The Islamia University of Bahawalpur
Rahim Yar Khan Campus
Department of management Sciences

Class: BS Psychology   **Semester: 2nd**   **Season: 2019-2023**

Instructor	Zartashia Zia	**E-Mail:** zartashia_zia@yahoo.com	
Course Title	Basic Statistics II	**Program**	BS
Course Number		**Credit Hours**	3
Lecture Timings	Monday (11:30 A.M to 1:00 P.M) Tuesday (11:30 A.M to 1:00 P.M)		

Course Objectives:

1. The course will cover preliminary ideas of data collection, presentation of data, measure of central tendency, measure of dispersion, probability distribution, regression and correlation.
2. To give the students the knowledge of elementary statistical methods.
3. Prepare them to be able to use descriptive statistics for summarizing, reducing the data size and performing exploratory data analysis and interpretation.
4. To make students aware of the conditions underlying the applicability of probability and theoretical probability distribution.

Course Outline

Week	Topics
1,2	Probability, approaches of probability, range of probability, variables, discrete and continuous variable, Random experiment and its properties, trial, outcomes, sample space, sample point, event, simple, compound, equally likely, mutually exclusive and collectively exhaustive events, classical and relative frequency.
3,4	Addition law of probability for mutually exclusive events, general law of addition, law of complementary events. Conditional probability, dependent and independent events, multiplication law for dependent and independent events, sample space, counting sample points, (rule of multiplication, permutation, combination), numerical questions
5,6	Random variable, discrete and continuous random variable, discrete probability distribution, properties of discrete probability distribution, probability density function, mean and standard deviation of discrete and continuous probability distribution and numerical questions.
7,8	Binomial random experiment and random variable,Binomial probability distribution, its properties, mean and variance. Binomial frequency distribution and numerical questions.
Mid Term	
9,10	Normal probability distribution, properties of normal distribution, standard variable, standard normal distribution, finding area under normal curve, finding percentiles, normal frequency distribution and numerical questions.
11,12	Hypothesis, simple and composite hypothesis, testing of hypothesis, exact and inexact hypothesis, null and alternative hypothesis, type I error, type II error, comparison b/w α and β, one tailed test, two tailed test.
13,14	Acceptance and rejection region, test statistics, level of significance, level of confidence, critical value, power of test, power of curve and numerical questions.
15,16	t-distribution, assumption of t-distribution, assumptions of paired t-distribution, properties of t-distribution, Application of t-distribution, confidence interval of t-distribution, small and large sample mean of t- distribution and numerical questions.

Course presentations:

A brief introduction of the topic will be given by the course instructor followed by the PowerPoint presentation by the student/group of about 20 minutes. A further 20-30 minutes would be devoted to the discussion, objection or questions related with the topic. The PowerPoint copy of the presentation must be e-mailed or a hard copy submitted to the instructor at least 24 hours before the presentation.

Teaching Methodology:

1. The class will be conducted in the form of lecture and discussion. Students will be encouraged to participate and ask question at the end of each class session.

2. Students are also expected to read the topic of the day in advance which will be told a day before by the instructor.

Testing and Grading:

1. Grading will tend to focus on your overall performance rather than on or two aspects. A mid-term examination and a comprehensive final examination will be given.
2. Themid-term examination will be graded for 30 marks and final examination will have a value of 50 marks.
3. At least 80% attendance is mandatory.
4.Test question may be taken from textbook reading, additional material discussed in the class and / or other assigned readings.

Marks Distribution:

Activity	Marks
Classroom participation/general behavior/group work	5
Quiz/surprise test	5
Assignments	5
Presentation/Seminar	5
Mid-term Exam	30
Final Exam	50
Total	**100**

Recommended Books:

1. Dixon,W.J., and Massey,F.J. *Introduction to Statistical Analysis*, McGraw Hill, 1983.
2. Johnson, J.L. *Probability and statistics for computer science*, John Wiley & Sons, 2004.
3. Walpole, R. E. *Introduction to Statistics*, 3rd ed. Mac million 1983.
4. "Statistical Techniques for Business & Economics" by Robert D Mason, and Lind.
5. "Business Mathematics & Statistics" by Francis
6. "Statistics for Management" Ritchard I. Lavin & David S.Rubin. 7th ed.