

## **BT 502: Quantitative Biology**

**(3-0-2-8)**

Pre-Requisites: Nil

Probability and probability distributions; Descriptive statistics: mean, variance and sums of squares; Clustering and classification of data; Test of hypotheses: t-test, z-test; Chi-square test of independence; ANOVA: various types of classification; Regression analysis: linear, multiple and nonlinear; Biological databases; Pair wise and multiple sequence alignments; Identification of conserved domains and motifs; Homology modeling of proteins; Laboratory components: GenBank database; Protein data bank; Homology Search tools; Homology Modeling; Molecular viewers.

### **Texts:**

1. W. W. Daniel, *Biostatistics: A Foundation for Analysis in the Health Sciences*, Wiley-VCH, 8<sup>th</sup> Edition, 2004.
2. B. Bergeron, *Bioinformatics Computing: The Complete Practical Guide to Bioinformatics for Life Scientists*, Prentice Hall, 2002.

### **References:**

1. S. A. Glantz, *Primer of Biostatistics*, McGraw-Hill Medical, 6th edition, 2005.
2. C. Gibas, and P. Jambeck, *Developing Bioinformatics Computer Skills*, O'Reilly Media Inc., 2001.