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| 1. | Title of the course | Generalized Linear Models |
| 2. | Course number | MA615L |
| 3. | Structure of credits | 3-0-0-3 |
| 4. | Offered to | PG |
| 5. | New course/modification to | Modification To MA6202/3 |
| 6. | To be offered by | Department of Mathematics and Statistics |
| 7. | To take effect from | July 2022 |
| 8. | Prerequisite | CoT |
| 9. | <p>Course Objective(s): This course focuses on the theory and applications of generalized linear models (GLMs) where responses are assumed to follow a distribution having the form of exponential family and the mean response is related to linear predictor by a link function. GLMs provide a unified theory of many of the models usually used in statistical modelling such as the linear regression, ANOVA, log-linear models, logit, and probit models for binary responses, models for gamma responses, survival data as well as their multivariate extensions.</p> | |
| 10. | <p>Course Content: An outline of GLMs, Components, Exponential Family, Link Functions, Inference, Maximum Likelihood Estimation procedure for GLMs, Model diagnostics, Model selection, Models for Binary responses, Poisson regression and log-linear models, Multinomial Response Models, Bayesian GLMs.</p> | |
| 11. | <p>Textbook(s): 1. McCullagh P, and Nelder J, <i>Generalized Linear Models</i>, 2nd Edition, Chapman and Hall/CRC (1989).</p> | |
| 12. | <p>Reference(s): 1. Fahrmeir L and Tutz G, <i>Multivariate Statistical Modelling Based on Generalized Linear Models</i>, 2nd Edition, Springer-Verlag, New York (2001). 2. Agresti A, <i>Categorical Data Analysis</i>, 2nd Edition, New York: Wiley (2002). 3. Jiang J, <i>Linear and Generalized Linear Mixed Models and Their Applications</i>, Springer, New York (2007). 4. McCulloch C E, Searle S R and Neuhaus J M, <i>Generalized, Linear, and Mixed Models</i>, 2nd Edition, John Wiley & Sons, Inc., Hoboken, New Jersey, (2008).</p> | |