

**PROBABILITY AND STATISTICS
FOR CHEM. ENG. II.
SYLLABUS AND SCHEDULE**

Objectives :

- to introduce concepts of probability; notation, definitions, theorems
- to motivate the use of probability models/distributions in the analysis of data
- to study the properties of standard distributions
- to introduce elementary statistical concepts and to construct a formal quantitative testing framework.

Recommended Books :

Ross, Sheldon M. *A First course in probability* 4th ed. 1994

Ross, Sheldon M. *Introduction to probability models* 6th ed. 1997

Ross, Sheldon M. *Introduction to probability and statistics for engineers and scientists* 1987

Mendenhall, W. and Sincich, T., *Statistics for engineering and the sciences* 4th ed. 1995.

15 Lecture Syllabus

Introduction / Motivation	1 LECTURE
Probability Theory (LAWS, THEOREMS, IMPLICATIONS)	2 LECTURES
Random Variables and Probability Distributions (DISCRETE, CONTINUOUS DISTRIBUTIONS)	3 LECTURES
Expectation / Variance	1 LECTURE
Elementary Statistical Analysis (DATA SUMMARY AND EXPLORATION)	1 LECTURE
Hypothesis Testing (CHI-SQUARE TEST, T-TEST, ANOVA etc.)	3 LECTURES
Estimation (LEAST SQUARES, MAXIMUM LIKELIHOOD)	2 LECTURES
Linear Regression	1 LECTURE
Experimental Design	1 LECTURE