BUS 310: Business Analytics II
Spring 2022 Course Syllabus

Tuesday/Thursday 9:00 AM -10:15 AM

Instructor: Heung Gweon Sin
Office: G671
Phone: 032-626-5111
E-mail: hsin3@gmu.edu
Office Hours: Tuesday 10:30 AM to 11:30 AM

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:

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. Emails will be responded to within a 24-48-hour time period, excluding weekends.

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://business.gmu.edu/blog/buzz/2021/05/03/school-of-business-minimum-computing-requirement-for-the-2021-2022-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:
Attendance: 10%
Homework, Excel assignments, Case Studies, Class Work, Quizzes: 30%
Exam 1: 20%
Exam 2: 20%
Final Exam: 20%

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:

<table>
<thead>
<tr>
<th>COURSE AVERAGE</th>
<th>COURSE GRADE</th>
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<th>COURSE GRADE</th>
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</thead>
<tbody>
<tr>
<td>97.00 to 100</td>
<td>A+</td>
<td>80.00 to 82.99</td>
<td>B-</td>
</tr>
<tr>
<td>93.00 to 96.99</td>
<td>A</td>
<td>77.00 to 79.99</td>
<td>C+</td>
</tr>
<tr>
<td>90.00 to 92.99</td>
<td>A-</td>
<td>70.00 to 76.99</td>
<td>C</td>
</tr>
<tr>
<td>87.00 to 89.99</td>
<td>B+</td>
<td>60.00 to 69.99</td>
<td>D</td>
</tr>
<tr>
<td>83.00 to 86.99</td>
<td>B</td>
<td>0 to 59.99</td>
<td>F</td>
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</tbody>
</table>

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 page 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 Documented Emergency. 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. 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 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
### Tentative Course Schedule

**Notes:**
- Exams: Please refer to the masonkorea website for exam date/time

<table>
<thead>
<tr>
<th>Date</th>
<th>Readings/Exam Schedule</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>2/22-2/24</td>
<td>Course orientation Introduction</td>
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<tr>
<td>3/3</td>
<td>Sampling and estimation (Chapter 6)</td>
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<tr>
<td>3/8-3/10</td>
<td>Chapter 6</td>
<td></td>
</tr>
<tr>
<td>3/15-3/17</td>
<td>Chapter 6</td>
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<tr>
<td>3/22-3/24</td>
<td>Review for Exam 1</td>
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<tr>
<td>3/29-3/31</td>
<td>Exam 1</td>
<td>Exam 1 over Chapter 6</td>
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<tr>
<td>4/5-4/7</td>
<td>Statistical inference (Chapter 7)</td>
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<tr>
<td>4/12-4/14</td>
<td>Chapter 7</td>
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<tr>
<td>4/19-4/21</td>
<td>Trendlines and regression analysis (Chapter 8)</td>
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<tr>
<td>4/26-4/28, 5/3</td>
<td>Chapter 8</td>
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<tr>
<td>5/10-5/12</td>
<td>Review for Exam 2</td>
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<tr>
<td>5/17-5/19</td>
<td>Exam 2</td>
<td>Exam 2 over Chapters 7-8</td>
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<tr>
<td>5/24-5/26</td>
<td>Linear optimization (Chapter 13)</td>
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<tr>
<td>5/31-6/2</td>
<td>Chapter 13</td>
<td>Review for Final Exam</td>
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<td></td>
<td>Final Exam</td>
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**Final Exam**

Please refer to the masonkorea website for exam date/time
### School of Business Recommendations for Honor Code Violations

**Approved May 2016**

#### UG-Freshman Students

<table>
<thead>
<tr>
<th>Type of Violation</th>
<th>First Offense</th>
<th>Second Offense</th>
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<tbody>
<tr>
<td><strong>Plagiarism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Failure to cite/attribute sources</td>
<td>A 10% reduction in the final course grade; referral to the Writing Center; and Academic Integrity Seminar completion</td>
<td>An F in the class; referral to the Writing Center; and Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</td>
</tr>
<tr>
<td>2. Representing someone else’s work as the student’s own (e.g., copying and pasting)</td>
<td>An F in the class; referral to the Writing Center; and Academic Integrity Seminar completion</td>
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<tr>
<td><strong>Cheating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. On a minor assignment (e.g., homework, quizzes)</td>
<td>A 10% reduction in the final course grade; and Academic Integrity Seminar completion</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension</td>
</tr>
<tr>
<td>2. Cheating on a major assignment or exam, submitting coursework from another course as original work</td>
<td>An F in the class; and Academic Integrity Seminar completion</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension</td>
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<tr>
<td><strong>Lying</strong> (e.g., providing fraudulent excuse documents, falsifying data)</td>
<td>An F in the class; and Academic Integrity Seminar completion</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension</td>
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<td><strong>Egregious Violation</strong> (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)</td>
<td>An F in the Class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension</td>
<td>An F in the Class; Academic Integrity Seminar completion; termination from the School of Business; and expulsion</td>
</tr>
</tbody>
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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)

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<td>2. Representing someone else’s work as the student’s own (e.g., copying and pasting)</td>
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<tr>
<td><strong>Cheating</strong></td>
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<td>1. On a minor assignment (e.g., homework, quizzes)</td>
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<tr>
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<tr>
<td><strong>Lying</strong></td>
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<tr>
<td>(e.g., providing fraudulent excuse documents, falsifying data)</td>
<td>An F in the class; and Academic Integrity Seminar completion, and at least one semester suspension</td>
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<td><strong>Egregious Violation</strong> (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)</td>
<td>An F in the class, Academic Integrity Seminar completion; termination from the School of Business; and at least one year suspension</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and expulsion</td>
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Note: The Academic Integrity Seminar used by Office of Academic Integrity costs $100.
Guidelines for COVID-19 in Korea Campus: Spring 2022

In the interest of everyone’s safety, students and faculty must follow these guidelines during the Spring 2022 semester.

1. Use the basement entrance to enter and exit Mason’s building. Your temperature will be screened each time you enter the building. Allow additional time before class to complete the entrance screening procedure. Carry your student ID card with you at all times and be ready to show it when you enter and exit the building. Do not prop doors or let others enter the building through doors on the ground floor.

2. Wear a face mask at all times. Remain 6 feet apart from others. Clean your seat and desk space with disinfectant wipes before you begin class. Use hand sanitizer regularly, and avoid shaking hands or other forms of physical contact. Do not share pens, pencils or other personal items. Limit your use of the elevators, and use stairs to travel between floors of the building. Students are expected to purchase their own masks for personal use. Disinfectant wipes and hand sanitizer will be available in each classroom.

3. Classrooms are marked to indicate appropriate seating to allow for social distancing. Only sit in allowable seats, and maintain current set-up of classroom furniture. If you are asked to re-arrange classroom furniture by your professor for in-class exercises, return furniture to its original position when you are finished.

4. Observe these rules at all times during the class period and while in Mason’s building or other public areas of the campus. This includes during class breaks, in small group work (in or out of class), meetings with your professors during office hours, tutoring sessions at the Academic Resource Center, socializing in common areas, or any other activities on campus.

5. Make sure windows and doors remain open during the class period to promote circulation of outside air. Classrooms without windows have mechanical systems that vent air, but doors should be kept open at all times.

6. The safest option for studying is to study alone in your dorm room or at home. If you must study in the building, alone or in groups, observe these rules at all times.

7. All faculty and students must abide by these rules in the classroom. If you see others who are not observing the rules outside the classroom, you may report this to your instructor, student affairs or academic affairs.

8. Do not enter the Mason building or come to class if you have symptoms such as fever, chills, sore throat, persistent cough, shortness of breath or other respiratory difficulties. If you must miss class for this reason, send an email immediately to the professor prior to the beginning of class. You will not be penalized for missing class for this reason, but you may be asked to provide documentation that you sought medical diagnosis or treatment. You are responsible for making up any missed assignments or tests as a result of your absence.

9. Students who come to class with visible signs of illness will be asked to leave the classroom immediately and seek assistance from the IGC Health Clinic. Faculty will report your name and symptoms to the Office of Student Affairs (mksa@gmu.edu) to confirm that you have sought medical assistance.

10. Failure to comply with any of these guidelines may result in disciplinary action through the Student Code of Conduct.