

ICAR sponsored Winter School  
on

## Modern Data Analytics and Statistical Tools for Smart Experimentation

(January 29 - February 18, 2026)

Course Director

Dr. Cini Varghese

Course Co-Directors

Dr. Anindita Datta

Dr. Mohd Harun

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Information to selected candidates December 31, 2025



ICAR - Indian Agricultural Statistics Research Institute  
Library Avenue, Pusa, New Delhi  
<https://iasri.res.in/>



### Introduction

Statistics provides powerful tools for data collection, analysis, summarization, and inference essential for drawing reliable conclusions in the face of uncertainty. These tools have played a key role in developing and refining technologies in agricultural research. Modern methodologies such as descriptive and inferential statistics, multivariate analysis, statistical modeling, and design of experiments are vital for technological advancement and smart experimentation. This course emphasizes the integration of modern data analytics and statistical tools to enable smart experimentation where efficient design, data-driven insights, and advanced computation come together to enhance research outcomes. Participants will gain hands-on experience in designing experiments, analyzing complex data, and interpreting results using advanced software tools like R, Excel, and SAS. Aimed at researchers under the National Agricultural Research and Education System (NARES), the course focuses on strengthening analytical capabilities and fostering a deeper understanding of modern statistical techniques. With its practical orientation, it combines lectures and exercises using advanced computing facilities, ensuring participants can effectively apply statistical methods for intelligent and efficient experimentation.

### Objectives

- To familiarize participants with modern data analytics and statistical tools for smart experimentation to help them make valid inferences from their agricultural research
- To acquaint the participants with the use of statistical software packages for data analysis
- To help in upgrading the analytical skills of the participants under NARES

### Course Contents

The course has been structured in a series of modules with classroom lectures and hands on sessions. The course deals with statistical tools and techniques and the use of statistical software packages. The main focus of the course will be on the statistical issues in agricultural research. Besides laying the focus on concepts and applications, focus would also be concentrated on analysis of data using statistical packages. Reference manual will be provided to all participants. The participants are requested to bring with them one or two data sets of their own research. These data sets may be analyzed using appropriate statistical techniques and the results may be discussed during the training programme. The participants will be given opportunity to express their research experiences in the field of their specialization.