American University of Technology
Akkar Campus
SPRING 2024

Course Information (based on Course Catalogue)

Course No. (Subject & No.): Sta 211	Title: Business Statistics
Number of credits: 3	Number of contact hours per week: 3
Pre-requisites: **MAT100 or Placement.**	Co-requisites: **ENG020**
Description: Basic statistical techniques emphasizing business and economic applications. Topics covered include graphical and numerical data summary techniques, elementary probability theory, probability distributions, sampling distributions, estimation, and simple regression.	

Schedule Information (based on class schedule)

CRN: STA2111A	Section:
Days/time class meets: MW: 08:30 – 09:45	Class Location (Building & Room): 201
Name of Instructor: Dr. Mouhamad Ibrahim Email: mouhamad.ibrahim@aut.edu	

Course Learning Objectives

1. **Foundational Knowledge Outcomes**
   Students should be able to understand and remember:
   The statistical terminology
   The data using graphs and using numerical measures
   The probability concepts, discrete probability distributions and the Normal continuous probability distributions
   The confidence intervals for means and proportions
   The quantitative variables using regression analysis
2. **Application Outcomes**
   Students should try out:
   1. Analytical skills through solving problems and undertaking case studies.
   2. Teamwork skills through homework assignments, undertaking case studies, and in class group discussions.
   3. Creative thinking skills through analysis of problems and case studies.
   4. Computer skills through the use of a statistical package (EXCEL) and the use of Internet.
3. **Integration Outcomes**
   Identify the relationship between statistics and the real-life problems.
4. **Human Dimension Outcomes**
   The students become aware of the impact of statistics on society as whole
5. **Caring Outcomes**
   The students become confident in the ability to apply course material to real-life situations.
6. **Learning-How-to-learn Outcomes**
   Students should be able and evaluate the statistical knowledge that can enhance their majors.

Course Design Components

Course Objectives	Assessment Activities	Learning Activities
1. Foundational knowledge outcomes	Quizzes	group discussions, assignments
2. Application outcomes	Problem solving, case studies	group discussions, assignments
3. Integration Outcomes	case studies, Presentations	group discussions, Projects
4. Human Dimensions	case studies, Presentations	group discussions, Projects
5. Caring Outcomes	Problem solving, case studies	group discussions, assignments
6. Learning-How-to-learn Outcomes	case studies, Presentations	group discussions, Projects

Course Schedule of Learning and Assessment Activities (based on academic calendar for both TTh, MF dates will be provided to you as published by academic affairs office)

Week(s)	Unit Contents	Unit Objective
1 - 2	**Chapter 1**: **The Nature of Probability and Statistics** Definition of statistics, basic areas of statistics (descriptive and inferential), variables and types of data (Quantitative/Qualitative), population and sample, parameter, statistic, data collection and sampling techniques., observational and experimental studies.	Understand the concept of statistics and basic statistical terminology. Differentiate between different types of data.
2 - 4	**Chapter 2&4: Frequency Distributions and Graphs** Frequency distribution, including the calculation of percentages and cumulative frequencies and percentages. Cross tabulation of two variables and the calculation of respective row, column and total percentages using quantitative and qualitative variables. Presentation of frequencies in Graphical forms including Bar charts, Pie charts, Histograms, Ogives, Dot plots, Stem and leaf plots (not in excel), time series plots, scatter plots, and multiple and component bar charts for more than one variable.	Enable the student to construct frequency tables for different types of data and understand the importance of percentages and cumulative frequencies and percentages together with understanding graphical presentation of data. Also, we stress the importance of filtering in EXCEL which allows us to have graphical representations for subgroups of the sample data.
5-6	**Chapter3: Numerical Measures** Measures of central tendency (mean, median, mode). Measures of variation (range, inter-quartile range, variance and standard deviation and the coefficient of variation). Measures of relative standing. Interpretation of the box and stem and leaf plots.	Understand the importance of measuring the center location and spread in data using different measures and how to select a suitable measure given corresponding advantages and disadvantages. Also, we stress the importance of filtering in EXCEL which allows the computation of statistics for subgroups of the sample data.
7-8	**Chapter 10: The Correlation Regression** Simple and multiple linear correlation, simple linear regression, inferences about the regression model, assumptions of the regression model, multiple linear regression.	Give students the basic principles and techniques of simple and multiple regression and enable them to use the computer to perform regression analysis and interpret the results.
9 – 10	**Chapter 5: Probability and Counting rules**	Introduce the student to the concept of

	Introduce concepts relating to random experiment, sample space, events. Acquaint the student with the concept of probability and its applications (Union/Intersection/complement/ conditional/ probability trees) probability rules of summation, conditional probability and independent events.	probability/ conditional probability.
11-12	**Chapter 6: Discrete Probability Distributions** Types of random variables (discrete and continuous), discrete probability distributions, their requirements. Calculation of the expected value and variance as well as probabilities. Laws of Expected value and Variance. Introduce the binomial distribution and Calculate probabilities.	Introduce the student to the concept of a random variable and differentiation between different types of random variables. Use discrete probability distributions to calculate the expected value and the variance for a random variable.
13	**Chapter 7: The Normal Distribution** Continuous probability distributions, probability density function, Normal distribution.	Introduce continuous distributions. Calculating probabilities and percentiles from the normal distributions using EXCEL. Standardize normal variables. Introduce the central limit theorem and discuss its importance in inferential statistics. Acquainting the student with sampling distribution of the mean and proportion.
14	**Chapter 8: The Sampling Distribution** Sampling distribution of the sample mean and proportion.	Show students how sample results vary from one sample to another and study the behavior of such variation (mean, variance, distribution).
15	**Chapter 9: The confidence Interval** Confidence intervals for the mean and proportion	Acquainting the student with concepts of estimation in statistics.

Evaluation Criteria (Total must be equal to 100%)

40%	Individual Performance Tasks/Activities	
	- Test 1 10% - Midterm 15% - Final Exam 15%	
60%	Continuous assessment which may involve Group/Team Performance Tasks/Activities/Quizzes	
	- Quizzes and participation (30%) - Project (30%)	

Required Textbooks

Business Statistics in Practice – 6th Edition Mc Graw-Hill

Course Policies *(based on AUT policies and procedures as per Catalogue)*

a. Punctuality: You must in class exactly on time.
b. Attendance policy: It is AUT policy that attendance is mandatory.
c. Dropping the course: ----------2024 is the last day for withdrawal from classes.
d. Homework: Assignments will be given at the end of each section.
f. Makeup exam policy: No makeup exams.