# One Week Online Workshop on Statistics and Machine Learning in Practice

In the memory of Late Professor Dwijesh Dutta Majumdar

Organised by

**Department of Statistics with IQAC, Brahmananda Keshab Chandra College**

In collaboration with

**Department of Statistics, West Bengal State University**

With active academic support of

**STAT&ML LAB (https://www.ctanujit.org/statml-lab.html)**

| | Classes | Topics to be covered | Mentor |
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| **Day 1: July 25** | | **Inauguration Programme** | |
| 5 - 5.10 pm | : | Welcome Address | Dr. Papia Chakrabarti, Principal, BKC College |
| 5.10 - 5.20 pm | : | Introductory Speech | Dr. Munmun Biswas, Joint Convener |
| 5.20 - 5.50 pm | : | Inaugural Speech | Prof. Basab Chaudhuri, Vice Chancellor, WBSU |
| 5.50 - 6.10 pm | : | Lecture : *Teaching and Learning of Statistics on Virtual Platform* | Dr. Sanghamitra Pal, Joint Convener |
| 6.10 - 6.20 pm | : | Vote of thanks | Dr. Aparajita Nag, IQAC Coordinator, BKC College |
| Day 2: **July 26** | | | |
| 11.00 - 11.45 | Theory class | Probability and Statistics | Dr. Debolina Ghatak, IIT Jammu |
| 12.00 - 12.45 | Lab Work | Basic Statistics in R | Dr. Debolina Ghatak, IIT Jammu |
| 2.15 - 3.00 | Theory class | Regression Models (Linear and Logistic Regression) | Mr. Suman Guha, Presidency University |
| 3.15 - 4.00 | Lab work | Regression Models in R | Mr. Suman Guha, Presidency University |
| Day 3: **July 27`** | | | |
| 11.00-11.45 | Theory | Introduction to Machine Learning | Mr. Sourav Nandi, Symphony AI |
| 12.00-12.45 | Lab | Introduction to Python | Mr. Sourav Nandi, Symphony AI |
| 2.15-3.00 | Theory | Dimensionality Reduction (PCA, FA) | Mr. Atanu Ghosh, Presidency University |
| 3.15-4.00 | Lab | Implementing PCA and FA in R | Mr. Atanu Ghosh, Presidency University |
| **Day 4: July 28`** | | | |
| 10.15-10.45 | Video lecture | Introducing CART | Prof. Arnab Chakraborty, ISI Kolkata |
| 11.00-11.45 | Theory | Regression Tree and MARS | Dr. Munmun Biswas, BKC College |
| 12.00-12.45 | Lab | Implementing MARS in R | Dr. Munmun Biswas, BKC College |
| 2.15-3.00 | Theory | Ensemble Learning (Random Forest, Bagging) | Mr. Srijit Mukherjee, ISI Kolkata |
| 3.15-4.00 | Lab | Implementing Random forest in R | Mr. Srijit Mukherjee, ISI Kolkata |
| Day 5: **July 29** | | | |
| 11.00-11.45 | Theory | Introduction to Clustering & k-mean algorithm | Mr. Swarup Chattopadhyay, ISI Kolkata |
| 12.00 - 12.45 | Lab | Application in R | Mr. Swarup Chattopadhyay, ISI Kolkata |
| 2.15 - 3.00 | Theory | Spectral Clustering | Ms. Aparajita Khan, ISI Kolkata |
| 3.15 - 4.00 | Lab | Application in R | Ms. Aparajita Khan, ISI Kolkata |
| Day 6: **July 30** | | | |
| 11.00 – 11.45 | Theory | Fundamentals of Neural Nets | Mr. Tanujit Chakraborty, ISI Kolkata |
| 12.00 – 12.45 | Lab | ANN in Python | Mr. Tanujit Chakraborty, ISI Kolkata |
| 2.15 – 3.00 | Theory | Deep Learning | Mr. Bikash Santra, ISI Kolkata |
| 3.15 – 4.00 | Lab | Hands on Deep Learning in Python | Mr. Bikash Santra, ISI Kolkata |
| Day 7: **July 31** | | | |
| 11.00 - 11.45 | Theory | Forecasting Models | Dr. Raju Maiti, Duke-NUS, Singapore |
| 12.00 -12.45 | Lab | Forecasting model in R (ARIMA) | Dr. Raju Maiti, Duke-NUS, Singapore |

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| 2.15 – 3.00 | Theory | Market Basket Analysis | Mr. Sourav Maji, Flipkart |
| 3.15 – 4.00 | Lab | Application in R | Mr. Sourav Maji, Flipkart |