to change. Any changes will be made known to the students beforehand and posted to Blackboard course site.

Tentative Course Content

The outline below provides a general plan for this course. Deviations may be necessary.

Module 1: Review

1. Modifying data in Excel (Section 2.3)
2. Descriptive statistics: mean, median, mode, range, variance, standard deviation, coefficient of variation (sections 2.5 and 2.6)
3. Creating distributions from data (section 2.4); analyzing distributions (section 2.7); normal distribution (section 5.6)
4. Hypothesis testing: population and sample data (Section 2.2); sampling distribution (section 6.3); hypothesis tests (section 6.5)
5. Interval estimation (sections 6.2 and 6.4)

Exam 1

Module 2: Regression Analysis

1. Measures of association between two variables (section 2.8)
2. Simple linear regression model (section 7.1)
3. Multiple linear regression model (section 7.4)
4. Assessing the fit of the simple linear regression model (section 7.3)
5. Inference and regression (section 7.5)
6. Prediction with regression (section 7.10)

Exam 2

Module 3: Regression Analysis: Further Issues

1. Least squares method (sections 7.2 and 7.4)
2. Quantitative and categorical data (section 2.2)
3. Categorical independent variables (section 7.6)
4. Logistic regression (section 9.3)
5. Modeling nonlinear relationships (section 7.7)
6. Model fitting (section 7.8)

Group Project

Module 4: Time series

1. Cross-sectional and time-series data (section 2.2)
2. Time series patterns (section 8.1)
3. Moving averages and exponential smoothing (section 8.3)
4. Using regression analysis for forecasting (section 8.4)
5. Forecast accuracy (section 8.2)
6. Determining the best forecasting models to use (section 8.5)

Module 5: Data Mining (if time permits)

1. Cluster analysis (section 4.1)
2. Data sampling, preparation, and partitioning (section 9.1)
3. Performance measures (section 9.2)
4. K-nearest neighbors (section 9.4)

Final Exam