PROBABILITY AND STATISTICS

1. Introduction

Credits: 4-0-0

2. Course Outline

Random Experiments Sample spaces , Events, probability measures on events- definition, properties, examples. Conditional probability-de_nition, properties, examples, Bayes theorem, independent events.

Definition of random variables, standard discrete and continuous random variables-viz. Bernoulli, Binomial, Geometric, Poisson, Exponential, Gamma, Normal their probability distributions, . Expectation, variance,other properties. Definition of bivariate random variables, joint distributions, covariance and correlation between two random variables, independence, distributions of sums

Data collection methods, types of data, graphical summaries of data, numerical summaries of univariate data, bivariate summaries, measures of association. Introduction to statistical inference, population parameters, variable(s) of interest, statistic, estimators as random variables.

3. Reading Material

1. Ross, S. A First Course in Probability, sixth edition, Pearson Education, 2007.
2. Ramachandran, K.M. and Tsokos, C.P. Mathematical Statistics with applications, Academic Press, 2009.
3. Daniels, W.W. Biostatistics: a foundation for analysis in the health sciences, 9th edition, John Wiley & Sons, 2008
4. Moore, D.S. The Basic Practice of Statistics, W. H. Freeman, 2003.