Topics To Be Covered

I. Introductions and preliminaries
   - Definitions
   - Different estimating criterion
   - Distribution for Linear and quadratic forms
   - Matrix topics

II. Estimation and Inference in Simple Linear Models
   - Point estimation
   - Tests of linear hypotheses on parameters
   - Confidence intervals and regions
   - Simultaneous confidence regions
   - Simultaneous prediction intervals

III. Assumptions Checking and Diagnostic Plots
   - Residuals
   - Outliers, extreme points and influential points
   - Normality and variance homogeneity

IV. Polynomial Regression Models
   - Lack of fit test
   - Polynomial regressions
   - Polynomial regressions in centered form

V. Weighting and Transformation
   - Weighted least square
   - Box-Cox Transformation Family

VI. Regression on Functions of Several Variables