

Course Title: **Biostatistics**

Course Code: **STA-507**

Credit Hours: **3(3-0)**

**Course Outline:**

Looking at the data: Types of Data, Tables and Graphs, Central tendency and Dispersion. Probability: Bayes Theorem, Sensitivity and Specificity, Odds Ratio and Relative Risk. Probability Distributions: Binomial distribution, Poisson distribution, Normal distribution, Central Limit Theorem, Standard scores/z-scores. Statistical inference: Samples and populations, Power, Confidence intervals, p-values, Type I & II error. Hypothesis testing: One-sample population mean, Paired sample t-test, Independent samples t-test, One-way ANOVA and Two-way ANOVA for comparing more than two groups. Chi-square test, McNemar's test, Odds ratio, Relative risk. Correlation, Simple Linear Regression, Multiple Linear regression, Logistic regression. Non-parametric Tests: Sign test, Wilcoxon test, Kruskal-Wallis test, Rank correlation.

**Recommended Books:**

- 1- Sullivan, L. M. (2023). *Essentials of biostatistics in public health*. Jones & Bartlett Learning.
- 2- Daniel, W. W., & Cross, C. L. (2018). *Biostatistics: A Foundation for Analysis in the Health Sciences*. John Wiley & Sons.
- 3- Burt, B. (2013). *Basic Biostatistics: Statistics For Public Health Practice*. Jones & Bartlett Learning.
- 4- Motulsky, H. (2014). *Intuitive biostatistics: a nonmathematical guide to statistical thinking*. Oxford University Press, USA.
- 5- Glantz, S. A. (2012). *Primer of Biostatistics*. McGraw-Hill Education
- 6- Norman, G. R., & Streiner, D. L. (2008). *Biostatistics: The Bare Essentials*. PMPH USA (BC Decker).
- 7- Zar, J. H. (2009). *Biostatistical Analysis*. 5<sup>th</sup> Ed Pearson Education India.