Bus/Econ 309 – Spring 2023

Welcome

Welcome to Bus/Econ 309! This class intends to get you up to speed with quantitative methods expected of people graduating college with a business degree. In particular, the goal is to make sure you are comfortable with algebra, "light" calculus, introductory statistics and the creation and interpretation of tables and graphs.

Professor Contact Information

Office Hours: (Through Zoom – online) See course webpage for details.
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Course Description

The course reinforces and synthesizes quantitative skills developed in the lower division to ensure high levels of competence. You will polish and apply these skills to examples from core business disciplines both from previous lower division classes as well as upcoming major requirements.

Course Learning Outcomes: Upon completion of this course, you will 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. Interpret graphs and tables in business applications.
4. Create accurate and compelling graphs and tables for business applications.
5. Analyze information using personal calculations as well as software applications.

Translation of Learning Outcomes: At least sometimes, in some classes (and disproportionately in mathematically-based classes), you have earned grades that you know are not commensurate with your understanding of the material. This class is designed to make you demonstrate repeatedly, quickly, and with high accuracy that you can indeed use quantitative reasoning, in abstract settings as well as settings applied to your major.

Textbook

No textbook is required for this course, though I may occasionally post some recommended readings to the course webpage.

Attendance

Attendance is only mandatory on the days of the midterm and the final exam. Your grade will likely increase if you choose to attend class for the following reasons: (1) we will do a lot of practice and examples during lectures, (2) you will have the opportunity to ask questions in real time, (3) some class time will be devoted to reviewing your graphing portfolios (more info on those below) before you hand them in, and (4) you will get to meet classmates with whom you can study and collaborate.

Grading

There are 1,000 total possible points available in this class. There is no curve in this class. There is no extra credit in this class of any kind. The only grading exceptions will occur for students who have experienced an extenuating circumstance (sickness, injury, death of a loved one, birth of a loved one, etc.). Your grade will be determined by your point total according to the table below:

F	D	C	B	A
0-599	600-699	700-799	800-899	900-1000

Points above 599 with tens digits between 0 and 25 will receive a "-"
-   Example: a score of 725 would receive a C-

Points above 599 with tens digits between 75 and 99 will receive a "+"
-   Example: a score of 725 would receive a C+

Examinations

Your 1,000 points will be determined as follows:

Quizzes	Midterm	Graphing Portfolio	Final
360	200	240	200

IMPORTANT! – You can take the quizzes in a group if you like, in fact, I highly recommend it! As such, there's no reason not to do very well on these, because you also have plenty of time to take them.

ALSO IMPORTANT! – Quizzes 1, 2, and 3 **each have two files**. One of the files is the pdf containing all of the quiz questions. The other is simply the answer-entry-form through Canvas where you must enter your answers receive a grade. When you open the answer-entry form **it will appear mostly blank**, that's because all of the actual questions are on the pdf; just enter your answers on that form.

The midterm and final must be taken alone. However, they are open book and open note.

Math quizzes – *Both due on or before 2/3/2023* –
The algebra quiz (50 points) and the power-rule quiz (40 points) can be taken as many times as you like and you'll receive your highest grade across attempts.

Stats quizzes – 90 points each and can only be taken once each.
Quiz 1 Due on or before 2/17/2023
Quiz 2 Due on or before 3/3/2023
Quiz 3 Due on or before 3/31/2023

Graphing portfolio – *Due on or before April 28, 2023* –
See "Graphing portfolio" section below and the "Graphing Portfolio assignment.pdf" file on Canvas.

Midterm: Must be taken and turned in during your assigned course section, during class. This is a 2 hour exam, so class will end early that day.

Final: Must be taken and turned in during your assigned course section's final exam period, during finals week. This is a 2-hour exam.

Graphing Portfolio

A point of emphasis in this class is that you can create a graph that clearly uses data to tell a compelling story and/or answer some question. I will grade this assignment very harshly. If your graph lacks basic elements (a title, axis labels, etc.) expect a zero. More details are provided in a separate handout.

Make-up Exams

I'll reschedule exams for students who experience extenuating circumstances (sickness, injury, death of a loved one, birth of a loved one, etc.). Work is not an extenuating circumstance, so – given that you now know when the exams will be held – make sure to request off of work well in advance to avoid a conflict, because I won't reschedule to accommodate your work schedule.

Academic Honesty

Academic honesty is of the utmost importance, and any academic misconduct will be subject to the strictest enforcement possible. This includes taking the midterm or the final with anyone's help – the midterm and final must be taken by yourself.
See http://www.csuci.edu/studentlife/judicial-affairs/academic-dishonesty.htm for more information.

Disability Accommodations

CSU 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.

Course Timeline

Quizzes and your graphing portfolio can be turned in early if you like, but not after the listed due dates.
The midterm and final must be taken on the listed dates (excepting extenuating circumstances)

Week(s)	Videos	Exams (due date)
Weeks 1 and 2: 1/21 – 2/3	m1-m12, G1-G7, A0 1-2, A1	Algebra quiz (2/3), Power rule quiz (2/3)
Weeks 3 and 4: 2/4 – 2/17	3-19, A2-A5	Quiz 1 (2/17)
Weeks 5 and 6: 2/18 – 3/3	20-38, A6-A7	Quiz 2 (3/3)
Week 7: 3/4 – 3/10	Midterm (during class)	
Week 8: 3/11 – 3/17	39-48, A8-A9	None
Week 9: 3/18 – 3/24	Spring Break!	
Week 10: 3/25 – 3/31	39-48, A8-A9	Quiz 3 (3/31)
Weeks 11 and 12: 4/1 – 4/14	49-61, A10-A12	None
Weeks 13 and 14: 4/15 – 4/28	Review and work on graphing portfolios	Graphing portfolio due (4/28)
Weeks 15 and 16: 4/29 – 5/12	Review in preparation for final exam	None
Finals week 5/13 – 5/19	Final exam (in class, see final exam schedule for time)	

Lecture Outline

Videos are numbered in the order they are intended to be viewed. The "m" = "math" video, "A" = "applied" video (typically Excel), and "G" = "graphing" video.

Lecture Video(s)	Topics Covered	Exam(s) featuring this material	Corresponding Textbook 1 Chapter(s)*	Corresponding Textbook 2 Chapter(s)*
m1-m5,	Algebra review	All	N/A	
m6-m9	Calculus review	All	N/A	
G1-G7, A0	Interpreting Graphs and Tables	All	N/A	
	Creating Graphs and Tables	All	N/A	
1-2, A1	Intro to data (Types of data)	All	1	I
3-6, A2-A3	Random variables and their distributions (PDFs, CDFs, medians, percentiles)	Midterm 1	2	I-III
7-15, A4-A5	Measures of central tendency and spread (Expected value, standard deviation)	Quiz 1, Midterm	2	II, III
16-19	Joint probability distributions (Conditional expected value, covariance, correlation)	Quiz 1, Midterm	2	II, III
20-22	The normal distribution (z-scores, standard normal distribution)	Quiz 2, Midterm	3.1, 3.2	V, VI
23-29	Random sampling and properties of the sampling distribution (LLN, CLT, sample SD, standard error)	Quiz 2, Midterm	4	VII
30-38, A6-A7	Hypothesis tests involving the mean (t-tests, p-values, confidence intervals, (un)paired t-tests)	Quiz 2, Midterm	4, 5.1, 5.2, 5.3	VIII, IX, X
39-43	Sample covariance, sample correlation, and univariate regression using OLS (slope and intercept parameter estimates, OLS assumptions)	Quiz 3, Final	7	VIII, IX, X, XII
44-48, A8-A9	Measures of model fit and precision, and model adjustments (R-squared, standard error of regression, hypothesis testing in regression, variable transformation, binary independent variables)	Quiz 3, Final	7	XII
49-58, A10-A11	Multivariate regression, control variables, and model specification (Omitted variable bias, (im)perfect multicollinearity)	Final	8	XII
59-61, A12	Multivariate regression techniques (Linear probability modeling, interaction terms, logarithmic terms)	Final	8.1, 8.2	N/A

* The textbooks are optional and purely supplemental for students who prefer learning from textbooks rather than (or in addition to) videos. All exams will be based upon the material as covered in the videos.