MA831 APPLIED STATISTICS FOR RESEARCH 3-1-0-4

Statistical way of thinking, understanding variation and its impact, classifications of data and variables, description of frequency distributions and probability distributions, special distributions – continuous and discrete, applications for joint probability distributions and distributions of transformed variables, practical significance of population parameters.

Methods for graphical representation of data, understanding point estimation, interval estimation, and their practical application, maximum likelihood estimation and its significance for research, concepts of hypothesis testing – parametric hypothesis tests on: mean, standard deviation, proportion, and relationship between two discrete random variables; tests on equality of means of multiple populations, test on relationship between two continuous random variables.

Introduction to measurement errors and measurement systems analysis, introduction to linear regression, concepts of statistical design of experiments (effects estimation, types of design & design selection, data analysis, interpretation and drawing inferences)

TEXT BOOKS / REFERENCES:

1. K.M. Ramachandran and Chris P. Tsokos, "Mathematical Statistics with Applications", First Edition, Academic Press, 2009.
2. Douglas C. Montgomery and George C.Runger, "Applied Statistics and Probability for Engineers", Third Edition, John Wiley, 2008.
3. Douglas C. Montgomery, “Design and Analysis of Experiments”, Fifth Edition, Wiley, 2000.