

Elements of Statistics – Course Objectives Outline

(Text: *Data Analysis & Decision Making with Microsoft Excel*® Albright, Winston, and Zappe)

INTRODUCTION	BMAS STANDARDS
<p>Excel Basics</p> <ul style="list-style-type: none"> <input type="checkbox"/> Load and set up the spreadsheet program. <input type="checkbox"/> Create a properly-formatted worksheet file. <input type="checkbox"/> Organize a problem for solution with spreadsheet software. <input type="checkbox"/> Apply the principles of effective worksheet and database layout in building a spreadsheet template, using labels, numbers, and formulas. <input type="checkbox"/> Enter, delete, and alter spreadsheet data. <input type="checkbox"/> Save a spreadsheet to disk and retrieve it. <input type="checkbox"/> Print a spreadsheet on the printer and on disk, using spreadsheet print capabilities to enhance printed output. <input type="checkbox"/> Sort a spreadsheet in a variety of ways. 	<p>*7.0 APPLY TECHNOLOGY TOOLS TO BUSINESS MANAGEMENT AND ADMINISTRATIVE SERVICES SUPPORT FUNCTIONS</p> <p>*8.0 DEMONSTRATE PROBLEM SOLVING AND DECISION MAKING SKILLS REQUIRED IN BUSINESS MANAGEMENT</p> <p>34.0 USE COMPUTERIZED INFORMATION SYSTEMS AND TECHNOLOGY</p>
<p>Chapter 1 General Overview of Course</p>	<p>30.0 DEMONSTRATE HUMAN RESOURCE MANAGEMENT FUNCTIONS</p>
<p>Chapter 2 Objective: to make sense out of data by constructing appropriate summary measures, tables, and graphs.</p>	
<p>Lesson 1: Sections 2.1-2.3</p> <ul style="list-style-type: none"> <input type="checkbox"/> To distinguish data types <input type="checkbox"/> Create frequency tables and histograms using stattools <input type="checkbox"/> Characterize distributions <input type="checkbox"/> Draw conclusions from histograms and frequency distributions 	<p>30.0 DEMONSTRATE HUMAN RESOURCE MANAGEMENT FUNCTIONS</p>
<p>Lesson 2: Section 2.4 Scatterplots</p> <ul style="list-style-type: none"> <input type="checkbox"/> To create scatterplots in StatTools <input type="checkbox"/> To distinguish positive/negative linear/non-linear relationships <input type="checkbox"/> Interpret results 	
<p>Lesson 3: Section 2.5 Time-Series</p> <ul style="list-style-type: none"> <input type="checkbox"/> Create time-series graphs (single & multiple) <input type="checkbox"/> Identify trends and interpret data 	<p>26.0 DEMONSTRATE MARKETING CONCEPTS</p>
<p>Lesson 4: Section 2.6 Pivot Tables</p> <ul style="list-style-type: none"> <input type="checkbox"/> Create pivot tables <input type="checkbox"/> Identify trends and interpret relationships between among data 	<p>28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES</p>
<p>Chapter 3 Objective: apply single variable summary measures (mean, median, standard deviation) and multiple variable (correlation and covariance) and express data in boxplot form.</p>	

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<p>Lesson 1: Section 3.2 Measures of Central Location Section 3.3 Quartiles & Percentiles Section 3.4 Minimum, Maximum, and Range</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply appropriate measures of central tendency <input type="checkbox"/> Choose the most appropriate measure of central tendency <input type="checkbox"/> Describe the symmetry or skewed behavior of a distribution <input type="checkbox"/> Find the maximum and minimum values in a distribution <input type="checkbox"/> Determine percentile rank of different characteristics <input type="checkbox"/> Apply measures of dispersion to make decisions 	<p>30.0 DEMONSTRATE HUMAN RESOURCE MANAGEMENT FUNCTIONS 28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES</p>
<p>Lesson 2: Section 3.7 Measures of Association: Covariance & Correlation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Evaluate the strength and direction of the relationship between two variables 	
<p>Lesson 3: Section 3.8 Describing Data Sets with Boxplots</p> <ul style="list-style-type: none"> <input type="checkbox"/> Create a boxplot to characterize a distribution <input type="checkbox"/> Characterize variability and presence of outliers in a data set 	
<p>Lesson 4: Section 3.9 Applying the Tools</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply summary measures and charts to understand large data sets 	<p>26.0 DEMONSTRATE MARKETING CONCEPTS 32.0 USE ACCOUNTING INFORMATION TO MAKE BUSINESS DECISIONS 33.0 PERFORM FINANCIAL ANALYSES TO MAKE BUSINESS DECISIONS</p>
<p>Chapter 5 Objective: Work with probability distributions and their summary measures to analyze unknowns</p>	
<p>Lesson 1: Section 5.2 Probability Essentials</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply several essential probability rules, including complements, addition and multiplication rules, and conditional probability formulas, to determine the likelihood of an event 	<p>28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES</p>
<p>Lesson 2: Section 5.3 Distribution of a Single Random Variable</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compute the mean, variance, and standard deviation of a probability distribution 	<p>26.0 DEMONSTRATE MARKETING CONCEPTS 24.0 DISCUSS THE APPLICATION OF ECONOMIC PRINCIPLES TO BUSINESS OPERATIONS 33.0 PERFORM FINANCIAL ANALYSES TO MAKE BUSINESS DECISIONS</p>
<p>Chapter 6 Objective: Use Normal and Binomial Distributions to analyze data</p>	
<p>Lesson 1: Section 6.2: The Normal Distribution Section 6.3: Applications of the Normal Distribution</p> <ul style="list-style-type: none"> <input type="checkbox"/> Calculate probabilities and percentiles for standard normal and nonstandard normal random variables <input type="checkbox"/> Use analysis of the normal distribution to support business decisions 	<p>28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES 32.0 USE ACCOUNTING INFORMATION TO MAKE BUSINESS DECISIONS 33.0 PERFORM FINANCIAL ANALYSES TO MAKE BUSINESS DECISIONS</p>
<p>Lesson 2: Section 6.4: The Binomial Distribution Section 6.5: Applications of the Binomial Distribution</p> <ul style="list-style-type: none"> <input type="checkbox"/> Calculate binomial probabilities and percentiles <input type="checkbox"/> Use analysis of the binomial distribution to support business decisions 	<p>26.0 DEMONSTRATE MARKETING CONCEPTS 28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES 33.0 PERFORM FINANCIAL ANALYSES TO MAKE BUSINESS DECISIONS</p>

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	BUSINESS DECISIONS
Chapter 8 Objective: To apply sampling techniques to make projections about a population	
Lesson 1: Section 8.2: Sampling Terminology Section 8.3: Methods for Selecting Random Samples <input type="checkbox"/> Generate a simple random sample <input type="checkbox"/> Compute the mean, median, and standard deviation of a sample <input type="checkbox"/> Compare mean, median, and standard deviation of samples to census <input type="checkbox"/> Determine advantages and disadvantages of stratified sampling	26.0 DEMONSTRATE MARKETING CONCEPTS
Lesson 2: Section 8.4: An Introduction to Estimation <input type="checkbox"/> Determine a good approximation of standard error <input type="checkbox"/> Determine adequate sample size of a population based on suggested error <input type="checkbox"/> Use analysis of the normal distribution to support business decisions	32.0 USE ACCOUNTING INFORMATION TO MAKE BUSINESS DECISIONS
Chapter 9 Objective: To determine confidence intervals and appropriate sample sizes for necessary confidence	
Lesson 1: Section 9.2: Sampling Distributions <input type="checkbox"/> Analyze differences between a sample mean and population mean	
Lesson 2: Section 9.3: Confidence Interval for a Mean Section 9.5: Confidence Interval for a Proportion <input type="checkbox"/> Construct a confidence interval for a mean <input type="checkbox"/> Interpret confidence intervals <input type="checkbox"/> Determine validity of confidence intervals <input type="checkbox"/> Construct a confidence interval for a proportion	26.0 DEMONSTRATE MARKETING CONCEPTS 32.0 USE ACCOUNTING INFORMATION TO MAKE BUSINESS DECISIONS
Lesson 3: Section 9.7: Confidence Interval for the Difference Between Means Section 9.8: Confidence Interval for the Difference Between Proportions <input type="checkbox"/> Construct a confidence interval for the difference between means <input type="checkbox"/> Interpret a confidence interval <input type="checkbox"/> Construct a confidence interval for the difference between proportions <input type="checkbox"/> Use analysis of the normal distribution to support business decisions	28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES 30.0 DEMONSTRATE HUMAN RESOURCE MANAGEMENT FUNCTIONS 33.0 PERFORM FINANCIAL ANALYSES TO MAKE BUSINESS DECISIONS
Lesson 4: Section 9.9: Controlling Confidence Interval Length <input type="checkbox"/> Calculate the sample size required to achieve sufficiently narrow confidence intervals	26.0 DEMONSTRATE MARKETING CONCEPTS 28.0 DEMONSTRATE GENERAL MANAGEMENT PRACTICES 30.0 DEMONSTRATE HUMAN RESOURCE MANAGEMENT FUNCTIONS
Final Project	