Course Title: Introduction to Statistical Theory                                       Credit Hours: 3(3-0)

Course Code: STA-321

Introduction and scope of statistics, Basic concepts of statistics, Different types of variables, types of data and methods of data collection, Scales of measurement, Data arrangement and presentation, formation of tables and charts, Measures of central tendency: mean, median and mode and quantiles from grouped and ungrouped data. Measures of dispersion: computation of range, variance, standard deviation, and coefficients of variation, Skewness and Kurtosis, Definition of probability, Different terminology used in probability,  Different laws of probability, Discrete distributions (Binomial distribution, Poisson distribution, Negative Binomial distribution, geometric distribution, hyper geometric distribution with their properties and applications), Continuous distribution (Normal distribution with their properties and  applications), Correlation and Regression, Survey sampling, Types of Sampling (probability and non-probability sampling), Sampling Distribution of mean, Hypothesis testing: Z-test for single and difference between mean, Student’s ‘t’ test for single and difference between mean. Chi-square test of independence and goodness of fit, Analysis of variance and LSD.

Recommended Books

1.      Ronald Walpole, Myers, Myers, Ye, “Probability & Statistics for Engineers & Scientists”, 8th edition, 2008, **Prentice Hall**Publisher.

2.      Sher M. Chaudhry, Shahid Kamal, “Introduction to Statistical Theory I and II”.

3.      Steel, R.G.D. and Torrie,J. H.,1980. Principles and procedures of statistics. McGraw Hill International Editions.

4.      Zar, 1998. Biostatistics Analysi