COURSE OUTLINE: BCO208 - STATISTICS

Prepared: School of Business
Approved: Karen Hudson, Dean, Community Services and Interdisciplinary Studies

Course Code: Title	BCO208: STATISTICS
Program Number: Name	2035: BUSINESS 2050: BUSINESS -ACCOUNTING
Department:	MATHEMATICS
Academic Year:	2024-2025
Course Description:	In this course, students will develop the necessary skills that will help them use statistics as a problem-solving tool. They will learn to collect, organize, and visualize both qualitative and quantitative data that is primarily student generated through in-class experiential activities. Students will learn numerous numerical measures that will be used to further describe and analyze the data to determine any patterns and/or trends. Finally, the students will be introduced to probability theory that will give them the initial skills needed for inferential statistics. This course will use and build on student`s knowledge and understanding of spreadsheets as problem-solving tool.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	OEL176
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**2035 - BUSINESS** VLO 4 Apply basic research skills to support business decision making.
Essential Employability Skills (EES) addressed in this course:	EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems.
Course Evaluation:	Passing Grade: 50%, A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.

Books and Required Resources:

BASIC STATISTICS FOR BUSINESS and ECONOMICS by LIND
Publisher: McGraw Hill Ryerson Ltd Edition: 6th
ISBN: 9781265140175

Basic Statistics for Business & Economics by Wathen
Publisher: McGraw Hill Ryerson Ltd Edition: 6th
ISBN: 9781259268939

Sharp EL-W516XG (can be purchased in bookstore) by Calculator -

Please bring one to every class by Geometry Set -

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
1. Produce frequency distributions and graphical representations of data.	1.1 Construct frequency tables, pie charts and bar graphs for qualitative data using a variety of tools and strategies including spreadsheet software. 1.2 Use student experiential learning to generate and collect a class data set of qualitative data to be organized and analyzed in group projects. 1.3 Construct frequency distributions, histograms, and frequency polygons for quantitative data. 1.4 For numerical data, data is collected by each student to create a class data set to be organized and analyzed as group projects. 1.5 Differentiate between a sample and a population. 1.6 Illustrate the difference between qualitative and quantitative variables. 1.7 Compare discreate and continuous variables. 1.8 State the steps in problem solving and describe the requirements necessary to generate and collect meaningful data. 1.9 Outline the skills needed to analyze organized data. 1.10 Understand and apply spreadsheet functions to populate frequency tables and understand the importance of including checks in all spreadsheet calculations.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Analyze data by calculating and interpreting variables relating to central tendency and dispersion.	2.1 Explain the concept of central tendency and compute a variety of measures for central tendency using both a calculator and a spreadsheet. 2.2 Compute a variety of measures of dispersion including range, mean deviation, variance, and standard deviation. 2.3 Distinguish between symmetric, positively skewed and negatively skewed distributions. 2.4 State the relative positions of the mean, median and mode in the various types of distributions. 2.5 Apply the Empirical Rule to determine the proportion of data falling with k standard deviations from the mean. 2.6 Apply Chebyshev`s Theorem to find the proportion of data falling within k standard deviations from the mean when the distribution is not symmetric.

	2.7 Compute Z-Scores and apply the concept to problems involving percentiles and percentile rankings.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Apply a variety of probability concepts in problem solving.	3.1 Define terms used in reference to probability and approaches to assigning probabilities. 3.2 Differentiate between empirical, theoretical and subjective probability. 3.3 Compute empirical probability using the results of an experiment where numerous trials are conducted and outcomes are tallied. 3.4 Compute theoretical probability of an event based on the given information to produce a sample space of all possible outcomes in a variety of situations. 3.5 Apply random number generators using spreadsheet technology to simulate experimental (empirical) probability. 3.6 Use simulations to compare and contrast empirical and theoretical probability to understand the Law of Large Numbers. 3.7 Determine the number of outcomes in an event by using an appropriate counting principle. 3.8 Calculate the probability of an event using the special and general rules for dependent and independent events. 3.9 Organize and compute probabilities using tree diagrams. 3.10 Explain and use sets, set notation and Venn Diagrams as it relates to Set theory: union, intersection, negation of sets. 3.11 Use set theory to calculate conditional probability.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Use Continuous probability distributions in problem solving.	4.1 Define the terms used in reference to continuous probability distributions. 4.2 Describe and compute probabilities using the uniform distribution. 4.3 List the characteristics of a normal distribution. 4.4 Convert a normal distribution to the standard distribution. 4.5 Compute probabilities for a normally distributed random variable. 4.6 Determine the value of a normally distributed random variable for a given probability.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Describe the benefits of sampling as a means of estimating population parameters and predict the nature of samples using sampling distribution concepts.	5.1 Explain why a sample is often the only feasible way to learn something about a population. 5.2 Describe methods to select a sample. 5.3 Describe and apply concepts relating to the sampling distribution of the sample means. 5.4 Explain the central limit theorem. 5.5 Define the standard error of the mean. 5.6 Apply the central limit theorem to find the probabilities of selecting possible sample means from a specified population. 5.7 Construct a sampling distribution of a proportion.

Evaluation Process and Grading System:	<table><tr><th>Evaluation Type</th><th>Evaluation Weight</th></tr><tr><td>Group Projects</td><td>20%</td></tr><tr><td>Quizzes/Participation</td><td>20%</td></tr><tr><td>Unit Tests</td><td>60%</td></tr></table>
Date:	June 28, 2024
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.