GEORGE MASON UNIVERSITY | School of Business

BUS 310: Business Analytics II

Fall 2023 Course Syllabus

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Office Hours:	Tuesdays 2:00 to 3:00 PM

Prerequisites:
1. BUS 210 or equivalent with a grade of C or better
2. Essential and expected knowledge: Proficiency in elementary algebra and geometry. Familiarity with recent versions of MS Word, PowerPoint, and Excel. Deficiencies in any of these areas should be self-remediated.

University Catalog Description:

This course introduces the concepts of modeling relationships contained in data and the use of linear models to make predictions in business. Topics include estimation, hypotheses testing, statistical inference, analysis of variance and linear regression techniques. The course also introduces students to fundamentals of linear programming to solve optimization problems in business.

Undergraduate program learning goals (those in **bold** will be addressed in this class)**:**

1. Our students will demonstrate an understanding of the social, global, ethical, and legal contexts of business and will be able to reflect on the role of the individual in business.
2. Our students will demonstrate an understanding of and the ability to apply knowledge of professional skills necessary for success in business including effective business writing.
3. Our students will demonstrate technical and analytic skills appropriate for success in business.
4. Our students will demonstrate an understanding of and the ability to apply knowledge of core business disciplines including accounting, finance, information systems, management, marketing, and operations management.
5. Our students will demonstrate knowledge and skills appropriate for specialization in their majors.
6. Our students will demonstrate an understanding of how research in the business disciplines contributes to knowledge and how such research is conducted.

This syllabus is subject to change. Any changes to this syllabus will be formally announced in Blackboard

Approach to Learning:

This course examines the use of business analytics for understanding and analyzing business problems and for supporting business decision-making. It is geared for the business professional engaged in decision making or decision support. The emphasis is on business applications, and not mathematics. Students will possess an adequate level of proficiency in and comfort with spreadsheet software. The format will be lectures and hands-on exposure to data analytics tools, including complex Excel options. Discussions and questions are highly encouraged.

Required Text:

Business Analytics, Methods, Models, and Decisions, 3rd edition, by James R. Evans, Pearson Higher Education, 2018, ISBN-13: 978-0-13-523167-8

There are many options that exist for a used copy, e-book, or rental through a third party such as Amazon or through the publisher at www.pearson.com.

Computer/Software/Email:

Access to the internet and a computer is required. Many of the course material will be online in our Blackboard course. Communication will be via Blackboard and/or your GMU e-mail only. I will only respond to GMU e-mails and will not respond to e-mails written on a private account.

The latest version of Microsoft Excel will be used in this class. Microsoft Excel is available for download for GMU students. It is your responsibility to make sure your laptop meets the required standards. Refer to the School of Business laptop policy at https://www.gmu.edu/news/2022-08/school-business-minimum-computing-requirements-2022-2023-academic-year.

You are required to bring a laptop to class with Excel.

Methods of Student Evaluation:

Students will be evaluated based on homework, quizzes, exams, and class activities.

Grading –

Homework, Excel assignments, Case Studies, Class Work, Quizzes	40%
Exam 1	20%
Exam 2	20%
Final Exam	20%

Course Grade:
1. Students must be officially registered in this section to receive a grade. It is the sole responsibility of the student to verify their own registration status. (I will not verify your registration.) Specifically, you will not receive a grade if your name does not appear on the official class list. (Don't wait until the end of the semester to be surprised.) Registration problems should be directed to either the School of Business Academic Advisors or the Registrar's Office.
2. Disputes about a grade on assignments/exams/quizzes must be submitted in writing within a week after the grade has been posted.
3. The final letter grade is assigned objectively and strictly according to the WEIGHTED average of the numerical scores of all exams, quizzes, and assignments.

4. Final course letter grade assignments:

COURSE AVERAGE	COURSE GRADE	COURSE AVERAGE	COURSE GRADE
97.00 to 100	A+	80.00 to 82.99	B-
93.00 to 96.99	A	77.00 to 79.99	C+
90.00 to 92.99	A-	70.00 to 76.99	C
87.00 to 89.99	B+	60.00 to 69.99	D
83.00 to 86.99	B	0 to 59.99	F

When turning in ANY assignment, you should not copy another student's response or submit somebody else's work as your own. You are encouraged to work together. However, make sure all responses are written in your own words and that every file submitted is your own file created by you.

George Mason University takes violations of the Honor Code seriously. You should take a moment to look at the last two pages of the syllabus to see the School of Business' sanctions for violations. There isn't a "slap on the wrist" or a "warning". The sanctions for a first offense are very serious even on homework.

Exams:

Exam dates are provided in the schedule. No make-up exams will be given except in <u>Documented Emergency</u>. Each will involve a mix of mechanical skills and conceptual reasoning. The best possible preparation for them is regular **attendance** and completion of assigned **homework and reading**.

Attendance:

Class attendance is essential part of learning for this course. If you have to miss any lectures, you are responsible for obtaining any information given in the class.

Homework, Quizzes & Class Work:

Students are expected to read relevant sections of the textbook prior to attending class. Written homework, quizzes, and class work will be graded. Due dates will be given in class, and are on posted on Blackboard. **Late assignments will not be accepted.** Quizzes and class work are given at the discretion of the instructor and frequently reflect material that has recently been discussed in class. To encourage attendance, instructors will not give makeup quizzes or class work.

Disability:

All academic accommodations due to disability must be arranged through the Academic Affairs Office. If you are a student with a disability and you require academic accommodations, please contact the Academic Affairs Office. I will cooperate fully with them to accommodate a student's special needs.

Safe return to Campus

All students taking courses with a face-to-face component are required to take Safe Return to Campus Training prior to visiting campus. Training is available in Blackboard (https://mymason.gmu.edu). Students are required to follow the university's public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (https://masonkorea.gmu.edu/emergency-health-and-safety-at-mason-korea/covid-19). If you suspect that you are sick or have been directed to self-isolate, please quarantine or get testing.

Campus Closure

If the campus closes or class is canceled due to weather or other concern, students should check Blackboard [or other instruction as appropriate] for updates on how to continue learning and information about any changes to events or assignments.

Sequence Course Objectives for both BUS210 and BUS 310

- Understand how managers use business analytics to formulate and solve business problems
- Prepare to be a strategic business partner in an organization
- Think critically about whether and how data can improve business performance, create opportunities, and/or create risks

Additional Specific Course Objectives for BUS 310

- Understand the processes needed to analyze business data
- Make data driven decisions by using analytic tools such as estimation and hypothesis testing
- Gain skills to analyze business problems using more advanced functions in Excel
- Integrate statistics and management science to cover a variety of useful analytical methods
- Gain a basic understanding of linear optimization through an introduction to prescriptive analytics.

Course Topics:

1. Data Driven Decisions
   a. Measuring Response
      i. Sampling and Sampling Distributions
      ii. Estimation Theory
   b. Comparing Results
      i. Hypothesis Testing
   c. Data analysis and statistical functions in Excel
2. Introduction to Predictive Analytics
   a. Regression
   b. Inference within Regression
   c. Simple and Multiple Regression
   d. Data analysis and statistical functions in Excel
3. Introduction to Prescriptive Analytics
   a. Linear Optimization
   b. Model Development and Excel Solver

BUS 310: TENTATIVE TIMELINE

Week	Date	Readings/Exam Schedule	Notes
1	8/22, 8/24	Course orientation Introduction	First day of class: 8/22
2	8/29, 8/31	Sampling and estimation (Chapter 6)	
3	9/5, 9/7	Chapter 6	
4	9/12, 9/14	Chapter 6	
5	9/19, 9/21	Review for Exam 1	
6	9/26	**Exam 1**	
7	10/5	Statistical inference (Chapter 7)	
8	10/10, 10/12	Chapter 7	
9	10/17, 10/19	Trendlines and regression analysis (Chapter 8)	
10	10/24, 10/26	Chapter 8	
11	10/31, 11/2	Review for Exam 2	
12	11/7, 11/9	**Exam 2**	
13	11/14, 11/16	Linear optimization (Chapter 13)	
14	11/21, 11/23	Chapter 13	
15	11/28, 11/30	Review for Final Exam	Last day of class: 12/1
16 17	12/4 – 12/8 12/11 – 12/15	**Reading days:** 12/4 – 12/5 **Final Exam days**: 12/6 – 12/13 **Final Exam for our class**: 12/12 4:00 – 6:45 PM (timed exam)	Registrar's final exam schedule: https://masonkorea.gmu.edu/academic-calendars/fall-2023-final-exam

Note. All assignments except quizzes are due by 11:59 pm on the designated dates. Quizzes will be administered at the beginning of class. Exams are cumulative, closed-book with both in-class and take-home components. This timeline is tentative, and dates may change. Please refer to the latest information posted on Blackboard. Semester academic calendar: https://masonkorea.gmu.edu/academic-calendars/fall-2023

School of Business Recommendations for Honor Code Violations *Approved November 2021*	
UG-Freshman Students	
Type of Violation	**Sanction**

Plagiarism
   1. Failure to cite/attribute sources
 	
   2. Representing someone else's work as the student's own (e.g., copying and pasting)
	A 10% reduction in the final course grade; referral to the Writing Center; and relevant Academic Integrity seminar/training completion
	
	An F in the class; referral to the Writing Center; and relevant Academic Integrity seminar/training completion

Cheating
   1. On a minor assignment (e.g., homework, quizzes)
 	
   2. Cheating on a major assignment or exam, submitting course work from another course as original work
	A 10% reduction in the final course grade; and relevant Academic Integrity seminar/training completion
	
	An F in the class; and relevant Academic Integrity seminar/training completion

Lying (e.g., providing fraudulent excuse documents, falsifying data)	An F in the class; and relevant Academic Integrity seminar/training completion
Egregious Violation (e.g., stealing an exam; submitting coursework from another class as original work across multiple courses; lying to an employer about academic performance, false identification or posing as another, in person or online)	An F in the Class; relevant Academic Integrity seminar/training completion; and at least one semester suspension

Notes:

1. The School of Business reserves the right to initiate termination proceedings for any student found guilty of an Honor Code violation by the Office of Academic Integrity.

2. The Office of Academic Integrity may increase these sanctions (up to and including expulsion from the university) for repeated offenses.

The Academic Integrity Seminar used by Office of Academic Integrity costs $100.

School of Business Recommendations for Honor Code Violations Approved November 2021	
UG-Non Freshman Students (including transfer students)	
Type of Violation	**Sanction**
Plagiarism 1. Failure to cite/attribute sources 2. Representing someone else's work as the student's own (e.g., copying and pasting)	An F in the class; referral to Writing Center; and relevant Academic Integrity seminar/training completion
Cheating 1. On a minor assignment (e.g., homework, quizzes) 2. Cheating on a major assignment or exam, submitting course work from another course as original work	An F in the class; and relevant Academic Integrity seminar/training completion An F in the class; and relevant Academic Integrity seminar/training completion, and at least one semester suspension
Lying (e.g., providing fraudulent excuse documents, falsifying data)	An F in the class; and relevant Academic Integrity seminar/training completion, and at least one semester suspension
Egregious Violation (e.g., stealing an exam; submitting coursework from another class as original work across multiple courses; lying to an employer about academic performance, false identification or posing as another, in person or online)	An F in the class, relevant Academic Integrity seminar/training completion; and at least one-year suspension

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