

**NAHEP sponsored Training programme**  
**on**  
**“High Dimensional Genome Data Analysis by R and Open Source Tools”**  
**(November 01-11, 2019)**

**Class Schedule**

<b>Day 1</b>	<b>Friday, 01<sup>st</sup> November, 2019</b>	
9:30-10:00	Registration	
10:00-11:30	High Dimensional Genome Data Analysis –An overview	Dr. A.R. Rao
11:45-13:15	Overview on R and R-Studio (Basics commands & Data handling)	Dr. Soumen Pal
14:15-16:45	Practical on Descriptive Statistics and Linear models using R	Dr. Soumen Pal
17:00-18:30	Practical on Transcriptomics Data analysis	Dr. A.R. Rao and Mrs. Sarika Sahu
<b>Day 2</b>	<b>Saturday, 02<sup>nd</sup> November, 2019</b>	
09:30-11:30	<b>Inauguration Programme:</b>	
	Lightning of Lamp	
	Welcome Address: Director, ICAR-IASRI	
	About Training Programme: Dr A. R. Rao, Course Director, Core Team Member, NAHEP-CAAST, ICAR-IASRI	
	Students' and Faculty introduction	
	Remarks: Dr. A. K. Singh, Director, ICAR-IARI	
	Remarks: Dr. R. C. Agrawal, National Director, NAHEP & DDG Education, ICAR	
	Inaugural Address: Dr. T. Mohapatra, Secretary, DARE & DG, ICAR	
	Vote of thanks: Sh Sanjeev Kumar, Course Coordinator, Associate Team Member, NAHEP-CAAST, ICAR-IASRI	
	Photo Session	
11:45-13:15	R-Graphics	Dr. P. K. Meher & Mr. S. Satpathy
14:15-16:45	Testing of Hypothesis and analysis Experimental Design	Dr. Seema Jaggi
	Practical on Testing of Hypothesis and analysis Experimental Design using R	Dr. B.N. Mandal
17:00-18:30	Visit to National Agricultural Science Museum, National Agricultural Science Centre campus, ICAR, New Delhi	
<b>Sunday, 3<sup>rd</sup> November, 2019-HOLIDAY</b>		
<b>Day 3</b>	<b>Monday, 4<sup>th</sup> November, 2019</b>	
10:00-11:30	Big Data Analytics for Bioinformatics	Dr. Dinesh Gupta
11:45-13:15	R for High Dimensional Genome Data Analysis	Dr. S. Bhattacharjee
14:15-16:45	R for Biomolecular Sequence Data	Dr. P. K. Meher, Dr. A. R. Rao & Dr. T. K. Sahu
17:00-18:30	Analysis of Molecular Variance	Dr. A. R. Rao

<b>Day 4</b>	<b>Tuesday, 5<sup>th</sup> November, 2019</b>	
10:00-11:30	Genome Assembly	Sh. Sanjeev Kumar
11:45-13:15	Genome Annotation	Sh. Sanjeev Kumar
14:15-16:45	Practical on Genome Assembly and Annotation	Sh. Sanjeev Kumar & Mrs. Sarika Sahu
17:00-18:30	Practical on Biomolecular Sequence Encoding	Dr. T. K. Sahu
<b>Day 5</b>	<b>Wednesday, 6<sup>th</sup> November, 2019</b>	
10:00-11:30	Genome Editing	Dr. Suresh Kumar
11:45-13:15	Machine learning techniques (SVM, ANN, RF and Clustering Techniques)	Sh. Sanjeev Kumar
14:15-16:45	Practical on Machine Learning using R	Sh. Sanjeev Kumar & Dr. T. K. Sahu
17:00-18:30	Genome editing practical	Dr. A. R. Rao & Mrs. Sarika Sahu
<b>Day 6</b>	<b>Thursday, 7<sup>th</sup> November, 2019</b>	
10:00-11:30	Genome Wide Association Study (GWAS)-Statistical View Point	Dr. Anil Rai
11:45-13:15	Visit to Advanced Super-computing Hub for OMICS Knowledge in Agriculture (ASHOKA)	Dr. K. K. Chaturvedi
14:15-16:45	Principal Component Analysis and Discriminant Analysis	Dr. P. K. Meher
17:00-18:30	Practical on Phylogenetic Analysis	Dr. T. K. Sahu
<b>Day 7</b>	<b>Friday, 8<sup>th</sup> November, 2019</b>	
10:00-11:30	Genome Wide Association Study (GWAS)	Dr. S. Bhattacharjee
11:45-13:15	Practical on GWAS	Dr. S. Bhattacharjee
14:15-16:45	Practical on Protein Structure Prediction	Dr. T. K. Sahu
17:00-18:30	Practical on Genomic Selection and SNP Analysis	Dr. A. R. Rao, Mrs. Sarika Sahu & Mr. S. Satpathy
<b>Day 7</b>	<b>Saturday, 9<sup>th</sup> November, 2019</b>	
10:00-11:30	Application of Bioinformatics in Nematology	Dr. Uma Rao
11:45-13:15	Visit to Nanaji Deshmukh Plant Phenomics Centre, ICAR-IARI	
14:15-16:45	Genetic Analyses Of Quantitative Traits: Challenges And Caveats	Dr. Saurabh Ghosh
<b>Sunday, 10<sup>th</sup> November, 2019-HOLIDAY</b>		
<b>Day 8</b>	<b>Monday, 11<sup>th</sup> November, 2019</b>	
10:00-11:30	Plant Phenomics	Dr. Viswanathan C.
11:45-13:15	Practical on Phenomics Data Analysis	Sh Sanjeev Kumar
14:15-15:00	<b>Interaction and Post Training Evaluation</b>	
15:00-16:30	<b>Valedictory function and certificate distribution</b>	

11:30-11:45: Tea

13:15-14:15: Lunch

16:45-17:00: Tea

## List of Resource Persons

S.No.	Name	Designation	Affiliation	email
<b>External Resource Persons</b>				
1.	Dr. Dinesh Gupta	Group leader	Translational Bioinformatics, International Centre for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg, New Delhi	dinesh@icgeb.res.in
2.	Dr. S. Bhattacharjee	Assistant Professor	National Institute of Biomedical Genomics, West-Bengal	sb1@nibmg.ac.in
3.	Dr Suresh	Principal Scientist	Division of Biochemistry, ICAR-Indian Agricultural Research Institute	sureshkumar@iari.res.in
4.	Dr. Uma Rao	Head & Principal Scientist	Division of Nematology, ICAR-Indian Agricultural Research Institute	umarao@iari.res.in
5.	Dr. Saurabh Ghosh	Professor	Human Genetics Unit, Biological Sciences Division, Indian Statistical Institute, Kolkata	saurabh@isical.ac.in
6.	Dr. Viswanathan C.	Head & Principal Scientist	Division of Plant Physiology, ICAR- Indian Agricultural Research Institute, New Delhi-12	viswanathan@iari.res.in
7.	Dr. Pritish Varadwaj	Associate Professor	Indian Institute of Information Technology Allahabad	pritish.varadwaj@gmail.com
<b>Internal Resource Persons</b>				
8.	Dr Anil Rai	Head	Centre for Agricultural Bioinformatics in ICAR-Indian Agricultural Statistics Research Institute, New Delhi	anil.raai@icar.gov.in
9.	Dr. Seema Jaggi	Head & Professor	Division of Design of Experiment, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	seema.jaggi@icar.gov.in
10.	Dr. A.R. Rao	Principal Scientist & Professor	Centre for Agricultural Bioinformatics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	ar.rao@icar.gov.in
11.	Sh. Sanjeev Kumar	Scientist	Centre for Agricultural Bioinformatics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	sanjeev.kumar@icar.gov.in
12.	Dr. Soumen Pal	Scientist	Division of Computer Applications, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	soumen.pal@icar.gov.in

13.	Dr. B.N. Mandal	Scientist	Division of Design of Experiments, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	bn.mandal@icar.gov.in
14.	Dr. Prabina Kumar Meher	Scientist	Division of statistical Genetics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	prabina.meher@icar.gov.in
15.	Dr. Tanmaya Kumar Sahu	Research Associate	Centre for Agricultural Bioinformatics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	tanmayabioinfo@gmail.com
16.	Mrs. Sarika Sahu	Research Associate	Centre for Agricultural Bioinformatics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	sahusarikaiita@gmail.com
17.	Mr. Subhrajit Satpathy	PhD. Scholar	Division of Agricultural Statistics, ICAR-Indian Agricultural Statistics Research Institute, New Delhi	satpathyasri@gmail.com

