

**LS 479--BIOSTATISTICS (2 credits)**

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| Topics  | Faculty | Hours |
|---|---------|-------|
| <b>Introduction</b>   |         |       |
| Application of statistics in Biology<br>Population and sample: Sampling distribution, discrete and continuous distribution, Normal distribution. Introduction to probability.<br>Types of Data, Types of groups, one sample, two samples, and more than two samples                   | DK      | 6     |
| <b>Descriptive Statistics:</b><br><br>Mean, Median and Mode<br>Frequency, tabulation, variance, population variance, sample variance, standard deviation, standard error of mean, Graphical representation of data.   | DK      | 2     |
| <b>Hypothesis testing:</b><br>Types of testing, type I error, type II error, One tail and two tail, power of testing, effect size (Cohen's D)   | DK      | 2     |
| <b>Non-parametric Method:</b><br>Signed-ranked test<br>Kruskal-Wallis test.<br>Mann-Whitney test.<br>Spearman Rank Correlation.<br>Pearson correlation<br>Regression analysis   | DK      | 6     |
| <b>Study design and determination of Sample size:</b><br>Factors associated with sample size determination, Calculating sample size for single group experiment, for continuous variables, for repeat studies. Various study design (observational design, experimental design, etc.) | SKJ     | 2     |
| <b>Inferential Statistics :</b><br>What is inferential statistics ?<br>Parametric Method<br>One-sample t-test, two-sample t-test, paired t-test.<br>One-way ANOVA,<br>Two-way ANOVA<br>ANOVA on ranks   | SKJ     | 10    |