



Math 1003	PROBABILITY AND STATISTICS	(CR3)
Preq.	Math 1001	

Objectives

To give students an introduction to basic methods of statistics and probability theory.

Syllabus

Introduction to Statistics, Descriptive Statistics, Statistics in decision making, Graphical representation of Data Stem-and Lead plot, Box-Cox plots, measures of central tendencies and dispersion, moments of frequency distribution; Counting techniques, introduction to probability, sample space, events, laws of probability, Conditional probability, sample space, methods of counting, permutations, combinations, fundamental probability theorems, random variables and probability distributions, random variables, probability distributions, expectation and variance, special probability distributions, the binomial distribution, the Poisson distribution, the Gaussian (or normal) distribution, continuous distributions, the Gaussian (or normal) distribution, the Maxwell-Boltzmann distribution, Statistics Error propagation, fitting curves to data, the χ^2 distribution, student t distribution, confidence interval.

Recommended Books

1. *Probability and Statistics for Engineers and Scientists* by W. Ronald, Y. Myers, 8th edition. Prentice Hall (2008)
2. *Probability and Statistics for Engineering and the Sciences* by L. Lay, L. Devore, Duxbury (2003)
3. *Statistical Data Analysis* by G. Cowan, Oxford, (1998)
4. *Mathematical methods for physics and engineering* by K. F. Riley, M. P. Hobson, and S. J. Bence (3rd Edition), Cambridge (1999)