

**Report**  
**Faculty Development Programme**

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**Exploratory Data Analysis using Statistical Software R and SPSS**

The seven day Faculty Development Programme on **Exploratory Data Analysis using Statistical Software R and SPSS** was organized by Department of Statistics and Internal Quality Assurance Cell of Mata Sundri College for Women in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College (initiative of MHRD, Govt of India under Pandit Madan Mohan Malviya National Mission on Teachers and Teaching scheme) from 7th January 2021 to 13th January 2021. The programme was attended by 150 participants from across the country and also abroad. The intellectually stimulating programme was enriching and proved to be helpful in improving analytical skills of the faculty and research scholars who attended the session.

Dr. Archana Verma, Assistant Professor, Department of Statistics, Mata Sundri College for Women, welcomed all the participants. This was followed by a formal introduction to the program by Ms. Prabhsharan Kaur, teacher in-charge, Department of Statistics. Opening remarks for the event were given by our respected Principal Prof (Dr.) Harpreet Kaur. Dr. Lokesh Kumar Gupta, Coordinator (IQAC) gave a brief account of the activities being carried out in Mata Sundri College for Women during the Covid pandemic. The programme progressed with an inaugural lecture by Prof Vikram Dayal, Institute of Economic Growth in which he focussed on how visualization is critical to data analysis and data graphics give us great insights about the data and how that can be done with ease in 'R'. The inaugural programme ended with a formal vote of thanks by Dr. Swati Kujal. The next speaker of the day was Dr. Seema Gupta, Associate Professor, Ram Lal Anand College, Delhi University, who gave an introductory lecture on statistical methods, graphics, probability distribution and hypothesis testing.

The second day started with a lecture by Dr. Babita Goyal, Associate Professor, Ramjas College, University of Delhi. She discussed Statistical Modelling and Model Diagnostics. Participants discussed various aspects with the speaker which continued till break. The next lecture of the day was given by Dr. Hukum Chandra, National Fellow & Principal Scientist, ICAR-IASRI. This was an introductory lecture on 'R' programming. Since it was a hands-on session, the participants found it very engaging and gave an overwhelming response. The speaker addressed all the queries of participants patiently and this marked the end of second day.

The third day began with Dr. Hukum Chandra, who continued his session on 'R' software. He explained data entry and its basic functionalities; demonstrated installation of packages in R script; showed how to read and write data files and how to use data editor module in R. He also advised the participants to explore extensive online help available for R and practice themselves. After a short break, the next session by Dr Chandra continued to discuss some of the most basic statistical tests in R. He even discussed few of the discrete and continuous distributions and their fitting. The participants clarified their doubts and showed great enthusiasm throughout the session.

The fourth day was a break day which gave an opportunity to the participants to review and practice the content covered.

On the fifth day Dr Chandra delivered a concluding session and covered graphical representation in R. He discussed how we can plot various graphs and even customize them in R script. He also discussed correlation and how to perform basic regression analysis in R with built-in data set. The participants were satisfied with the very useful, informative and well explained session. The second session of the day was taken by Dr. Pradip Basak, Assistant Professor, Department of Agricultural Statistics, Uttar Banga Krishi Viswavidyalaya, West Bengal. He discussed Multivariate techniques like principal component analysis, cluster analysis and factor analysis in R. After attending sessions on R, participants were contented as they could understand the reasons of its immense popularity in academia.

On the sixth day, Dr. Suresh Kumar Sharma, Professor, Department of Statistics, Punjab University, Chandigarh, discussed the key concepts of descriptive statistics. Demonstrating hands-on he familiarized all with the data editor and explained how to enter the data in SPSS and import excel files in it. The session was engaging and imparted great conceptual clarity and knowledge to work in SPSS. In the following session, Dr. Sharma focussed on graphical representation of data. He talked about various commands and pathway for plotting graphs in R. He also discussed linear and multiple regression in detail. Performing hands-on with data sets he also showed how to read the outputs in SPSS.

On the seventh day, Dr Sharma delivered a concluding session and discussed basics of statistical inference, hypothesis testing, concepts of p-value and various statistical tests in SPSS. The participants appreciated his sessions for being informative and enriching. This was followed by a small valedictory session wherein Ms. Prabhsharan Kaur thanked all the organizing team members of both the colleges, speakers and the participants. Participants also shared their views regarding the course content of the FDP and gave a unanimous view that this one week FDP was very well organized and course content was immensely informative and enriching. Dr Lokesh Kumar Gupta

also thanked everyone and shared his views. The programme report was read by Dr Swati Kujal and the formal vote of thanks was given by Dr Archana Verma which concluded the seven day FDP.