



INDIAN STATISTICAL INSTITUTE
SQC & OR Unit
Bangalore



Announces

Program on
Multivariate Data Analysis
(MA-03 Batch)

23-27 March, 2020



Indian *Statistical* Institute,
8th Mile, Mysore Road,
Bangalore - 560 059, INDIA

Phone : + 91 97393 22475, + 91 94483 24220 Ph: +91 80 26985 402/ 400

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THE TRAINING SESSION SHALL INCLUDE TOPICS LIKE:

Introduction to Multivariate Analysis.

Multivariate data, Descriptive Statistics : Array of Data, Mean Vector, Variance Covariance Matrix, Correlation Matrix with hands-on tutorial.

Concept of Distance and its measures: Euclidean Distance, Statistical Distance for uncorrelated Data, Mahalanobis' Distance for Correlated Data with hands-on tutorial .

Review of Matrix Algebra: Rank of a Matrix , Singularity of a Matrix, Inverse of a Matrix , Orthogonal Matrix, Eigenvalues and Eigenvectors of a Symmetric Matrix, Diagonalization of a Symmetric Matrix with examples.

Overview of Univariate Probability Distributions. Multivariate Normal Distribution. Multivariate Random Vector and Linear Transformation. Useful results of Multivariate Normal Distribution.

Review of Univariate Hypothesis testing. Multivariate Hypothesis Testing with examples. Statistical approach to Outlier Detection both in Univariate and Multivariate cases. Test of Multivariate Normality of data.

Cluster Analysis, Principal Component Analysis, Factor Analysis, Discriminant Analysis, Multivariate Analysis of Variance (MANOVA) and Multivariate Control Charts. Forecasting Methods, Introduction to Support Vector Machines, Random Forest as classifiers.

Software like R and Minitab will be used for analysis.

VENUE AND TIMINGS:

The Sessions shall be held 09.30 hrs to 17.30 hrs every day, during 23 – 27 March,2020 at the Indian Statistical Institute; 8th Mile, Mysore Road, Bangalore-560 059.

WHO CAN ATTEND:

Engineers/ Managers/Scientist/Administrators/Faculties from Universities who are engaged in analyzing the data collected and stored on many variables the field of design, manufacturing, market survey, service etc. in industry and various other organizations.

PARTICIPATION FEE

INR 25,000/- (for India & SAARC countries) / US\$ 750 (for others) : Per Head
[With GST, this comes to INR 29,500/- / US\$ 885 - Refer Note # 2 below]

- NOTE:**
1. Participation Fee includes Course Manual, Lunch & refreshments, and Course Kit.
 2. Applicable GST, presently @18%, TO BE ADDED to the total amount due.
 3. Total fees to be paid in full along with the application by
 - a) Demand Draft favouring INDIAN STATISTICAL INSTITUTE payable at Bangalore,
 - OR
 - b) On-line transfer
(Refer to Page 2 of Registration Form for details).
 4. If there is any change in the Govt. taxes, the additional amount to be adjusted.
 5. Seats are limited. Enrolment on First-Come-First-Served basis.

REGISTRATION

Refer to Registration Form for details of application and certification

IMPORTANT DATES

Last date of submission of nomination : 16, March,2020

CONTACT:

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ACCOMODATION:

Guest House facilities are available on ISI Campus (Refer: <http://www.isibang.ac.in/guesthouse.htm>). Participants who wish to avail the same **on extra payment** can directly contact Mr. Subramanya (+91-9844561411) regarding Guest House accommodation **AND** write to (guesthouse@isibang.ac.in), with a copy to (kalyan@isibang.ac.in) and contact Mr.R.Kalyanaraman (+91-9449085236) for the same after registration.

INDIAN STATISTICAL INSTITUTE

- ❖ The **Indian Statistical Institute** is a quasi central organization under the **Ministry of Statistics and Program Implementation**.
- ❖ It is declared by an **Act of Parliament** as an **Institute of National Importance**.
- ❖ Over the years the Institute has grown as a multi-disciplinary organization.
- ❖ It functions as a **University** empowered to award degrees up to Ph.D.; as a **Corporation** in undertaking large scale projects; as a **Firm of Consultants** to industries to improve Quality, Reliability and Efficiency and as a **Meeting place** of Scientists, Economists and Literary figures from all parts of the world.
- ❖ For further details, please visit website: www.isibang.ac.in/ www.isical.ac.in