

BUS 310: Business Analytics II

Summer C 2019 Course Syllabus

Instructor: Betsy McCall, M.A., M.S.

Phone: 703-993-1880 (main line)

E-mail: bmccall6@gmu.edu

Office Hours: MWF after class, F 4-7 p.m. in Johnson Center

TA: Gaurav Vattikuti gvattiku@gmu.edu Office hours: TBA

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 be competent in their discipline.**
2. **Our students will be aware of the uses of technology in business.**
3. **Our students will be effective communicators.**
4. **Our students will have an interdisciplinary perspective.**
5. Our students will be knowledgeable about global business and trade.
6. Our students will recognize the importance of ethical decisions.
7. Our students will be knowledgeable about the legal environment of business.
8. Our students will be knowledgeable about team dynamics and the characteristics of effective teams.
9. Our students will understand the value of diversity and the importance of managing diversity in the context of business.
10. **Our students will be critical thinkers.**

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, Data Analysis and Decision Making, 6th edition, by S. Christian Albright and Wayne L. Winston, Cengage Learning, 2016, ISBN: 978-1-305-94754-2

- 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.cengage.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 http://business.gmu.edu/media/com_managedlists/72/Laptop-Requirements-AY1718.pdf

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 out of 1000 points.

Grading –

Homework/Excel assignments	15%
Case Studies	10%
Exam 1 and Exam 2 (25% each)	50%
Final Exam	25%

CELL PHONES MUST BE TURNED OFF DURING CLASS
Note: DISRUPTIVE BEHAVIOR WILL NOT BE TOLERATED

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 POINTS	COURSE GRADE	COURSE POINTS	COURSE GRADE
970+	A+	800 to 829	B-
930 to 969	A	770 to 799	C+
900 to 929	A-	700 to 769	C
870 to 899	B+	600 to 699	D
830 to 869	B	0 to 599	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 under any circumstances. In the case of a Documented Emergency, I will use problems from the final exam on the same material to replace the exam grade. (Warning: This will make the final exam equivalent to half the course grade!) 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. I will take attendance on random days.

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 receive a 50% penalty.** 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. Last day to submit late work is midnight of final exam day.

Disability:

All academic accommodations due to disability must be arranged through the Office of Disability Services (ODS). If you are a student with a disability and you require academic accommodations, please contact ODS at 703-993-2474. I will cooperate fully with the ODS to accommodate a student's special needs.

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

Case Studies:

Chapter 8 Case Problem: Employee Retention at D&Y

Chapter 9 Case Problem: Removing Vioxx from the Market
 Chapter 10 Case Problem: Investing for Retirement
 Chapter 11 Case Problem: Heating Oil at Dupree Fuels Company
 Chapter 13 Case Problem: Shelby Shelving

BUS 310: Summer C 2019
 TENTATIVE COURSE SCHEDULE: THIS SCHEDULE MAY CHANGE.

Dates	Readings/Exam Schedule	Case Studies/Assignments/Notes
6.24	Course Orientation/ Overview of Business Analytics/Chapter 13 <i>Sections 13.1-13.3, 13.4a, 13.6</i>	
6.26	Chapter 13 cont. Review of Linear Programming	Homework #1
6.28	Introduction to Estimation, Chapter 7 <i>Highlights of Sections 7.3-7.4</i>	Homework #2 Shelby Shelving (Case Study #1) 6.30
7.1	Chapter 8 <i>Sections 8.1-8.3</i>	Homework #3
7.3	Continuation of Confidence Intervals Chapter 8 cont. <i>Sections 8.5,8.7,8.9</i>	Homework #4 7.4 Independence Day (college closed)
7.5	<i>Chapter 9 Intro to Hypothesis Testing Sections 9.1-9.2 Review for Exam #1</i>	Homework #5 / Quiz #1
7.8	Exam #1	Employee Retention at D&Y (Case Study #2) 7.7 Homework #6
7.10	Chapter 9 cont. <i>Sections 9.3-9.4</i>	
7.12	Chapter 9 cont. <i>Sections 9.6</i> Chapter 19 <i>Sections 19.1-19.2</i>	Homework #7
7.15	Chapter 10 <i>Sections 10.1-10.4</i>	Removing Vioxx from the Market (Case Study #3) 7.16 Homework #8
7.17	Chapter 10 <i>Sections 10.5-10.6 Review for Exam #2</i>	Homework #9 Quiz #2
7.19	Exam #2	Homework #10 Housing Price Structure (Case Study #4) 7.20
7.22	Chapter 11 <i>Sections 11.1-11.3</i>	Homework #11
7.24	Chapter 11 cont. <i>Sections 11.5,11.7,11.9 Review for Final Exam</i>	Heating Oil at Dupree Fuels Company (Case Study #5) 7.26 Homework #12 / Quiz #3
7.26	Final Exams	FINAL: 7.26 @ 7:00

Homework assignments are due on the day listed at midnight, eg. Homework #1 is due 6.27. Case studies are due on the dates listed in the schedule (usually Sunday).

Practice Exams can be found on Archive Site at
<http://www.betsymccall.net/prof/courses/summer19/gmu/analytics2.html>.

School of Business Recommendations for Honor Code Violations <i>Approved May 2016</i>		
UG-Freshman Students		
Type of Violation	First Offense	Second Offense
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 Academic Integrity Seminar completion An F in the class; referral to the Writing Center; and Academic Integrity Seminar completion	An F in the class; referral to the Writing Center; and Academic Integrity Seminar completion An F in the class; referral to the Writing Center; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion
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 Academic Integrity Seminar completion An F in the class; and Academic Integrity Seminar completion	An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension
Lying (e.g., providing fraudulent excuse documents, falsifying data)	An F in the class; and Academic Integrity Seminar completion	An F in the class; Academic Integrity Seminar completion; termination from the School of Business; 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; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension	An F in the Class; Academic Integrity Seminar completion; termination from the School of Business; and expulsion

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

School of Business Recommendations for Honor Code Violations

Approved May 2016

UG-Non Freshman Students (including transfer students)

Type of Violation	First Offense	Second Offense
<p>Plagiarism</p> <ol style="list-style-type: none"> 1. Failure to cite/attribute sources 2. Representing someone else's work as the student's own (e.g., copying and pasting) 	<p>An F in the class; referral to Writing Center; and Academic Integrity Seminar completion</p>	<p>An F in the class; referral to the Writing Center; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</p>
<p>Cheating</p> <ol style="list-style-type: none"> 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 	<p>An F in the class; and Academic Integrity Seminar completion</p> <p>An F in the class; and Academic Integrity Seminar completion, and at least one semester suspension</p>	<p>An F in the class, Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</p>
<p>Lying (e.g., providing fraudulent excuse documents, falsifying data)</p>	<p>An F in the class; and Academic Integrity Seminar completion, and at least one semester suspension</p>	<p>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</p>
<p>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)</p>	<p>An F in the class, Academic Integrity Seminar completion; termination from the School of Business; and at least one year suspension</p>	<p>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and expulsion</p>