Short Term Course on

Multivariate Data Analysis with Applications

June 26-30, 2023

Organized by
Department of Industrial and Systems Engineering (ISE)
Indian Institute of Technology (IIT) Kharagpur

Introduction

Multivariate models are widely used popular statistical methods that uses multiple variables for decision-making or to predict possible outcomes. Today, in the era of data-driven decision-making, where the practical phenomena are mostly multivariate in nature, the use of multivariate modelling and data analysis has become a natural choice to researchers and practitioners from engineering, science, and management disciplines dealing with real-word data. In this context, IIT Kharagpur, being an internationally recognized technical institution of India having a number of experts with proven knowledge, expertise, and research experiences, offers this short term course on Multivariate Data Analysis with Applications for industry professionals, scientists and academicians. The course mainly focuses on model building and problem solving under real-world multivariate situations. The primary objectives of the course are as follows:

- To make the participants understand how to collect and analyze multivariate data, extract patterns, build relationships, and make objective decisions.
- To make the participants understand how a practical problem can be converted to a statistical problem and how the statistical solution can be interpreted as a practical solution.

Course Contents

The course will address the following main issues/ topics:

(i) ***Descriptive statistics (DS)*:** Population, Sample and Statistics, Sampling Distribution, Central Limit Theorem, Estimation, Hypotheses Testing, Multivariate Descriptive Statistics, Multivariate Normal Distribution, Computations using R (5 hours)

(ii) ***Multiple Linear Regression (MLR):*** Conceptual Model, Estimation of Model Parameters, Model Adequacy Tests, Test of Individual Regression Parameters, Test of Assumptions, Case Studies, Computations using R (5 hours).

(iii) ***Factor Analysis (FA):*** Exploratory Factor Analysis, Confirmatory Factor Analysis, Case Studies, Computations using R (5 hours).

(iv) ***Structural Equation Modeling (SEM):*** Conceptual Model, Assumptions, Parameter Estimation, Evaluating Model Fit, Test of Model Parameters, Case Studies, Computations using R (10 hours)

***LEARN directly from the Author of**
'Multivariate Statistical Modeling in Engineering and Management'
CRC Press (Taylor & Francis Group), 2022

Course Schedule

10.00 am – 12.30 pm	Session I: Lectures and tutorials
12.30 pm – 02.00 pm	Lunch break
02.00 pm – 05.00 pm	Session II: . Applications

Course Coordinator

Prof. Jhareswar Maiti
Principal Coordinator,
Department of Industrial and Systems Engineering (ISE), IIT Kharagpur

Eligibility

- Data Analyst
- Executives and engineers from industries
- Scientists from research laboratories
- Teachers from the technical institutes
- Post graduate students

Training Methods

The training methods consist of lecture sessions, hands-on-exercises in R/Python, discussion on cases and live problems.

Application and Fee

The interested participants are requested to apply to the principal coordinator by filling in the Registration Form provided with the brochure. The total number of seats is restricted to **50**. The participants will be selected on "*first-cum-first-served*" basis out of the eligible candidates.

The fee for the five-day programme is as follows:
Students - ***Rs 5,000.00***
Academicians - ***Rs 15,000.00***
From industries - ***Rs 20,000.00***

*Payment as per category to be done after getting shortlisted for the program

*Payment is to be made through a bank draft drawn in favour of "**CEP-STC, IIT Kharagpur**" payable at Kharagpur. The course fee includes course materials and participation fee.

Boarding and lodging at IIT technology guest house on self-payment basis

How to apply

Use the link: https://erp.iitkgp.ac.in/CEP/courses.htm
to apply online and the follow these steps:

Sign up → Log in → Profile fill-up → Choose the course → Apply now

Contact us

All queries regarding the course may be addressed to:

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