MODULE 1: BASIC PROBABILITY (12 LECTURES)

- Probability Spaces
- Conditional Probability
- Independence
- Discrete Random Variables
- Independent Random Variables
- The Multinomial Distribution
- Poisson Approximation to the Binomial Distribution
- Infinite Sequences of Bernoulli Trials
- Sums of Independent Random Variables
- Expectation of Discrete Random Variables
- Moments
- Variance of a Sum
- Correlation Coefficient
- Chebyshev's Inequality

MODULE 2: CONTINUOUS PROBABILITY DISTRIBUTIONS (4 LECTURES)

- Continuous Random Variables and Their Properties
- Distribution Functions and Densities
- Normal, Exponential, and Gamma Densities

MODULE 3: BIVARIATE DISTRIBUTIONS (4 LECTURES)

- Bivariate Distributions and Their Properties
- Distribution of Sums and Quotients
- Conditional Densities
- Bayes' Rule

MODULE 4: BASIC STATISTICS (8 LECTURES)

- Measures of Central Tendency
  - Moments
  - Skewness
  - Kurtosis
- Probability Distributions
  - Binomial
  - Poisson
  - Normal
- Evaluation of Statistical Parameters for These Distributions
- Correlation and Regression
- Rank Correlation

MODULE 5: APPLIED STATISTICS (8 LECTURES)

- Curve Fitting by the Method of Least Squares
  - Fitting of Straight Lines
  - Second Degree Parabolas
  - More General Curves
- Test of Significance
  - Large Sample Test for Single Proportion
  - Difference of Proportions
  - Single Mean
  - Difference of Means
  - Difference of Standard Deviations

MODULE 6: SMALL SAMPLES (4 LECTURES)

- Test for Single Mean
- Difference of Means
- Correlation Coefficients
- Test for Ratio of Variances
- Chi-Square Test for Goodness of Fit
- Independence of Attributes