

**BUS 309, Quantitative Fundamentals for Business  
Martin V. Smith School of Business and Economic  
California State University Channel Islands**

**Course Syllabus, Fall, 2022  
REV A., Original Syllabus, 8/20/22**

**Course:** BUS 309-003/ECON 309-03, Class No. 2623/2627  
TuTh 6:00pm - 7:15pm, Bell Tower 1602

**Professor** Jeffrey Stone, Ph.D., MBA

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**Office Hours** 4:45pm to 5:45pm on Tuesdays in Room Sage Hall 2016

## Required Material

**Scientific calculator:** You will need a scientific calculator for this class. I will be using the Texas Instruments TI-83, and my examples will use this calculator. The TI-83+, TI-84, or TI-84+ calculators are capable of performing almost all calculations required for this course. **If you do not have a calculator, please do not purchase one!** There are two mobile phone apps that are excellent. On the iPhone, the *GrafnCalc83* is a superior emulator of the TI-83. On an android phone, the *Wabbitemu* app emulates the TI-83. No other smartphone apps are allowed in the class, and use of your smartphone other than these two apps will be considered academic dishonesty.

**Microsoft Excel Solver Plugin:** This is available on all campus computers.

## Course Description

This is a required prerequisite course for the Bachelor of Science in Business. The course reinforces and synthesizes quantitative skills developed in the lower division (Acct 220, Econ 111) to ensure high levels of competence in them. Students polish and apply these skills to examples from core business disciplines both from previous lower-division classes as well as upcoming major requirements.

An understanding of the role of quantitative analysis techniques is essential for business students. The course will use lectures, sample problems, and in-class problem solutions to review mathematics that you have had in prior classes as well as new foundational mathematics that you will need in upper division courses in Economics, Finance, Accounting, Operations Management and the Capstone Course in Business.

### FYI

Whatever topic is covered, it is critical that you **practice** doing problems! Repeat...it is critical that you **practice** doing problems! Repeat? I hope you get it. We cannot master anything without actually doing. We cannot learn by watching or listening. Learning takes repetition. We cannot do well in business applications (i.e., real-world work) until we completely understand the material.

Do we expect you to remember this math forever? No. But the more experience you have with different applications, the easier and quicker it will be to recall what you have learned when you need to apply the material to work.

During this course, you may ask yourself *why* you need to learn this material. First, you will need it in later courses or you will struggle or fail. Second, after graduation, you will be prepared to tackle problems in your job. These problems certainly include algebra, as algebra is used in all subsequent math. But, you also ask, "don't calculators or math computer tools do all of the work? This is true, and you will use calculators and spreadsheets during this class. However, to use a particular tool, you need to select the right tool. (A screwdriver *may* be used to drive a nail, but a hammer is the best tool.) Without a deeper knowledge of the tool, you won't know which tool to use in a given situation.

## Prerequisites

MATH 140 or MATH 150 and computer literacy including the ability to use all of the *Canvas* features and functions, to download and upload materials, to send materials via attachments.

## Student Learning Outcomes

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

1. Use algebra to solve challenges in abstract and applied settings.
2. Use derivatives to find local/global maxima and minima in abstract and applied settings.
3. Create accurate and compelling graphs and tables for business applications.
4. Interpret graphs and tables in business applications.
5. Analyze information using calculators and software applications.

## Grading Weight

Homework problems	25%
Exams	50%
Final Exam	20%
Attendance/participation/instructor evaluation	5%

**Note:** Letter grades will use +/- grading based on this scale: A  $\geq .93$ ; A- 90-92; B+ 87-89; B 83-86; B- .80-82; C+ .77-.79; C .73-.76.

## Course Content

### *Homework problems (25% of course grade)*

After a given topic is covered in class, there will be a number of mathematics and application problems for you to test your knowledge and application of that topic. Homework assignments are due at the beginning of class as indicated in the schedule below. As appropriate, you will be expected to work out the steps in solving the problem in clear writing. If I cannot read your answers you will not receive full credit. Put your final answer indicated in a box.

### *Attendance, class participation and instructor evaluation (5% of course grade)*

Attendance will be taken at the beginning of each class session. To keep a "level playing field" for the class, any missed class will be considered unexcused. That is, there is no acceptable excuse for missing class.

### *In-class exams (five at 10% each for 50% of course grade)*

Although in-class exams are non-cumulative, you will still need to understand the material presented before that exam. Exams will consist of a number of problems and quantitative analysis. Bring a scientific calculator to class. The exam will open promptly at 6:00pm and close promptly at 7:15pm. Be sure to pay careful attention to the time.

### *Final exam (20% of course grade)*

Although in-class exams are non-cumulative, you will still need to understand the material presented before that exam. Exams will consist of a number of problems and quantitative analysis. Bring a scientific calculator to class. The exam will open promptly at 6:00pm and close promptly at 7:15pm. Be sure to pay careful attention to the time.

## **Course standards and academic honesty**

It is assumed that students will perform professionally in preparing work required for this class. All homework problems must be submitted before class on their due date. **Late submissions will not be accepted unless noted otherwise.**

All students commit to maintaining and upholding intellectual integrity. Any violations, including but not limited to cheating or plagiarism may result in sanctions, including a failing grade on an assignment, a failing grade for the course, or suspension or dismissal from the university. Please review the Academic Honesty statement described in the university catalog for details.

## **Disability**

California State University Channel Islands is committed to equal educational opportunities for qualified students with disabilities in compliance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. The mission of Disability Accommodation Services is to assist students with disabilities to realize their academic and personal potential. Students with physical, learning, or other disabilities are encouraged to contact the Disability Accommodation Services office at (805) 437-8510 for personal assistance and accommodations.

## CLASS SCHEDULE

This schedule is not a contract. It is open to change during the semester.

WEEK	DATE	BUS309 Topic
1	Tue, Thu 8/23-25	<b>Business Math:</b> basic mathematics, algebra, exponentiation, logarithms
2	Tue, Thu 8/30-9/1	<b>Business Math:</b> linear equations with 2 unknowns, with 3 unknowns
3	Tue, Thu 9/6-8	<b>Business Math:</b> business applications
4	Tue 9/13	<b>EXAM 1:</b> Business Math
4	Thu 9/15	<b>Fundamentals of Graphs and Tables:</b> purpose, types and creation including line, histogram, bar and pie
5	Tue 9/20	<b>Excel fundamentals:</b> Excel as a database; entering and manipulating data, tables and pivot tables
5	Thu 9/22	<b>Excel fundamentals:</b> Excel as an analytic tool; sharing Excel data with other applications, quantitative functions in Excel
6	Tue 9/27	<b>EXAM 2:</b> Excel, Graphics and Tables
6	Thu 9/29	<b>Calculus 1:</b> introduction to calculus, limits, algebraic foundations
7	Tue 10/4	<b>Calculus 2:</b> derivatives: concept, formulas/rules, application to business and economic problems
7	Thu 10/6	<b>Calculus 3:</b> application of derivatives to business and economics problems
8	Tue 10/11	<b>EXAM 3:</b> Calculus
8	Thu 10/13	<b>Statistics 1:</b> probability, descriptive statistics, distributions, applications to business, operations, and marketing problems, implementation on calculator
9	10/18	<b>Statistics 2:</b> distributions, inferential statistics, implementation on calculator
9	10/20	<b>Statistics 3:</b> regression analysis, forecasting, implementation in Excel
10	Tue 10/25	<b>EXAM 4:</b> Statistics
10	Thu 10/27	<b>Linear Programming:</b> concept, graphical approach, linear algebra, simultaneous equations,

11	Tue 11/1	<b>Linear Programming:</b> implementation on calculator, implementation in Excel
11	Thu 11/3	<b>Decision Analysis</b>
12	Tue 11/8	<b>Exam 5:</b> Linear Programming and Decision Analysis
12	Thu 11/10	<b>Quantitative applications in Marketing:</b> markup/markdown, market share, applications
13	Tue/Thu 11/15-17	<b>Quantitative applications in Accounting and Finance:</b> compounding, cash flow and discounting, Break-even analysis
14	11/22	<b>Quantitative applications in Accounting and Finance:</b> continued
15	11/28 12/1	<b>Quantitative applications in Operations and Sales Planning</b>
	Th 12/8	<b>Exam 6:</b> Final Exam Cumulative: Quantitative applications
		Grades Due 12/16