

# Newsletter



*School of Biological Sciences*

## AIPH University



*September 2024*



# Newsletter

## *School of Biological Sciences*

### EDITORIAL DESK

Welcome to the latest edition of the Newsletter from School of Biological Sciences, AIPH University. We are excited to present the remarkable achievements and milestones of our students and faculty and share about the different activities carried by the school during the month of September 2024.

This edition highlights the achievement and accomplishments spearheaded by our students, showcasing their dedication and passion for advancing the field of biological sciences.

Besides academic activities the students with great enthusiasm celebrated Teacher's day and Ganesh Puja.

Dr. Kimura Keishin, esteemed Chairperson of the Japan Yoga Therapy Society, graced the awareness program "Yogic Sciences and their application in our daily lives".

In addition to student activities, this newsletter features updates on faculty research and initiatives. Our faculty members are at the forefront of scientific analysis, and their work continues to inspire and mentor the next generation of scientists.

We hope you enjoy reading about the exciting developments within our school. Your support and engagement are invaluable.

We appreciate your continued support and involvement in our journey.

Warm regards,

**[Prof. Padan Kumar Jena]**

Chief Editor

### Editorial Team

1. Prof. Padan Kumar Jena, Dean, Chief Editor
2. Dr. Pradipta Ranjan Rauta, Associate Editor
3. Dr. Dhiraj Kumar Nanda, Associate Editor
4. Ms. Saipranga Prasant Panigrahi, Student Editor
5. Ms. Reetuparna Jena, Student Editor
6. Mr. Rakesh Roshan Mohanty, Student Editor

## Harmony in Diversity: Celebrating Multiculturalism at AIPH University

### Honoring the Pillars of Knowledge: A Celebration of Educators at AIPHU

On the auspicious occasion of Teacher's Day, AIPH University proudly felicitated its esteemed faculty members in recognition of their unwavering commitment and invaluable contribution to the realm of education.



The School of Biological Sciences at AIPH University celebrated Teacher's Day 2024 with a series of events showcasing the diverse talents of both students and faculty. Each department organized unique activities highlighting the innovative spirit and academic excellence of the institution. The day was marked by a sense of gratitude and respect for the educators who shape the future of science and research, fostering an environment of learning and discovery.



Teacher's Day celebration by MSc Students of School of Biological Sciences







**Teacher's Day celebration by PhD Students of School of Biological Sciences**

### **Echoes of Devotion: Ganesh Puja at the University Campus**

The Ganesh Puja celebration at AIPH University in 2024 promises to be a vibrant and spiritually enriching event. As the festival marks the birth of Lord Ganesha, known as the deity of wisdom and prosperity, the university campus adorned with colourful decorations and the air filled with the chants and prayers to the deity. The festivities included traditional rituals, cultural performances, and community feasts, embodying the essence of this auspicious occasion and fostering a sense of unity and cultural pride among the students and faculty. This harmonious blend of festivities provided a platform for students and faculty to engage in a meaningful cultural exchange, fostering a sense of community and shared learning.



## Integrating Mind, Body, and Breath: The Transformative Power of Yogic Sciences in Everyday Life

The recent conference at AIPH University on September 12, 2024, marked a significant stride in integrating Yogic Sciences into our daily lives. With the active participation of the School of Biological Sciences' students and faculty, the event illuminated the myriad ways in which yogic practices can bolster our physical, mental, and emotional well-being. The discussions underscored the scientific underpinnings of yoga, bridging ancient wisdom with modern biological insights, and fostering a holistic approach to health and education in the 21st century. Dr. Kimura Keishin, esteemed Chairperson of the Japan Yoga Therapy Society, graced the awareness program "Yogic Sciences and their application in our daily lives" and shared invaluable insights into the integration of yogic practices with modern lifestyles.





## Faculty's Column

### The History of PCR and Its Importance for Genomic Research

Dr. Umakanta Swain

Assistant Professor, Department of Zoology,  
School of Biological Sciences, AIPH University

The Polymerase Chain Reaction (PCR) is one of the most revolutionary techniques in molecular biology, transforming genomic research since its invention. PCR was first conceptualized by Kary Mullis in 1983, while working at Cetus Corporation. Mullis recognized the need for a method to amplify specific DNA sequences exponentially, which would allow scientists to study genetic material in more detail. His groundbreaking idea earned him the Nobel Prize in Chemistry in 1993.



PCR operates by mimicking natural DNA replication. The process involves repeated cycles of heating and cooling, with three primary steps: denaturation, annealing, and extension. In the first step, the double-stranded DNA is heated to separate into single strands. Primers are then annealed to the target sequence, guiding the DNA polymerase enzyme to synthesize new DNA strands during the extension step. This cycle is repeated multiple times, resulting in millions of copies of a specific DNA segment.

One of the key innovations that made PCR feasible was the discovery of ***Taq polymerase***, an enzyme derived from the heat-resistant bacterium *Thermus aquaticus*, which survives the high temperatures needed for DNA denaturation. This enzyme's ability to withstand high temperatures enabled PCR to become a rapid and efficient technique. The importance of PCR for genomic research cannot be overstated. PCR has become the backbone of countless genetic studies, allowing researchers to analyze minute quantities of DNA with precision. It is fundamental in areas such as genetic fingerprinting, cloning, and the diagnosis of genetic diseases. PCR also enabled the sequencing of the human genome, contributing to our understanding of genetic disorders, evolutionary biology, and personalized medicine. The technique has evolved over time, with real-time PCR (quantitative PCR) now enabling the quantification of DNA, while reverse transcription PCR (RT-PCR) allows for the study of RNA. These advancements have broadened PCR's applications in virology, microbiology, forensic science, and biotechnology.

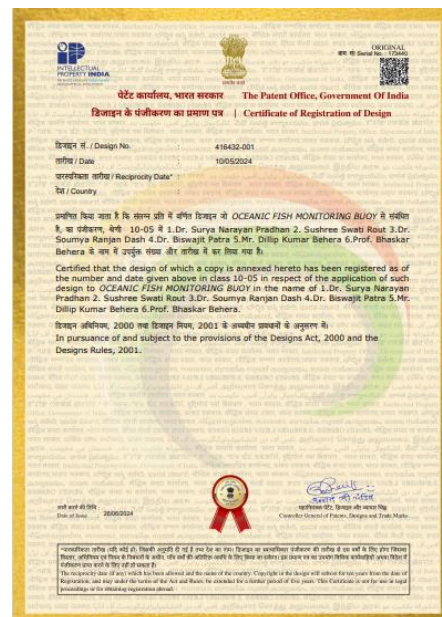
In summary, PCR's invention was a pivotal moment in molecular biology, enabling rapid DNA amplification and transforming genomic research. Its simplicity, versatility, and accuracy have made it indispensable, facilitating significant scientific and medical breakthroughs.



## Research & Innovation



Dr. Soumya Ranjan Dash registered a design to “OCEANIC FISH MONITORING BUOY” (Design No.: 416432-001, Date: 10/05/2024) in pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001 under Intellectual Property, Govt. of India.



## Ongoing Research Projects



1. Title: Comprehensive Tribal Management for Decentralized TB Care Services”, Funded by ICMR, New Delhi; Principal Investigator: Dr. Pradipta Ranjan Rauta (Sanction Letter No: 5/8/3/IR/Tri-TB/ITRC/2022/ECD-1)
2. Title: An economical nanotechnology based self-screening platform to detect human Papillomavirus in menstrual blood of sanitary napkins for prevention and early detection of Ca Cervix” Funded by ICMR, New Delhi; Principal Investigator: Dr. Pradipta Ranjan Rauta (Sanction Letter No: EM/Dev/SG/72/3893/2023 E-office-179206)

## Showcasing Scholarly Success: Demonstrating academic distinction and career guidance beyond campus borders



Dr. Dhiraj Kumar Nanda, Assistant Professor, School of Biological Sciences, AIPHU, was honored as a guest at the Department of Zoology, Sarala Mahavidyalaya, Rahama, Jagatsinghpur, on September 3, 2024, during the welcome ceremony for graduates. Dr. Nanda as an expert of Biological Sciences inspired the students. In his address, he discussed about the latest trends and advancements in biological sciences. He provided insights into future opportunities and career prospects in the field. The interactive session allowed students to engage directly, ask questions, and seek career advice.



## Student activity

### 3rd Semester Midterm-1 Examinations (September 11-17, 2024)

Midterm examinations at AIPH University serve as a crucial checkpoint in the academic journey of students. These examinations not only assess the understanding of the coursework covered but also prepare students for the comprehensive evaluations at the end of the semester. Continuous evaluation, which includes regular assignments, quizzes, and participation in discussions, complements these midterms by providing ongoing feedback. This process helps students identify their strengths and areas for improvement, fostering a proactive approach to learning and ensuring a well-rounded educational experience.



### Weekly Student's Seminar, at SBS, AIPH University



Ms. Subhashree Sahoo, BSc Microbiology, School of Biological Sciences delivered an insightful seminar on “Bacterial growth” on September 04, 2024. Her talk highlighted the intricate processes that govern bacterial proliferation and the factors that can influence this phenomenon.



Ms. Payal Sinha, BSc Microbiology, School of Biological Sciences delivered an insightful seminar on “Bioaerosols: Impact on Human Health and Environment” on September 25, 2024.





## Student Achievement Congratulations to all Academic Achievers

**Batch 2022-2024**



**Subhashree Mishra**

MSc Zoology  
CGPA: 9.20



**Subhashree Nayak**

MSc Zoology  
CGPA: 9.17



**Amit Acharya**

MSc Zoology  
CGPA: 9.06



**Sovan Kumar Senapati**

MSc Microbiology  
CGPA: 8.91



**Sonima Rout**

MSc Botany  
CGPA: 8.70

## Batch 2023-2025

### 2<sup>nd</sup> Semester MSc Microbiology



**Amrita Pradhan**  
CGPA: 9.26



**Sasmita Senapati**  
CGPA: 9.00



**Saiprangya Prasant Panigrahi**  
CGPA: 8.95

### MSc Zoology



**Subrat Kumar Dash**  
CGPA: 8.84



**Arman Pattnaik**  
CGPA: 8.68



**Shubhashree Mohanty**  
CGPA: 8.68

### MSc Botany



**Sonali Sahoo**  
CGPA: 8.95



**Rameswari Bal**  
CGPA: 8.68



**Jyotirmayee Mohanta**  
CGPA: 8.63



Collaborators of AIPHU :



# AIPH University

Established by the State Legislature vide  
Odisha Gazette No.60/2018

Founded by National & International Icons in Health and Education



# 1st Public Health University of Eastern India

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### School of Allied Health Sciences

- GNM
- B.Sc. Nursing
- BPT - Bachelor in Physiotherapy
- MPT - Master in Physiotherapy
- Bachelor in Optometry
- M.Sc. in Clinical Psychology
- Diploma in Yoga therapy
- M.Sc. in Yoga therapy
- PhD in Yoga

### School of Public Health

- PhD in Public Health
- MPH - Master of Public Health
- EMPH - Executive Master of Public Health

### School of Innovation & Information Technology

- MCA – IT for Healthcare
- BCA – IT for Healthcare

### School of Health Management

- PhD in Health Management
- MBA in Health Management
- MBA in Digital Health
- EMBA in Health Management
- BBA in Health Management

### School of Biological Sciences

- PhD in Biological Sciences
- M.Sc. Microbiology
- M.Sc. Botany
- M.Sc. Zoology
- M.Sc. Biochemistry
- M.Sc. in Environmental Science
- B.Sc. Biochemistry
- B.Sc. Microbiology
- B.Sc. Botany
- B.Sc. Zoology



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**City Campus:** EAST Campus, Prachi Vihar, Anantapur, Bhubaneswar.

**Main Campus:** 1001, Haridamada, Jatni, Near IIT Bhubaneswar.