

ICAR Winter School on

**“Application of Innovative Multiomics and Genetics for Enhancing Aquaculture Productivity”**

**(20<sup>th</sup> January - 09<sup>th</sup> February, 2026)**

**Application Form**

**1. Full Name (in block letters) :**

**2. Designation :**

**3. Date of Birth :**

**4. Sex :**

**5. Present employer and address :**

**6. Address for communication**

**(Including tel/mob/email) :**

**7. Area of research:**

**8. Professional experience:**

**9. Academic record (Graduation onwards) :**

**10. Demand Draft No..... Dated**

**..... of Rs 50/- for**

**registration of application**

**It is certified that the information furnished by me  
is true to the best of my knowledge**

**Signature of the Applicant**

**Date:**

**Place:**

**10. Recommendation of forwarding authority  
if any:**

**(Signature and seal of competent authority)**

**Name:**

**Designation:**

**DIRECTOR**

**Dr. P. K. Sahoo**

**COURSE DIRECTOR**

**Dr. J. K. Sundaray**

**COURSE COORDINATORS**

**Dr L. Sahoo, Dr J. Parhi and Dr. K. Murmu**



**For any enquiries regarding the programme,  
please contact:**

**Course Director:**

**Dr. J. K. Sundaray**

**Email: jsundaray@gmail.com**

**Tel. 0674 -2465421, 2465446**

**Mob. +91- 9437166872/**



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Productivity”**

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**Sponsored by**

**Indian Council of Agricultural Research,  
New Delhi**



**Organised by**

**Fish Genetics & Biotechnology Division  
ICAR- Central Institute of Freshwater  
Aquaculture**

**(Indian Council of Agricultural Research)  
Kausalyaganga, Bhubaneswar –751002, Odisha**

## INTRODUCTION

Multomics, encompassing genomics, transcriptomics, proteomics, metabolomics, epigenomics, and microbiome science, offer unprecedented opportunities to understand the molecular basis of economically important traits in aquatic species. Genetic technologies such as genome-wide association studies (GWAS), genomic selection (GS), and precise genome editing tools like CRISPR/Cas9 further amplify the potential of multomics. The ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA) is a premier Institute in Freshwater Aquaculture in India under the administrative control of the Indian Council of Agricultural Research (ICAR), New Delhi. The Fish Genetics and Biotechnology Division of the institute provides biotechnological tools to meet the requirements for increasing fish production. Molecular genetics approaches, such as DNA marker technology, DNA cloning, RNA technologies, transgenic techniques, CRISPR/Cas9 technology, and proteomic tools, have been utilised by the division to complement the traditional selective breeding program for genetic improvement. Tools such as mapping populations, DNA marker maps, EST databases, transcriptomes, whole genome sequences, etc. have been generated by the division recently to serve as genomic resources for the detection of quantitative trait loci (QTL) leading to marker-assisted selection (MAS) and genomic selection (GS). Additionally, the candidate gene approach to identifying and characterising genes involved in the reproductive processes of carps has been successful.

Considering the importance of cutting-edge molecular biology techniques, the Fish Genetics and Biotechnology Division is organising a winter school to refresh participants on recent advances in multomics-based applications for enhancing productivity.

## COURSE CONTENTS

- Biological Innovations
- Quantitative genetics - Fundamentals and applications
- Selective breeding programmes in Carps
- Making of genetically improved fish Ahr-Jayanti, CIFA- Amrit catla
- Recent advances in proteomic Analysis

- Genome manipulation in fish and its applications
- DNA markers and utility
- Genomic selection
- Bioinformatics: Basic tools and resources
- Protein modelling and drug discovery
- Molecular genetic analysis tools
- Modern tools in computational biology
- Broodstock diet and production of quality seed
- Microbiome and metabolome
- Insight into Next Generation sequencing
- Transcriptome sequencing and its applications
- Next Generation sequencing and data analysis
- Gene cloning & its applications in aquaculture
- Gene editing/CRISPR/Cas9 technology
- Disease resistance Rohu- A genetic Approach
- Recent advances in fish vaccinology
- Molecular tools for reproduction studies in fishes
- Nanotechnology in aquaculture

## COURSE MATERIAL

The Training Course Manual will be handed over to all participants at the beginning of winter school.

## WHO CAN APPLY?

Participants holding the rank of Asst. Professor/ Scientist or equivalent and above from NARS including SAUs, Deemed Universities, CAUs, KVks and other Agriculture and allied Science faculties of other Universities can apply. To encourage the underpinning of agricultural sciences with basic sciences and to address both fundamental and applied research problem, a few participants from the basic sciences would also be selected. A total of 25 participants will be selected for the programme.

## HOW TO APPLY

Interested candidates should send duly signed application form through proper channel to the Course Director by post or e-mail. Participants are advised to depart to Bhubaneswar only after the receipt of participation confirmation letter from the Course Director. Last date of receiving application is 15th December 20205. Intimation to selected candidates will be sent through email.

## TRAVEL AND ACCOMMODATION

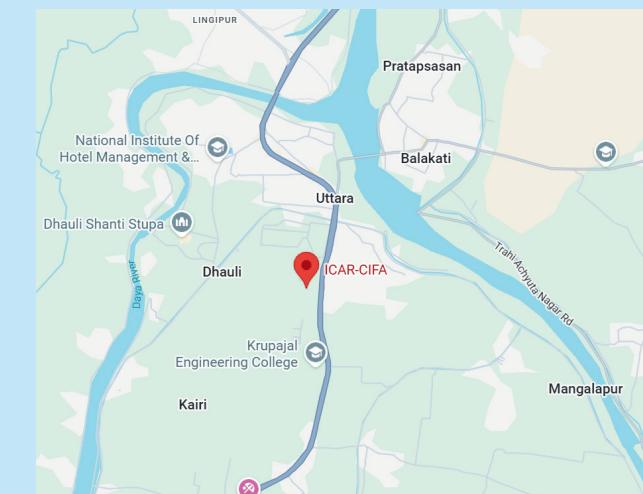
The participants will be paid for the to-and-fro journey fare, restricted to AC II-tier train fare or bus fare. TA will be paid from your place of duty to the Institute by shortest route as per ICAR guidelines. Accommodation and food would be provided to the participants in the Institute Guest House/ Trainees' Hostel free of cost and the amount will be borne by the organizer as per ICAR guidelines.

## REGISTRATION

There is no course fee, however a non-refundable registration fee of Rs. 50/- (Rupees Fifty only) is to be paid by way of a DD/IPO/UPI (drawn in favour of ICAR-CIFA Payable at SBI, Kausalyaganga, Bhubaneswar).

## HOW TO REACH

The Institute is located near to Uttara, Kausalyaganga, about 10 km from Bhubaneswar Railway station and 12 km from Biju Patnaik Airport.





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	<b>Name of Board/University</b>	<b>Year</b>	<b>Name of the degree</b>
Bachelor's Degree			
Master's Degree			
PhD			
Post-doc			

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Merchant Name : ICAR UNIT CIFA

UPI ID : cifa-icar@sbi



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