East West University
Department of Economics
<u>Semester: Spring 2020</u>

Course Outline
Course Code: ECO 204
Course Title: Statistics for Business and Economics

Credit Hours: 3   ***Prerequisites: ECO104, MAT100***
Class Time

Course	Sec	Time	Day	Room
ECO 204	1	011:40-1:20	TR	335

Instructor: Noara Razzak, Adjunct Faculty, Department of Economics, Room 345
Email: noara.razzak@gmail.com
Office Hours

Day	Sunday	Monday	Tuesday	Wednesday	Thursday
Time			10:00-11.50		10:00-11:50

Course Learning Outcomes
- CLO1-Understand the basic concepts of statistical inference;
- CLO2-analyze and interpret time series data, identify and forecast the trend, seasonal, cyclical variation;
- CLO3-develop and test statistical hypothesis and its application in business and economics
- CLO4-Learn to draw sample from a population using probability sampling methods and sampling distribution, construction of sampling distributions of the sample means;
- CLO5-Develop confidence intervals for a range of population parameters and interpret these intervals;
- CLO6-Learn Analysis of Variance (ANOVA) (one-way and two-way) to compare among multiple means and variances;
- CLO7-Briefly explain simple and multiple regression in the field of business and economics and its interpretation;
- CLO8-Explain the concepts of Non-parametric test and characteristics of Chi-square test, Wilcoxon rank-sum test, Kruskal-Wallis test;

Rationale of Course: Statistics has become an indispensable tool in the field of Business Administration, Computer Science, Economics, Physics, Biology, to name a few. Descriptive and inferential statistics is crucial for all students majoring in these fields. We live in the

Information Age where we understand a great deal about the world around us. Much of this information was determined mathematically by using statistics. When used correctly, statistics can tell us about any trends in what happened in the past and can be useful in predicting what may happen in the future.

Objectives of Course: The course is intended to provide an intermediate knowledge of statistical tools required to understand and apply concepts in business, economics and social sciences. Students of the course will primarily learn problem solving skills and develop an intuition of how and why statistical tools are used to solve problems in fields such as business and economics. Lab class will be an essential part of the teaching method.

Core Reading:

Introductory Statistics, Barbara Illowsky and Susan Dean, 1st Edition.

Other required readings to be handed out in class.

Course Schedule:

Part 1: Statistical Inference and Confidence Interval

Topic 1	Review of Basics such as Probability, Conditional Probability, Mean, Standard Deviation, Types of Distribution, Central Limit Theorem,Law of Large Numbers
Topic 2	Confidence Interval, Population Mean Using Normal Distribution, Population Mean using the Student t Distribution, A Population Proportion

Part 2: Hypothesis Testing Part 1 and Part 2

Topic 1	Hypothesis Testing with One Sample, Null and Alternative Hypotheses, Outcomes and the Type I and Type II Errors, Distribution Needed for Hypothesis Testing
Topic 2	Hypothesis Testing with Two Samples, Two Population Means with Unknown Standard Deviations, Two Population Means with Known Standard Deviations

Part 3: Chi-Square Distribution, F-Distribution, One Way and Two Way Anova, Linear Regression

Topic 1	The Chi-Square Distribution, Goodness-of-Fit Test, Test of Independence, Test for Homogeneity
Topic 2	F Distribution and One-Way ANOVA, Facts About the F Distribution, Test of Two Variances
Topic 3	Linear Regression and Correlation, Linear Equations, The Regression Equation, Testing the Significance of the Correlation Coefficient

Note: The syllabus is at the instructor's discretion to be modified/ revised at any time to be notified to all students.

Assessment

Assignments	10%
Homeworks	5%
Lab	5%
Midterm 1	25%
Midterm 2	25%
Finals	30%
Total	100%

Grading Policy

% of Marks	*Grades*	*% of Marks*	*Grades*
97% - 100%	A+	73%-76%	C+
90% - 94%	A	70%-72%	C
87%-89%	A-	67%-69%	C-
83%-86%	B+	63%-66%	D+
80%-82%	B	60%-62%	D
77%-79%	B-	Below 60%	F

Special Instructions

There is zero tolerance for cheating at East West University. Students caught with cheat sheets in their possession, whether used or not used, and/or copying from cheat sheets, writing on the palm of the hand, back of calculators, nearby walls, chairs etc. will be treated as cheating during an examination. The only penalty for cheating is expulsion from EWU.

- Class participation is highly desirable and in the past students who didn't attend classes regularly performed poorly, regardless of their prior capabilities.
- Lab attendance and assignments are mandatory; students will lose points if they are absent.
- No makeup exams are allowed except for compelling reasons by special arrangement ahead of time.
- No comprehensive exams. Each exam will consist of its own respective part.
- Students are advised to switch off phones during class time.
- Students are advised to go to teaching assistants to work regularly and work together in groups.