

Applied Biostatistics

Course Code	Title of Course	Credit Hours
HND-117	Applied Biostatistics	3(3-0)

Learning Outcomes:

Students will be able to:

- Formulate and test hypotheses using appropriate parametric and non-parametric statistical tests such as t-test, Chi-square, and ANOVA.
- Understand and interpret concepts related to statistical errors (Alpha and Beta), significance levels, and decision-making in hypothesis testing.
- Analyze and interpret scientific and research data using statistical software such as SPSS and R.
- Gain the ability to estimate sample size and select suitable statistical methods for applied research in health and biological sciences.

Course Contents:

Concepts of analytical statistics: Hypothesis testing, Alpha and Beta errors; Tests of Significance: Normal test, t test, Chi square test etc, One-way ANOVA, Two-way ANOVA; Non-parametric Tests; Sample Size Estimation; Interpretation of Scientific Data; SPSS software and applications; "R" Software and applications.

Suggested Readings Text Books:

1. Rosner, Bernard. *Fundamentals of Biostatistics* (7th Edition).
2. Burt Gerstman, Barbara. *Basic Biostatistics: Statistics for Public Health Practice*.

Reference Books:

1. Introduction to Statistical Theory Part- II by Sher Muhammad and Dr. Shahid Kamal (Latest Edition)
2. Statistical Methods and Data Analysis by Dr. Faquir Muhammad
3. A. Concise Course in A. Level Statistics with world examples by J. Crashaw and J. Chambers (1994).