SYMBIOSIS INTERNAITONAL (DEEMED UNIVERSITY)

Ph D ENTRANCE TEST

The Syllabus of Biostatistics

Unit I:Sources and Presentation of Data

- Statistical Data
- Methods of Presentation
- Presentation ofQuantitative and Qualitative Data

Unit II: Measures of Location, Variability and its Measures

- Measures of Central Tendency
- Measures of Location
- Types of Variability
- Measures of Variability

Unit III: Sampling

- Sample Characteristics
- Sampling Techniques

Unit IV: Probability

- Probability
- Odds and Odds Ratios
- Permutations and Combinations
- Conditional Probabilities and Bayes' Theorem
- Random Variables, Probability Distributions and Probability Density Functions

Unit V: Estimation

- Point Estimation
- Sampling Distribution of the Mean and the Central
- Limit Theorem
- Choosing Between Estimators
- Sampling Distributions: Student's *t*, Chi-Squareand Fisher's *F*
- Interval Estimation, Confidence Intervals

Unit VI: Inference

- Inference and Hypotheses
- Significance Tests, Type I and Type II Errors, Power andthe *z*-Test
- Power and Sample Size
- Student's *t*-Tests
- The Chi-Square Goodness-of-Fit Test
- Nonparametric Tests
- Testing the Population Correlation Coefficient

Unit VII: Analysis of Variance Models

- One-Way Analysis of Variance
- Factorial Analysis of Variance
- Multiple Comparisons, a priori and post hoc Comparisons
- Nonparametric Analysis of Variance

Unit VIII: Linear Regression Models

- Simple Linear Regression
- Multiple Linear Regression
- Logistic Regression
- Generalized Linear Model

Unit IX: Introduction and Scope of Epidemiology;

- Health statistics and health indicators;
- Basic Measurements in Epidemiology- Mortality Statistics,
- Morbidity Statistics;
- Types of Epidemiological Studies;
- Descriptive Epidemiology;
- Analytical Studies- Case Control and Cohort Studies;
- Randomized Control Studies; Investigation of an Epidemic; Surveillance