



AIU-DEI-AADC



**Report on 10 days Faculty Development Programme**

**on**

**Statistics in Education and Social Sciences Research**

**May 22, 2024 to May 31, 2024**

## Executive Summary

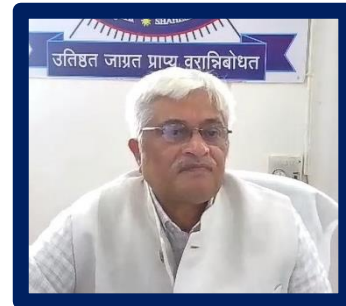
The Association of Indian Universities-Dayalbagh Educational Institute-Academic and Administrative Development Center (AIU-DEI-AADC) and Faculty of Education, DEI organized a 10-day Faculty Development Programme on *Statistics in Education and Social Sciences Research* from 22.05.2024 to 31.05.2024.

The FDP offered a valuable opportunity to delve into the significance of statistics in research. The programme was specifically designed to emphasize the 'R' software for Data Analysis. R is widely acknowledged as one of the most preferred open-source analytics and data science languages. Its cross-platform compatibility and capability to handle large and complex datasets make it an excellent tool for researchers to analyze data in their respective labs. The program, held in hybrid mode, was attended by eighty-eight participants from various locations. The course content was delivered by 16 esteemed resource persons in 20 technical sessions.

## Resource Persons

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**Prof. Manoj Kumar Shrivastava**  
Vice Chancellor, Shaheed Mahendra Karma  
Vishwavidyalaya, Bastar



**Prof. Shalabh**  
Professor, Department of Mathematics  
and Statistics, IIT Kanpur



**Prof. Namita Srivastava**  
Professor, St. Johns College, Agra



**Prof. Abid Siddiqui**  
Professor, Aligarh Muslim University, Aligarh



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**Prof. Ajay Surana**

Professor & Head, Faculty of Education,  
Banasthali Vidyapith, Rajasthan



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**Prof. Ravins**

Professor, Jamia Milia Islamia,  
Delhi



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**Prof. N. C. Ojha**

Professor, Regional Institute of Education,  
NCERT, Bhopal



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**Dr. Keerti Jain**

Assistant Professor, NIIT University,  
Neemrana Rajasthan



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**Dr. Manoj Kumar**

Assistant Professor, Centre for Economic Studies and Planning, Jawaharlal Nehru University, New Delhi,  
Postdoctoral Associate, Bio-Statistics,  
Health Economics, University of Pittsburgh, USA



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**Dr. Ashwani Garg**

Associate Professor, Regional Institute of Education, NCERT, Bhopal



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**Dr. Anup Kumar**

Associate Professor, Department of Biostatistics and Health Informatics Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow



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**Prof. NPS Chandel**

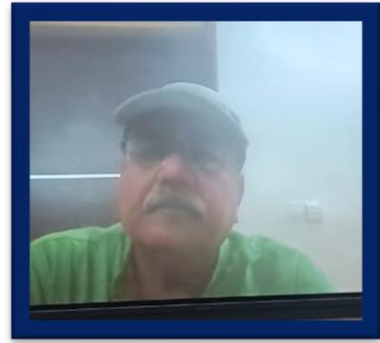
Professor, Faculty of Education  
Dayalbagh Educational Institute, Dayalbagh,  
Agra



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**Prof. Gursaran**

Professor, Department of Mathematics,  
Dayalbagh Educational Institute, Agra



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**Prof. Rupali Satsangi**

Professor, Department of Economics,  
Dayalbagh Educational Institute, Dayalbagh,  
Agra



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**Dr. Preet Kumari**

Associate Professor, Department of Psychology,  
Dayalbagh Educational Institute, Dayalbagh,  
Agra



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**Dr. C.L. Singh**

Associate Professor, Faculty of Education  
Dayalbagh Educational Institute, Agra



# Programme Schedule

Time Date	10:00am-12:00pm	12:00pm-12:30pm	12:30pm-2:30pm
Day 1 22.05.2024 (Wednesday)	<b>Inaugural Ceremony</b> (10:00 am-10:30 am)	<i>Lunch Break</i>	Installation of R and data handling in R <i>Dr. Keerti Jain</i>
	Introduction of R in Statistics <i>Prof. Gursaran</i>		Installation of R and data handling in R <i>Dr. Keerti Jain</i>
Day 2 23.05.2024 (Thursday)	Correlation <i>Prof Abid Siddiqui</i>		Regression and multiple regression <i>Prof. Ravins</i>
Day 3 24.05.2024 (Friday)	Correlation, Regression and multiple regression and its computation in R <i>Prof. Shalabh</i>		Data visualization using R <i>Prof. Gursaran</i>
Day 4 25.05.2024 (Saturday)	Introduction of Testing of Path Analysis <i>Dr. C. L. Singh</i>		Testing of Hypothesis in R <i>Dr. Keerti Jain</i>
Day 5 26.05.2024 (Sunday)	Normal Probability Curve and Testing of Normality of Data <i>Prof. NPS Chandel</i>		Descriptive statistics in R <i>Prof. Namita Srivastava</i>
Day 6 27.05.2024 (Monday)	Significance and Reliability of Statistics & Parametric Statistics <i>Prof. N. C. Ojha</i>		Parametric Tests and their computation in R <i>Prof. Namita Srivastava</i>
Day 7 28.05.2024 (Tuesday)	Introduction of Non-parametric statistics <i>Dr. Preet Kumari</i>		Non-parametric Tests and their computation in R <i>Prof. Namita Srivastava</i>
Day 8 29.05.2024 (Wednesday)	Analysis of Data Using Network Science <i>Prof. Ravins</i>		ANOVA & ANCOVA <i>Prof. Ajay Surana</i>
Day 9 30.05.2024 (Thursday)	ANOVA & ANCOVA in R <i>Dr. Manoj Kumar</i>		When to use different statistical techniques in research <i>Dr. Ashwani Garg</i>
Day 10 31.05.2024 (Friday)	Introduction to Multivariate Analysis, MANOVA & Factor Analysis <i>Prof. Rupali Satsangi</i>	Introduction to Multivariate Analysis, MANOVA & Factor Analysis through R <i>Prof. Manoj Kumar Shrivastava</i>	
		<b>Closing Ceremony</b> (2:30 pm-03: 00 pm)	

# Inaugural Ceremony



The programme's inauguration took place on May 22, 2024. Prof. Nandita Satsangi, the Dean of the Faculty of Education, DEI warmly welcomed guests and participants. The convener, Prof. N P S Chandel elucidated the programme's objectives. Prof. C. Patvardhan, the Director of Dayalbagh Educational Institute (Deemed to be University), underscored the

importance of developing computational skills through various software and programmes and handling and analysing big data. Prof. Manoj Kumar Srivastava, the Vice-Chancellor of Shaheed Mahendra Karma Vishwavidyalaya, Bastar, delivered the inaugural address, stressing the significance of statistics in social science and educational research. Prof. Gursaran from the Department of Mathematics, Faculty of Science, DEI conducted a lecture on the Introduction of 'R'



programming in statistics, elucidating the basic concepts of statistics. Prof. Savita Srivastava extended her gratitude to all the experts and participants in her vote of thanks. In the second session of the first day, Dr. Keerti Jain from NIIT University, Neemrana, Rajasthan, delivered a lecture on the installation of 'R' and data handling in 'R'.



## Programme Sessions

In the initial session of the second day of the programme, Prof. Abid Siddiqui from the Department of Education at Aligarh Muslim University in Aligarh provided a comprehensive introduction to various types of correlation and their applications in research.



Following that, Prof. Ravins from the Department of Mathematics at Jamia Millia Islamia in Delhi, conducted a lecture on Regression and Multiple Regression, discussing their relevance in research.

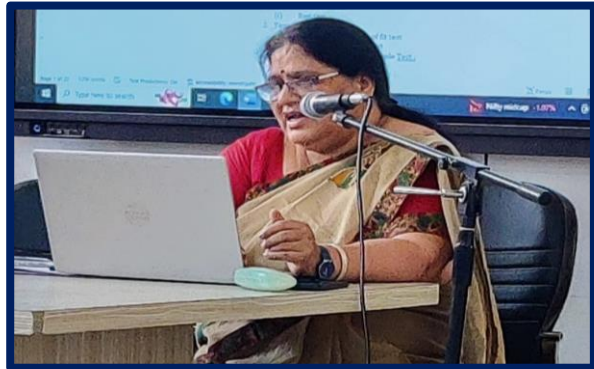


On the third day, the initial session was led by Prof. Shalabh from the Department of Mathematics and Statistics at IIT Kanpur. Prof. Shalabh delivered a comprehensive introduction to Regression and Multiple Regression, along with practical demonstrations using R. The following session was conducted by Prof. Gursaran, a distinguished faculty member at the Department of Mathematics, DEI. Prof. Gursaran enlightened the participants on the topic of Data Visualization using R.



During the first session of the fourth day of the FDP, Dr. C. L. Singh, an Associate Professor

from DEI, provided a lecture on path analysis and conducted hands-on practice of correlation and regression using R. In the second session, Dr. Keerti Jain, an Assistant Professor from NIIT University, explained hypothesis testing using R and gave the participants hands-on experience with the software.



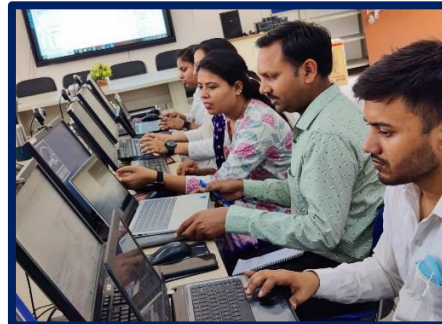
During the first session of the fifth day, Prof. NPS Chandel provided attendees with a comprehensive understanding of the Normal Probability Curve and Testing of the Normality of Data. The session also delved into the applications of Normal probability in educational and social sciences research.

In the subsequent session, Prof. Namita Srivastava from St. Johns College, Agra delivered a talk on Descriptive Statistics in R. She elucidated various statistical tests under parametric statistics and provided hands-on experience with Descriptive Statistics in R.



During the first session of day six, Prof. N.C. Ojha from the Regional Institute of Education, NCERT Bhopal, discussed the importance and reliability of statistics and parametric statistics. The second session was led by Prof. Namita Srivastava from the Department of Education at

St. Johns College, Agra, who conducted a detailed session on parametric tests and their computation in R.



During the first session of day seven, Dr. Preet Kumari, Associate Professor at the Department of Psychology, Dayalbagh Educational Institute, Agra, discussed the applications of Non-Parametric Statistical Techniques in research.



Following that, Prof. Namita Srivastava from the Department of Education, St. Johns College, Agra, conducted the second session on non-parametric tests and their computation in R. The participants found the sessions valuable as they gained insights into the applications of R in statistical analysis and data visualization and were actively engaged with the resource persons.

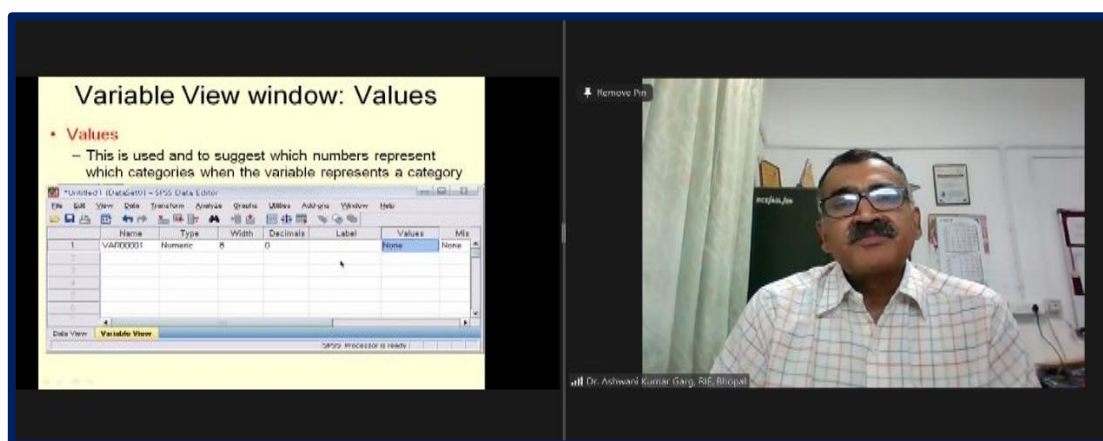


On the eighth day, Prof. Ravins Dohare from Jamia Millia Islamia, Delhi, presented a detailed analysis of data using network science and its applications in research. The second session was

led by Prof. Ajay Surana from Banasthali Vidyapeeth, Rajasthan. He delivered a lecture on ANOVA & ANCOVA, explaining the different types of ANOVA tests along with their calculations.



On the ninth day of FDP, the first session was led by Dr. Manoj Kumar, Assistant Professor at the Center for Economic Studies and Planning, Jawaharlal Nehru University, New Delhi. Dr. Kumar, who previously worked as a Post-Doctoral Associate in Biostatistics and Health Economics at the University of Pittsburgh, USA, delivered a lecture on the topic 'ANOVA & ANCOVA in R'. He comprehensively explained ANOVA & ANCOVA and demonstrated how to use R-programming software to conduct these tests. The participants deeply understood the concepts, and their questions were expertly addressed.

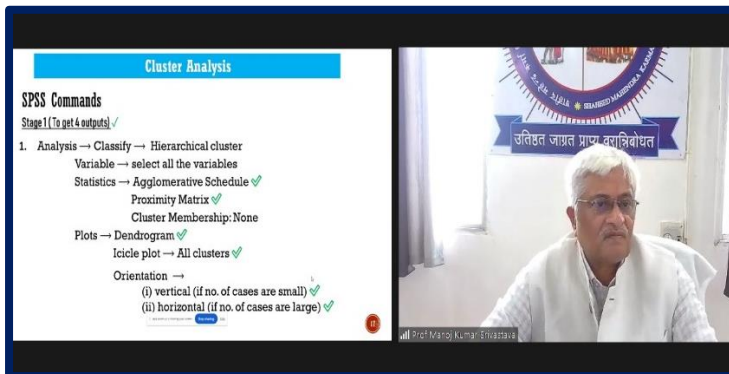


Following this, Dr. Ashwani Garg, Assistant Professor at the Regional Institute of Education, NCERT, Bhopal, gave a talk on the topic 'When to Use Different Statistical Techniques in

Research'. Dr. Garg facilitated hands-on practice to illustrate its application, and participants actively engaged in the query session by asking pertinent questions.



During the final day of the FDP, the first session was led by Prof. Rupali Satsangi, a faculty member of the Department of Social Sciences at DEI. She delivered a captivating lecture on Factor Analysis, beginning with the fundamentals before delving into the calculation process using SPSS. The session was highly engaging and interactive.



Following this, the second lecture was delivered by Prof. Manoj Kumar Shrivastava, the Vice Chancellor of Shaheed Mahendra Karma Vishwavidyalaya, Bastar. His talk on Cluster Analysis and its steps was presented clearly and effectively. Lastly, Dr. Anup Kumar, an Associate Professor from the Department of Biostatistics at Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, delivered a comprehensive lecture on Factor Analysis in R.

The twenty technical sessions were overseen by a distinguished panel of chairpersons, including Prof. Nandita Satsangee, Prof. NPS Chandel, Prof. Savita Srivastava, Prof. P. S.

Tyagi, Prof. Lajwanti, Prof. Sona Ahuja, Prof. Meenu Singh, Dr. C.L. Singh, and Dr. Neha Jain from the Faculty of Education, DEI.



At the valedictory session, the guests were warmly welcomed by Prof. NPS Chandel. Dr. Neha Jain presented the report of the FDP, and two participants shared their positive feedback, emphasizing the success of the FDP in enhancing participants' understanding of statistical concepts and their practical applications through various statistical software.



Certificates were then distributed to the participants, and a heartfelt expression of gratitude was extended to the DEI administration, AIU team, resource persons, session chairs, organizing committee members, technical staff, and students for their seamless teamwork by Prof. Savita

Srivastava. Dr. Shalini Verma, Dr. Manu Sharma, Dr. Mugdha Sharma, Dr. Anjana Verma, Dr. Preeti Sharma, Dr. Kalpana Gupta, Mrs. Rinki Satsangee, Dr. Pooja Verma, Dr. R Jeyam, and Mr. Arjun made significant efforts in ensuring the success of the programme. Prof. Jyoti Gogia, the Nodal Office AIU-DEI-AADC, made valuable contributions to the organization of the programme.

**DEI Advisors**

Prof. C. Patvardhan, Director, DEI  
Mrs. Sneh Bijlani, Treasurer, DEI  
Prof. Anand Mohan, Registrar, DEI

**AIU Advisors**

Dr. Pankaj Mittal, Secretary General, AIU  
Dr. Amarendra Pani, Joint Director & Head, Research Division, AIU

**Programme Convener**

Prof. N.P.S. Chandel  
Head, Department of Foundations of Education, DEI

**Organising Committee**

Prof. N.P.S. Chandel, Faculty of Education, DEI  
Prof. A. K. Kulshrestha, Faculty of Education, DEI  
Prof. Sona Ahuja, Faculty of Education, DEI  
Dr. Chhavi Lal, Faculty of Education, DEI  
Dr. Neha Jain, Faculty of Education, DEI  
Dr. Shalini Verma, Faculty of Education, DEI

**AIU-DEI-AADC Nodal Officer**

Prof. Jyoti Gogia  
Department of Economics, DEI

