STAT- 820 Statistical Bioinformatics (3 Credit Hours)

1. Objectives

This course aims to introduce students the statistical methods used for bioinformatics.

2. Course Contents

High throughput sequence analyses, expression analyses, genome-wide association studies (GWAS) and other genomics related fields. Quality control of big datasets, statistical testing and significance for big datasets, clustering, classification, multidimensional analysis, visualization, resampling, bootstrapping and network analysis. Related applications/computations with R.

3. Recommended Books

i. Jae K. Lee (2014), Statistical Bioinformatics: For Biomedical and Life Science Researchers, Wiley.
ii. Sunil K. Mathur (2009) Statistical Bioinformatics with R, Springer.
iii. Xu, Shizhong (2013) Principles of Statistical Genomics, Springer.
iv. Outcomes: On successful completion of this course, students will know statistical methods and models for risk management.

4. Outcomes

On successful completion of this course, students will be able to model the bioinformatics data.