East West University
Department of Economics
Semester: Summer 2019

Course Outline

Course Code: ECO 104
Course Title: Introduction to Statistics

Credit Hours: 3 ***Prerequisite: none***

Class Time

Course	Sec	Time	Day	Room
ECO 104	1	08:30-10:00	TR	337

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 basic concepts of statistics, descriptive and inferential statistics;
- CLO2: Understand the concept and measurement, sources of data, variables, sample and population;
- CLO3: Draw tabular and graphical displays, summarizing data for a categorical variable and quantitative variable and use in Excel;
- CLO4: Understand and apply measurement of location or central tendency and dispersions (variability) and association between two variables and use in Excel;
- CLO5: Understand basic concepts of covariance and correlation and calculate coefficient of correlation and interpretation and use in Excel;
- CLO6: Apply and interpret discrete probability distributions (Binomial and Poisson) and continuous probability distribution (Normal) and use in Excel;
- CLO7: Calculate and interpret different index numbers.

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 tell us 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 a basic knowledge of statistical tools required to understand and to 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.

Course Schedule:

Part 1: Students will develop knowledge and understanding of data, sampling, and variation in data and sampling, frequency, frequency tables. Students will understand and learn to calculate measures of the center of the data, skewness, mean, median and mode. They will also be introduced to the basic rules of counting and probability, the concepts independent and mutually exclusive events and conditional probability.

Part 2: Students will develop an understanding of tree and Venn diagrams and how these tools are used to formulate independent and mutually exclusive events and conditional probability. Students will also learn the concepts of covariance and correlation in data, the probability distribution function (PDF) of a discrete random variable, mean, expected value and standard deviation. They will also be asked to understand and apply examples of discrete distributions: binomial distribution, geometric distribution.

Part 3: The final module will continue to cover examples of discrete distributions: hypergeometric distribution and Poisson distribution. Students will be given the knowledge of the probability distribution function (PDF) of continuous variables, mean, expected value and standard deviation. They will be expected to understand and apply examples of continuous distributions: the uniform distribution, the exponential distribution and the normal distribution. Students will also learn to calculate and interpret different index numbers.

Core Reading:

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

Part 1: Sampling, Data and Descriptive Statistics

Topic 1	Data, Sampling, and Variation in Data and Sampling, Frequency, Frequency tables
Topic 2	Measures of the Center of the Data, Skewness, Mean, Median and Mode
Topic 3	Terminology of Probability Topics, Independent and Mutually Exclusive Events, Conditional Probability

Part 2: Probability Topics

Topic 1	Tree and Venn Diagrams with further applications of Independent and Mutually Exclusive Events, Conditional Probability
Topic 2	Probability Distribution Function (PDF) of a discrete random variable, mean, expected value and standard deviation
Topic 3	Examples of Discrete Distributions: Binomial Distribution, Geometric Distribution. Introduction to Joint Distribution: Covariance and Correlation

Part 3: Random Variables and Distribution

Topic 1	Examples of Discrete Distributions: Hyper-Geometric Distribution and Poisson Distribution.
Topic 2	Probability Distribution Function (PDF) of continuous variables, mean, expected value and standard deviation
Topic 3	Examples of Continuous Distributions: The Uniform Distribution, the Exponential Distribution and The Normal Distribution. Calculate and interpret different index numbers.

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%
Home works	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 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.