

MGT526 Quantitative Business Analysis and Research

(2 credit hours)

Course Syllabus

Course Description

This course focuses on developing the use of statistical analysis necessary to develop managerial problem solving techniques. Additionally, students will learn how to apply this analysis to research methods and tools used by decision makers in organizations.

Course Learning Outcomes

By the end of this course, you will be able to:

1. Identify different types of research methods used in business.
2. Differentiate between the different types of quantitative data used in business.
3. Apply the different types of descriptive statistics
4. Evaluate standardized scores and test scores
5. Test hypotheses of statistical relationships
6. Select statistical tests of differences
7. Critique the concepts of reliability and validity
8. Conduct and present and research study

Required Textbook(s) and Resources

Siegel, A.F. (2016). *Practical Business Statistics, Seventh Edition*.

Be sure to also review the weekly **Explore** sections for additional library or web resources. For access to databases, research help, and writing tips, visit the [Tiffin University Library](#).

Time Commitment

Effective time management is possibly the single most critical element to your academic success. To do well in this online class you should plan your time wisely to maximize your learning through the completion of readings, discussions, and assignments. Because of our accelerated, seven-week term, TU online courses are designed with the expectation that you dedicate a little over **six (6)** hours per credit hour to course activities and preparation **each**

week. For example, for successful completion of a three-credit, seven-week online course you should reserve roughly **twenty (20) hours per week.**

To help plan your time and keep on track toward successful course completion, note the distinctive rhythm of assignment due dates:

1. All times assume Eastern Time (GMT-4).
2. Weeks begin at 12:00 a.m. ET on Monday and end at 11:55 p.m. ET on Sunday.
3. Unless otherwise noted, initial assignments or discussion posts are due by **11:55 p.m. ET on Wednesdays.**
4. Additional assignments or follow-up discussion posts are due by **11:55 p.m. ET on Saturdays, and**
5. Major assignments and reflections are typically due by **11:55 p.m. ET on Sundays.**

Learning Activities

1. Defining the Role of Statistics in Business
2. Data Structures: Classifying the Various Types of Data Sets
3. Histograms: Looking at the Distribution of Data
4. Landmark Summaries: Interpreting Typical Values and Percentiles
5. Variability: Dealing with Diversity

Welcome to the world of statistics. This is a world you will want to get comfortable with because you will make better management decisions when you know how to assess the available information and how to ask for additional facts as needed. How else can you expect to manage multiple divisions, a magnitude list of products, and thousands of employees? And even for a small business, you need to understand the larger business environment of potential customers and competitors you would operate within.

You will be introduced to the role of statistics (and Data Mining with Big Data) in business management and to the various types of data sets. Charts that will help you see the “big picture” that might otherwise remain obscured in a collection of data. You will be shown a good way to see the basic facts about a list of numbers—by building and reviewing a histogram in detail. Fundamental summary numbers (such as the average, median, and percentiles) will be explained. One reason statistical methods are so important is that there is so much variability out there that gets in the way of the message in the data. You will also analyze how to measure the extent of the diversity of your observations, which is used as the most common measure of business risk.

The course offers you the opportunity to critique current events with statistical concepts in mind. Your statistical skills will further develop with case studies and weekly discussions to

enrich your statistic's experience. You will work with data using Microsoft Excel's statistical testing features and we will end this course with a Final Project to demonstrate what you've learned.

And, make good use of the textbook by taking advantage of the summary, key words, and other materials at the ends of each chapter. Do not forget about the detailed problem solutions and the glossary at the back when you need a quick reminder!

Grading

The chart below identifies the individual contributions from each type of activity, per week.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total
Discussions Activity 1.1 (n/a) Activity 1.2 (25)	Discussions Activity 2.1 (25)	Discussions Activity 3.1 (25)	Discussions Activity 4.1 (25)	Discussions Activity 5.1 (25)	Discussions Activity 6.1 (25)	Discussions Activity 7.1 (25)	175
Assignments Activity 1.3 (35)	Assignments Activity 2.2 (45) Activity 2.3 (35)	Assignments Activity 3.2 (45) Activity 3.3 (35)	Assignments Activity 4.2 (45) Activity 4.3 (35) Activity 4.4 (10)	Assignments Activity 5.2 (35) Activity 5.3 (45)	Assignments Activity 6.2 (45) Activity 6.3 (35)	Assignments Activity 7.2 (200)	645
Knowledge Check Activity 1.4 (30)	Knowledge Check Activity 2.4 (30)	Knowledge Check Activity 3.4 (30)	Knowledge Check Activity 4.5 (30)	Knowledge Check Activity 5.4 (30)	Knowledge Check Activity 6.4 (30)	--	180
90	135	135	135	145	135	225	1000

Grading Scale

A: 90-100% | B: 80-89% | C: 70-79% | F: <69%

Course Schedule and Weekly Checklist

Topic	Learning Activities (Due by 11:55 p.m. ET on day designated)
Start Here	<input type="checkbox"/> MON: Activity 1.1: Course Anticipation - Initial Post
Week 1: Statistical Methods Statistics/Probability in Business Types of Data / Categories Levels of Measurement	<input type="checkbox"/> WED: Activity 1.1: Course Anticipation - Secondary Posts <input type="checkbox"/> WED: Activity 1.2: Why Statistics? - Initial Post <input type="checkbox"/> SAT: Activity 1.2: Why Statistics? - Secondary Posts <input type="checkbox"/> SUN: Activity 1.3: Opinion Poll <input type="checkbox"/> SUN: Activity 1.4: Knowledge Check – Chapters 1 & 2
Week 2: Histograms Normal Distributions Typical Value & Percentiles Variability (Diversity, Uncertainty, Dispersion and Spread of Data)	<input type="checkbox"/> WED: Activity 2.1: Why is Visual Representation Important? - Initial Post <input type="checkbox"/> SAT: Activity 2.1: Why is Visual Representation Important? - Secondary Posts <input type="checkbox"/> SUN: Activity 2.2: Case Study – Keep or Get Rid of This Supplier? <input type="checkbox"/> SUN: Activity 2.3: Visual Representation <input type="checkbox"/> SUN: Activity 2.4: Knowledge Check – Chapters 3, 4 & 5
Week 3: Probability Decision Trees Random Variables	<input type="checkbox"/> WED: Activity 3.1: Probability Trees - Initial Post <input type="checkbox"/> SAT: Activity 3.1: Probability Trees - Secondary Posts <input type="checkbox"/> SUN: Activity 3.2: Whodunit? <input type="checkbox"/> SUN: Activity 3.3: Probability <input type="checkbox"/> SUN: Activity 3.4: Knowledge Check - Chapters 6 & 7
Week 4: Random Sampling Confidence Intervals Hypothesis Testing	<input type="checkbox"/> WED: Activity 4.1: Poor Data - Initial Post <input type="checkbox"/> SAT: Activity 4.1: Poor Data - Secondary Posts <input type="checkbox"/> SUN: Activity 4.2: Promising Results <input type="checkbox"/> SUN: Activity 4.3: Hypothesis Tests <input type="checkbox"/> SUN: Activity 4.4: Research Proposal <input type="checkbox"/> SUN: Activity 4.5: Knowledge Check - Chapters 8, 9 & 10
Week 5: Correlation/Regression Multiple Regression Report Writing Time Series Analysis	<input type="checkbox"/> WED: Activity 5.1: Cause & Effect - Initial Post <input type="checkbox"/> SAT: Activity 5.1: Cause & Effect - Secondary Posts <input type="checkbox"/> SUN: Activity 5.2: Time Series Analysis <input type="checkbox"/> SUN: Activity 5.3: Intro to Case Study <input type="checkbox"/> SUN: Activity 5.4: Knowledge Check - Chapters 11, 12, 13, & 14

Topic	Learning Activities (Due by 11:55 p.m. ET on day designated)
Week 6: ANOVA Parametric & Nonparametric Tests Chi-Squared Analysis	<input type="checkbox"/> WED: Activity 6.1: One-Factor & Two-Factor ANOVA - Initial Post <input type="checkbox"/> SAT: Activity 6.1: One-Factor & Two-Factor ANOVA - Secondary Posts <input type="checkbox"/> SUN: Activity 6.2: Training Levels <input type="checkbox"/> SUN: Activity 6.3: Contingency Table <input type="checkbox"/> SUN: Activity 6.4: Knowledge Check – Chapters 15, 16 & 17
Week 7: Processes and Causes of Variation Control Charts Charting a Quantitative Measurement Charting the Percent Defective	<input type="checkbox"/> WED: Activity 7.1: Using the Wrong Metrics? - Initial Post <input type="checkbox"/> THU: Activity 7.2: Final Research Project <input type="checkbox"/> SAT: Activity 7.1: Using the Wrong Metrics? - Secondary Posts

Tips for Success

Successful online learning requires a good deal of self-discipline and self-direction. As seekers of the truth, we should be willing to challenge and review one another's academic work in a spirit of respectful comradery and constructiveness. Your course is a place for you to stretch and grow as you benefit from the expertise, knowledge, experience and diverse perspectives of your instructor and peers. Constructive feedback will challenge you to stretch your own thinking, thereby expanding your knowledge, understanding and application.

To get the most out of your learning experience, you should actively engage (participate) in **ALL** course activities. Course elements are arranged chronologically. To complete a week, simply work your way "down the page" through all of the course materials and activities.

For More Information:

Be sure to review the [Support, Policies, and Procedures](#) addendum.