Virtual Training Programme on
Statistics and Informatics in Experimental Data Management & Analysis
for Research Scholars of NARES
under CAAST-NAHEP
Date of Training Program
February 23– March 04, 2021

Course Director
• Dr. Seema Jaggi
• Dr. Sudeep

Course Coordinator
• Dr. Anindita Datta
• Dr. Soumen Pal
• Mr. Sanjeev Kumar

Advisory Board
ICAR-IASRI
• Dr. Rajender Parsad
  Director

ICAR-IARI
• Dr. Viswanathan Chinnusamy
  PI, CAAST-NAHEP
• Dr. Ashok Kumar Singh
  Director

ICAR-NAHEP
• Dr. Prabhant Kumar
  National Coordinator (CAAST)
• Dr. Rakesh Chandra Aggarwal
  ND (ICAR-NAHEP) and DDG (Edn.) ICAR, New Delhi

ICAR- Indian Agricultural Statistics Research Institute
Library Avenue, Pusa, New Delhi
Introduction

Data management and its analysis plays a crucial role in any scientific investigation. It is through the data collected from designed experiments that valid inferences are drawn about any newly developed technology. The use of efficient and cost-effective designs and appropriate statistical techniques for analyzing the data are very crucial to obtain a meaningful interpretation of the investigation. With the help of statistical software and other computational techniques, one can handle any kind of analysis. It is very vital for the agricultural researchers and research scholars to be acquainted with the efficient design of experiments, modern statistical techniques and use of statistical software.

This course, therefore, aims to update the analytical skills of the agricultural research scholars under National Agricultural Research and Education System (NARES) and to provide them with an opportunity to study and learn design of experiments and analytical techniques of experimental data along with the use of statistical software for data analysis like SAS, R, SPSS.

Database Management and Artificial Intelligence Techniques have revolutionized the way traditionally the data management and its analysis are done. With these techniques, huge amount of data from heterogeneous sources and types can be analysed and interpreted. The course will also expose the participants with these latest techniques. The course is practical oriented and more emphasis would be given on interpretation of the results.

Objectives

01 To familiarize the participants with the experimental designs and statistical techniques for analysis of data for making valid inferences from their agricultural research

02 To acquaint the participants with the use of statistical software packages for data analysis

03 To provide exposure to latest Computational and Artificial Intelligence techniques for agriculture research

04 To help in upgrading the analytical and computational skills of the participants under NARES

Course Contents

The course has been structured in a series of modules with online lectures and hands on session. 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 and informatics applications in agricultural research.

Besides laying the focus on concepts and applications, the focus would also be concentrated on analysis of data using statistical packages. Reference material will be provided to all participants.

The course content will be divided into four modules as follows:

Module I: Basic Statistical Tools for Data Analysis
- Descriptive Statistics
- Exploratory Data Analysis
- Testing of Hypothesis (t-test, F-test, Chi-square test)
- Analysis of Variance (ANOVA)
- Data Diagnostics and Remedies
- Correlation and Regression Analysis
- Non-parametric Tests
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Module II: Data Generation and Analytical Techniques

- Planning and Designing of Agricultural Experiments
- Basic Experimental Designs
- ANCOVA/ MANOVA/MANCOVA
- Multiple Comparison Procedures
- Incomplete Block Designs
- Groups of Experiments
- Multifactor Experiments
- Response Surface Designs
- Repeated Measures Analysis
- Designs for Breeding Trials
- Data Classificatory Techniques: Cluster and Discriminant Analysis
- Statistical Modelling
- Data Reduction Techniques: Principal Component and Factor Analysis

Module III: Database Management and Artificial Intelligence Techniques

Module IV: Statistical and Computational Software/ Online Resources for Data Analysis

- R
- SAS
- MS SQL Server
- Protege
- KRISHI Portal
- TensorFlow
- Design Resource Server & statistical computing portal

Eligibility

- Research Scholars of NARES
- Working knowledge of Statistics and Computer

Nominations

Interested research scholars fulfilling the eligibility conditions may apply by email duly recommended by their institute/university.

Online Mode

The course will be conducted in the online mode. The participants will be sent the link address on their email. The participants are expected to have a laptop/desktop with good internet connectivity.
Last date for receipt of Applications
February 16, 2021

Information to Selected Candidate
February 18, 2021

All correspondence may be addressed to:

- **Dr. Anindita Datta**
  Scientist, Division of Design of Experiments, ICAR-IASRI
  E-mail: anindita.datta@icar.gov.in
  Phone: +91 9013593351

- **Dr. Soumen Pal**
  Scientist, Division of Computer Applications, ICAR-IASRI
  E-mail: Soumen.Pal@icar.gov.in
  Phone: +91 88511 28547

- **Mr. Sanjeev Kumar**
  Scientist, IT unit, ICAR-IASRI
  E-mail: Sanjeev.Kumar@icar.gov.in
  Phone: +91 9250622537
APPLICATION FORM

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Full Name (in block letter):

Date of Birth:

Sex (Male / Female)

Address:

Telephone No.

E-mail:

 Discipline:

Educational Qualification:

<table>
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<tr>
<th>Degree</th>
<th>University</th>
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Level of knowledge of Statistics and Computer usage:

Have you attended any course/training earlier on this topic? If yes, give details:

Signature of the Applicant with Date

Recommendations of the Forwarding Institute

Signature of the Forwarding Authority with Seal and Date