CSCI 5374 - Quantitative Methods and Analysis – Spring 2025 (3 credits)

Course Description

This course introduces basic quantitative methods and data analysis techniques with applications to business, cybersecurity, and other domains. Students will learn to use various computer-based tools to understand and analyze data to solve real-world problems. Students will learn how to: (1) ask relevant questions ; (2) acquire, transform, and analyze data using suitable quantitative methods; and (3) effectively interpret and present the results. (The weekly workload may span 9 to 18 hours approximately and depends on individual students' background.)

Course Time and Room

Online Asynchronous Mode (7-week schedule)

Instructor Information

Dr. Wingyan Chung (wchung@uttyler.edu, office: COB 315.09)
Professor, Computer Science Dept.

Office Hours

Tuesday and Thursday 3:00 - 4:00 pm and by appointment
Emails will normally be answered within 2 business days; emails received during Friday–Sunday will be answered by the following Tuesday.

Textbook Information

The following textbook is required throughout the semester and is available from the university bookstore and the website linked below.

- [V] = James R. Evans "Business Analytics, 3rd edition," MyLab Statistics with Pearson eText (ISBN-13: 9780135311066 (2023 update)).

Course Objectives

Upon successful completion of this course, students should be able to:

- Explain concepts and techniques related to quantitative methods and data analysis in business,
- Identify appropriate questions and quantitative methods for specific problems,
- Use statistical techniques to analyze a variety of business datasets,
- Apply predictive and prescriptive analytics to business decision making, and
- Model business problems and simulate the outcomes.

Computer Account Access

Students will need a Patriot account and password for computer access. This information can be found at `https://www.uttyler.edu/technology-support/patriots-account/`

Course Materials

This class will use Canvas for course documents, slides, submission of assessment items, assignments, online discussions, quizzes and other class-related materials. Students should check the Canvas site frequently during the semester to keep up to date about course activities. Submissions are due by 11:59:00 pm on the due date (except otherwise stated). Students should submit their work early to avoid last-minute hassles. Email submission is NOT accepted.

Course Grading

Assessment of student performance will be based on the following:

    Assignments
    Quizzes
    Final Exam

Grading Scale

A = 85.0 points or more
B = 70.0 to less than 85.0 points
C = 60.0 to less than 70.0 points
D = 50.0 to less than 60.0 points
F = Less than 50.0 points

Course Policies

1. Assignments (A) – Individual, untimed, open-book, open-notes, assignments will contain objective questions, business cases, and/or short-answer questions to help students review and practice course concepts and skills. Late submission (within 2 days after due date) will incur a 30% deduction in score. Submission is closed afterward. Email submission is NOT accepted.

2. Quizzes (Q) – Individual, timed, close-book, close-notes quizzes (proctored by ProctorU via full-face video and screen capturing) will be given periodically. Each quiz will be open for a one-week period and must be submitted by its deadline (and will be closed afterward). Missed quizzes cannot be made up without acceptable emergency-related documentation (sent to the instructor before the quiz or within 1 day after the quiz deadline). No pause is allowed in each quiz.

3. Final Exam (E) – Individual, timed, close-book / close-notes comprehensive final exam (proctored by ProctorU via full-face video and screen capturing) is scheduled to be done within a 24-hour window. Course handouts and previous assignments will be temporarily unavailable during (and shortly before) the exam. The exam arrangement details will be provided later in the semester.

4. Make-up or Extension for Missed Submissions – Make-up or extension for missed submissions are available ONLY for valid reasons pre-approved by the Office of Student Accessibility and Resources or for serious sickness / emergencies (with doctor's notices / proper documentations submitted prior to or in the same week of the deliverable). To be considered for make-up or a short extension (normally within 2 days after submission is closed), students must email official documentations to the instructor before the due date of the assessment items.

5. Student Responsibility – Students are required to take timely actions according to the course schedule, to check the learning management system and their university email regularly, and to perform all course-related tasks. Students should behave properly to facilitate active class learning.

6. Academic Integrity – Any act or attempt of academic dishonesty, such as (but not limited to) plagiarism, cheating, collusion, falsifying records, and copyright infringement, is strictly prohibited and will be punished according to the university policies (e.g., §8-802).

7. UT Tyler AI Statement – UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate. For this course, students must complete all assessment items exclusively by themselves. When use of AI tools is permissible in specific assessment items, it will be clearly stated in the directions, and all use of AI tools must be appropriately acknowledged and cited. Otherwise, the default is that AI tools are not allowed during any stage of an assessment.

Course Schedule

Start Date	Week	Topic	Materials
3/3	1	Introduction to Quantitative Methods and Analysis Basic Excel Skills	Syllabus; V-1,2,3 V-Appendix A1
3/10	2	Descriptive Analytics Probability Distribution	V-4 V-5
3/24	3	Sampling and Estimation Statistical Inference	V-6 V-7
3/31	4	Regression Analysis Interpretation of Regression Models	V-8
4/7	5	Time Series Forecasting Decision Modeling with Spreadsheets	V-9 V-11
4/14	6	Simulation and Risk Analysis Linear Optimization	V-12 V-13
4/21	7	Decision Analysis Final Exam	V-16

* V = Course textbook chapter(s) by J. Evans

** No class in the week of 3/17 (Spring break).