

SYLLABUS :-

Generalized linear Models (GLM) - The role of link function, parameter estimation and inference in the GLM, prediction and estimation with GLM.

Logistic regression analysis - Representation of binary dependent variable, estimating logistic regression model, assessing overall fit, interpretation of results, validations, and case examples.

Poisson and Negative Binomial Regression Models - Objectives, design and assumptions, estimation, diagnostic tests, and interpretation of results.

Log-linear models - Log-linear models for two-way, three-way, and multi-way tables, fitting a loglinear model, relationship with logit analysis on categorical variables.

Linear Mixed Models (LMMs)- Specifications of LMMs, the marginal linear model, estimation, model selection, model building strategies, and model adequacy checking.

Hand on experience through EXCEL, MATLAB and SPSS.

Textbooks and References

- John P Hoffmann., Generalized linear models, Pearson, New York, 2004,204 pp.
- Douglas C Montgomery, Elizabeth A Peck and G Geoffrey Vining, Introduction to linear regression analysis, Wiley India, 2006, 641 pp.
- Hair J.F., Anderson R.E., Tatham R.L., Black W.C., Multivariate data analysis with readings, Prentice Hall, Englewood Cliffs, New Jersey 07632, 1995, 745 pp.
- Agresti A. Analysis of ordinal categorical data, John Wiley & Sons, New York, 1984, 287 pp.
- Anderson S., Aquier A., Hauck W.W., Oakes D., Vandaele W., and Weisberg, H.I., Statistical methods for comparative studies, John Wiley & Sons, New York, 1980, 287 pp.
- Brady T West, Kathleen B Welch and Andrzej T Galecki, Linear mixed models, Chapman and Hall/CRC, London, 2007, 353 pp.