

STAT- 819 Non-Linear Estimation (3 Credit Hours)

1. Objectives

This course aims to introduce students to nonlinear models, their estimation and applications.

2. Course Contents

Models, Parameters and estimation using ML method, Transformations of parameters, inference and stable transformations. Computing Methods for Non-linear Modelling, Confidence intervals for parameters and functions. Applications of non-linear Modelling. Related applications/computations with R.

3. Recommended Books

- i. Ross, G. J. S., Non-linear Estimation, Springer Science & Business Media (2012).
- ii. Gallant, R.A. Nonlinear Statistical Models. John Wiley & Sons. (2009).
- iii. Seber, G. A. F. and Wild, C.J., Non-linear Regression, New York John Wiley, (1989).
- iv. Kotz, S. and Johnson, N., Encyclopaedia of Statistical Sciences (Non-linear Models, Non-Linear Regression) N.Y. Wiley, (1985).
- v. Denisen, D.D. Nonlinear estimation and classification. Springer (2003).

4. Outcomes

On successful completion of this course, students will be able to fit nonlinear models. Moreover, they will be trained for parameter estimation of nonlinear models.