APPLIED STATISTICS AND ECONOMETRICS

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IIT Kanpur

PRE-REQUISITES : Participant should have done mathematics at +2 level (Class XI-XII).

INTENDED AUDIENCE : Students of Economics B.Sc./B.A. (Honors), M.Com. program, M.A. & Ph.D program (in sociology and psychology disciplines) will benefit the most. The course may be helpful for engineering students who want to learn statistical methods well..

COURSE OUTLINE :

Students of this course will learn computational principles necessary to perform quantitative analysis of social sciences data. Starting from only basic statistics, the course builds up a foundation for linear regression and its application to causal inference. The course draws examples from across various disciplines of social sciences. Another course objective is to teach how to use freely available software so that students feel empowered working with real-life data.

ABOUT INSTRUCTOR :

Prof. Deep Mukherjee is currently an associate professor at the Department of Economic Sciences, IIT Kanpur. He obtained his Ph.D. from the University of Connecticut and M.S. from Indian Statistical Institute. His research interests are in the fields of agricultural economics and public policy. He has taught undergraduate level microeconomics, econometrics, and environmental economics courses.

COURSE PLAN :

Week 1**:** Introduction (2), Descriptive Statistics (2), Random variable (1)

Week 2**:** Probability distributions (2), Sampling (1), Estimation (2)

Week 3**:** Sampling distribution (2), Hypothesis testing (3)

Week 4**:** Analysis of variance (3), Contingency table and Chi-squared test (2)

Week 5**:** Index number (1), Correlation & Regression (2), Trend and seasonality in time series data (2)

Week 6**:** Tutorial (1), Software sessions (4)

Week 7**:** Classical linear regression model (CLRM) and statistical inference (5)

Week 8**:** Model specification issues (2), Violations of CLRM assumptions (3)

Week 9**:** General linear model – relaxation of CLRM assumptions (5)

Week 10**:** Dummy variable and its uses (2), Logit model (3)

Week 11**:** Time series econometrics (5)

Week 12**:** Software sessions (5)