

COURSE: BU640N Quantitative Analysis
CREDIT: Semester Hours: 3 hours
SEMESTER: Spring 2026, Session 2 (March 16 – May 8)
TIME/LOCATION: This is an online-only course
INSTRUCTOR: Dr. Chris Basel
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OFFICE: Room 224 Education Building

DESCRIPTION

This course provides students with the background of applied statistics that concerns the collection, processing, dissemination, and analysis of economic data. The skills acquired in this course will enable students to make recommendations and key decision making. Students will also become familiar with statistical methods associated with evaluations and problem solving through mathematical programming.

OBJECTIVES

General competencies to be achieved. The students will:

1. Master quantitative analysis methods, including probability, regression, and optimization (PLO 4, 5, 6; Course Assessment A).
2. Apply statistics to economic and management applications and decision-making, such as forecasting, inventory control models, project management, and statistical quality control (PLO 4, 5, 6; Course Assessment A).
3. Learn how to use software for quantitative methods of analysis associated with business applications (PLO 4, 5, 6; Course Assessment A).
4. Understand the importance of biblical ethics when using quantitative analysis for business applications (PLO 1, 2, 3; Course Assessment B)

REQUIREMENTS

- A. Participate frequently and make regular progress.
- B. Complete reading assignments.
- C. Listen to lectures (live or recorded).
- D. Complete homework, essays, and/or discussions on schedule.

METHODS

- A. LECTURES:** Lectures will consist of material from the book and additional material from a variety of sources. Students should take notes during lectures, as the homework questions will be directly related to the lectures, and some information may not be from the book.
- B. READING:** The textbook provides a framework for the class. Not every topic in the textbook will be addressed. Emphasis will be placed on the most important concepts and practical applications. The instructor will tell you which sections of each chapter will be covered.
- C. HOMEWORK ASSIGNMENTS:** Homework assignments will normally be completed using Microsoft Excel QM for PCs. You must complete the assignments to understand the material.
- D. ESSAYS AND DISCUSSIONS:** Inaccurate statistical calculations can lead to problems and can be used for deception. The purpose of this portion of the class is to develop your ability to understand the necessity of using statistics accurately and honestly to reflect the biblical worldview. Assignment instructions will be given in Canvas. Also, *see the Guidelines in Canvas*.
- E. MISSED OR LATE ASSIGNMENT:** Grades on late assignments will be decreased for each day that they are late. Assignments that are more than three days late will not be accepted and will receive no credit.

COURSE ASSESSMENTS AND GRADING *See grading scale in the university catalog.*

A	Homework Assignments	80%
B	Discussion Questions and Essays	20%

Special Notes:

- Students with disabilities have the responsibility of informing the Accommodations Support Coordinator (aso@calvary.edu) of any disabling condition that may require support.
- Plagiarism is defined as copying any content without identifying the source. This also includes taking another person's or AI entity's ideas or constructs and presenting them as your own. Plagiarism of any kind will not be tolerated. Most assignments at Calvary require the student to produce original work. Therefore, unless specifically permitted by the instructor, the use of AI-generated content is prohibited (even if cited) as it does not represent original work created by the student and is an unreliable aggregate of ideas from other sources. AI, however, may be utilized in cases where the instructor has explicitly permitted its use to accomplish specific tasks. It is only in these cases that AI-generated (or modified) content may be submitted by the student. If there are any questions as to the permissibility of AI use for an assignment, please ask your instructor for clarification.

- The Clark Academic Center (learning@calvary.edu) is dedicated to providing free academic assistance for Calvary University students. Student tutors aid with all facets of the writing process, tutor in various subject areas, prepare students for exams and facilitate tests. Please take advantage of this service.
- All class papers must follow the APA style according to the *Publication Manual of the American Psychological Association, 7th edition*.

REQUIRED MATERIALS

- A. The Bible is a required textbook in every course at Calvary University. To facilitate academic level study, students are required to use for assignments and research an English translation or version of the Bible based on formal equivalence (meaning that the translation is generally word-for-word from the original languages), including any of the following: New American Standard (NASB, English Standard Version (ESV), New King James (NKJV), or King James (KJV). Other translations and versions based on dynamic equivalence (paraphrases, and thought-for-thought translations like NLT and NIV) may be used as supplemental sources. Please ask the professor if you have questions about a particular translation or version. The Holy Bible, www.gatewaybible.com, Price: \$0
- B. eTextbook: Quantitative Analysis for Management, 13th edition
Authors: Barry Render, Ralph M. Stair, Michael E. Hanna, and Trevor S. Hal
ISBN-13: 9780137501403
Pearson, 2021

This eTextbook can be purchased using one of three plans:

- 6-month access for \$9.99/per month (total cost \$59.94), **or** one of the following **optional choices**:
- 6-month access with Study Prep on Pearson+ for \$15.99/month (total cost \$95.94), or
- Lifetime access for \$89.94.
- Lifetime access with Study Prep on Pearson+ for \$89.94 and \$7.99/month

The first choice (\$9.99/month for six months) is the minimum requirement and should be sufficient. The next three choices are options the student can purchase **instead of** the first choice to obtain extra study help and/or longer access.

- C. Microsoft Excel. ASIN: B09H7GPR1G (ISBN not available), List price: \$149.99. NOTE: This listing reflects the one-time purchase price for Word and Excel home and student package on Amazon at the time this syllabus was prepared. Students who already possess Excel DO NOT NEED TO PURCHASE THIS PRODUCT.
- D. Microsoft Excel QM for PCs. This is a free download available at:
https://media.pearsoncmg.com/ph/bp/bridgepages/bp_render_bridgepage/qam_13e/index.html

TENTATIVE CLASS SCHEDULE

A detailed version of the class schedule, including due dates, will be posted on Canvas. Any changes to the schedule will be announced in class, by email, or posted on Canvas. One or more of these topics may be covered briefly or dropped depending on the time available.

WEEK	TOPIC	CHAPTER
1	Introduction to Quantitative Analysis	1
	Probability Concepts and Applications	2
2	Decision Analysis	3
	Regression Models	4
3	Forecasting	5
	Inventory Control Models	6
4	Linear Programming Models: Graphical and Computer Methods	7
	Linear Programming Applications	8
5	Transportation, Assignment, and Network Models	9
	Integer Programming, Goal Programming, and Nonlinear Programming	10
6	Project Management	11
	Waiting Lines and Queuing Theory Models	12
7	Simulation Modeling	13
	Markov Analysis	14
8	Statistical Quality Control	15