MBA 633: Statistics for Business Decision Making

Instructor: Prof. Sid Das
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Fax: 703-993-1809
Prerequisites: Admission to the MBA program
Textbook: *Statistics for Business & Economics, 13th Edition*
D.R. Anderson, D.J. Sweeney, T.A. Williams, J.D. Camm, & J.J. Cochran;
South-Western/Cengage, 2018.

Course Website: gmu.blackboard.com

Course Description:
Uses statistical methods as analytical tools for understanding and solving business problems and supporting business decision making. Includes descriptive statistics, sampling, inferencing and regression. Extensive use of applied business scenarios to illustrate concepts and computer software for data analysis.

Course Objectives:
The main objectives of this course are to provide the student with the ability to:
1. Understand and apply statistical techniques in describing and analyzing data;
2. Apply statistical analysis for inference, prediction, and decision making;
3. Understand and detect flaws in statistical reports and analysis;
4. Identify statistical tools for specific managerial applications
5. Use MS-Excel to perform statistical analysis.

MBA Program Learning Goals
The MBA program focuses on the following program learning goals:

- **Teaming & Leading** - Our graduates will demonstrate the team leadership and interpersonal skills needed to form, lead, and work effectively on diverse organizational teams.
- **Analytical Decision Making** - Our students will demonstrate the ability to analyze uncertain complex management situations using appropriate tools, techniques, and information systems for decision-making. *(Addressed by MBA 633).*
- Knowledge of Functional Business Disciplines - Our graduates will demonstrate the ability to integrate knowledge from all functional areas of business into a meaningful firm-level perspective
- **Global Understanding** - Our graduates will demonstrate a perspective on how businesses operate in the global environment.
- **Communication Skills** - Our graduates will demonstrate written, oral and presentations skills necessary to explain problems and solutions effectively and persuasively.
- **Ethics and Social Responsibility** - Our graduates will have a sense of professional and social responsibility in the conduct of managerial affairs.
**Grading Policy:**

- Individual Case Studies: 50%
- Assignments: 25%
- Final Exam: 25%
- **Total:** 100%

**Course Grading Scale**

- 90% and above: A/A- (split to be decided by instructor based on clustering)
- 80% to < 90%: B+/B/B- (split to be decided by instructor based on clustering)
- 70% to < 80%: C
- <70%: F

**Assignments/Case Analysis:**

There will be individual and mini-case assignments. Each student is expected to solve all assigned problems and case studies. These assignments are an important component of the learning process and must be turned in no later than its due date. All assignments are to be solved individually with no assistance from anyone.

**Recommendations**

- This course has a large amount of quantitative content. The best way to master the material is to solve as many problems as you can.
- Statistics is in use all around you. Keep a lookout for applications of statistical concepts and data in what you read, hear and do on a daily basis. This will strengthen your understanding of core concepts.
- Keep up with readings. Concepts will build on one another rather rapidly.

**GMU Email Accounts**

Students must use their Mason email accounts to receive important University information, including messages related to this class. See [http://masonlive.gmu.edu](http://masonlive.gmu.edu) for more information.

**Academic Integrity**

This course is conducted in accordance with the GMU Honor Code. Students are obligated to strict adherence to the University honor system and code, as described in: [www.gmu.edu/departments/unilife/honorcode](http://www.gmu.edu/departments/unilife/honorcode).

The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. In all your assignments and exams, keep in mind that you may not present as your own the words, the work, or the opinions of someone else without proper acknowledgement. When you rely on someone else’s work in any aspect of the performance of that task, you will give full credit in the proper, accepted form.
School of Business Standards of behavior: The mission of the School of Business at George Mason University is to create and deliver high quality educational programs and research. Students, faculty, staff, and alumni who participate in these educational programs contribute to the well-being of society. High quality educational programs require an environment of trust and mutual respect, free expression and inquiry, and a commitment to truth, excellence, and lifelong learning. Students, program participants, faculty, staff, and alumni accept these principles when they join the School of Business community. In doing so, they agree to abide by the following standards of behavior:

- **Respect** for the rights, differences, and dignity of others
- **Honesty** and integrity in dealing with all members of the community
- **Accountability** for personal behavior

Integrity is an essential ingredient of a successful learning community. Ethical standards of behavior help promote a safe and productive community environment, and ensure every member the opportunity to pursue excellence. School of Business can and should be a living model of these behavioral standards. To this end, community members have a personal responsibility to integrate these standards into every aspect of their experience at the School of Business. Through our personal commitment to these Community Standards of Behavior, we can create an environment in which all can achieve their full potential.

Other Useful Campus Resources:

**OFFICE OF DISABILITY SERVICES**
If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. [http://ods.gmu.edu](http://ods.gmu.edu)

**UNIVERSITY LIBRARIES “Ask a Librarian”**
[http://library.gmu.edu/mudge/IM/IMRef.html](http://library.gmu.edu/mudge/IM/IMRef.html)

**COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS):** (703) 993-2380; [http://caps.gmu.edu](http://caps.gmu.edu)

**UNIVERSITY POLICIES**
The University Catalog, [http://catalog.gmu.edu](http://catalog.gmu.edu), is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at [http://universitypolicy.gmu.edu/](http://universitypolicy.gmu.edu/). All members of the university community are responsible for knowing and following established policies.
# MBA 633
## Course Schedule

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<tr>
<th>Dates</th>
<th>Topics</th>
<th>Reading</th>
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<tr>
<td>WEEK 1</td>
<td><strong>Introduction to Course</strong>&lt;br&gt;Course Overview&lt;br&gt;<strong>Descriptive Statistics:</strong>&lt;br&gt;<em>Tabular and Graphical Methods</em>&lt;br&gt;(Read: Chapter 1, all sections; Chapter 2, Sections 2.1, &amp; 2.2)&lt;br&gt;<strong>Numerical Measures</strong>&lt;br&gt;Measures of Location and Measures of Variability&lt;br&gt;Measures of Relative Location, z-scores&lt;br&gt;Empirical Rule&lt;br&gt;Exploratory Data Analysis&lt;br&gt;(Read: Chapter 3, Sections 3.1, 3.2, 3.3 and 3.4)&lt;br&gt;&lt;br&gt;<em>Individual Case Study-1: Case-Pelican Stores (pp.84-85, Q.1 &amp; 2 only), AND Pelican Stores (p.160 - Q1 only);</em></td>
<td>Chapter 1&lt;br&gt;Chapter 2&lt;br&gt;Chapter 3</td>
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<td><strong>Brief Introduction to Probability</strong>&lt;br&gt;(Read: Ch. 4, Section 4.1 and pp. 178-179)&lt;br&gt;<strong>Random Variables</strong>&lt;br&gt;<strong>Discrete Probability Distributions</strong>&lt;br&gt;Expected Value and Variance&lt;br&gt;(Read: Chapter 5, Sections 5.1, 5.2, &amp; 5.3)&lt;br&gt;<strong>Continuous Probability Distributions</strong>&lt;br&gt;Normal Distribution&lt;br&gt;(Read: Chapter 6, Sections 6.2)&lt;br&gt;&lt;br&gt;<em>Individual Case Study-2: Case-Specialty Toys (pp.299-300), Q.1,2,3 &amp; 4 only,</em></td>
<td>Chapter 4&lt;br&gt;Chapter 5&lt;br&gt;Chapter 6</td>
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<td>WEEK 3</td>
<td><strong>Sampling Distributions</strong>&lt;br&gt;Point Estimation&lt;br&gt;Central Limit Theorem&lt;br&gt;(Read: Chapter 7, Sections 7.1 through 7.6)&lt;br&gt;&lt;br&gt;<em>Individual Assignment-1:</em></td>
<td>Chapter 7</td>
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| WEEK 4 | **Interval Estimation**  
Confidence Intervals for Population Means,  
$t$ – Distribution  
*(Read: Chapter 8, Sections 8.1 through 8.4)* | Chapter 8 |
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<td><strong>Individual Assignment-2:</strong></td>
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| WEEK 5 | **Hypothesis Testing**  
Null and Alternative Hypotheses, One-Tail and Two-Tail tests  
Significance Levels, p-values  
*(Read: Chapter 9, Sections 9.1 through 9.4)* | Chapter 9 |
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<td><strong>Individual Assignment-3:</strong></td>
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| WEEK 6 | **Inferences about Means from Two Populations**  
*(Read: Chapter 10, Sec 10.1, thru 10.3)* | Chapter 10 |
|---|---|---|
| **Inferences about Two Population Variances**  
*(Read: Chapter 11, Section 11.2)* | Chapter 11 |
| **Individual Case -3: Air Force Training Program**  
Q.1,2, & 3 only. | | |

| WEEK 7 | **Simple Linear Regression and Correlation**  
Correlation  
Coefficient  
*(Read: Chapter 3, Section 3.5)*  
Regression  
Notation  
Least Squares method  
Coefficient of Determination  
Computer Solution/Interpretation  
Testing for Significance, Model Verification  
Estimation and Prediction  
*(Read: Chapter 14, Sections 14.1 through14.5, and 14.7)* | Chapter 3 |
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<td><strong>Individual Assignment-4</strong></td>
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| WEEK 8 | **Multiple Regression**  
Adjusted Coefficient of Determination  
Interpretation of computer output  
Testing for Significance  
Estimation and Prediction  
*(Read: Chapter 15, Sections 15.1 through 15.5)* | Chapter 15 |
|---|---|---|
| **Individual Case -4: Consumer Research, Inc.**  
Q.1,2, 3 & 4 only | | |
| **Final Exam** | | |