

# INTERNSHIP OPPORTUNITIES

## ENZYME TECHNOLOGY INTERNSHIP PROGRAM

Hands-on Research Training | Skill Development

Acharya Prafulla Chandra College

📍 New Barrackpore, North 24 parganas, Pin-700131,  
West Bengal.

### INTERNSHIP MODULES

#### 1 Isolation of Extracellular Enzyme Producing Bacteria

Isolation and primary screening of extracellular enzyme-producing bacteria from natural sources such as soil, water, and waste samples using selective plate assays.

#### 2 Biochemical Analysis & Taxonomic Identification

Morphological, staining and biochemical characterization of isolates followed by taxonomic identification using standard microbiological techniques.

#### IMPORTANT DATES

- 📅 Last Date of Application: 31.03.2026
- 🕒 Duration: 4-8 Weeks

#### WHO CAN APPLY

- 👤 B.Sc. / M.Sc. Students (Microbiology, Biotechnology, Life Sciences)
- 👤 Research Scholars & Aspiring Scientists.

#### WHAT YOU WILL GAIN

- ✓ Hands-on laboratory experience
- ✓ Research methodology training
- ✓ Data analysis skills
- ✓ Internship certificate

#### 3 Growth Condition Optimization

Optimization of temperature, pH, incubation time, aeration, and nutrient sources for maximum bacterial growth.

#### 4 Condition Optimization for Extracellular Enzyme Production

Evaluation of culture conditions and medium composition to enhance extracellular enzyme production efficiency.

#### 5 Optimization of Parameters for Enzyme Activity.

Study of enzyme activity under different pH, temperature, substrate concentrations, and stability.

#### 6 Computational Analysis of Data.

Statistical analysis, graphical representation, and interpretation of experimental data using

### JOIN US IN ENZYME TECHNOLOGY RESEARCH

- 🌐 Website: [www.apccollege.ac.in](http://www.apccollege.ac.in)
- ✉️ Email: [rajes@apccollege.ac.in](mailto:rajes@apccollege.ac.in)
- 📞 Contact: (033)-2537-3297 / 2537-8797



# BIOINFORMATICS INTERNSHIP PROJECTS

**Acharya Prafulla Chandra  
College, New Barrackpore,  
Kolkata 700131**

Last Date of Application: **31.03.2026.**  
Project start: **End of May, 2026.**



**1**  
Protein Structure  
Prediction Methods – A  
Comparative Analysis

A systematic comparison of various protein structure prediction tools to evaluate their accuracy, and analyse their strengths and weaknesses.



**2**  
Phylogenetic Analyses  
of Disease-Related  
Protein Families

Phylogenetic study of disease-related proteins using sequence alignment and tree-building methods to identify evolutionary parameters.



**3**  
Virtual Screening and  
Molecular Docking

High-throughput screening of natural compounds, and their molecular docking simulations, to identify their interactions with key therapeutic targets with the aim to find potential drug candidates.



**4**  
Molecular Dynamics  
Simulation

Molecular dynamics simulations to study protein-ligand interactions, their binding stabilities, and energies to refine novel drug design strategies.



**5**  
Integrative Protein  
Function Prediction

Combining structural, sequence, and evolutionary data to annotate functions of uncharacterised proteins.



**6**  
Bioinformatics  
Software Development

Develop user-friendly software tools, scripts, and pipelines to streamline common bioinformatics workflows.

**Join Us in Advancing Bioinformatics Research**

Website: [www.apccollege.ac.in](http://www.apccollege.ac.in) | Email: [santanu@apccollege.ac.in](mailto:santanu@apccollege.ac.in) | Ph: 0 98300 59919



## Bacteriophage & Phage Therapy Research Project

Harnessing Bacteriophages to Defeat Multi-Drug-Resistant Infections

**Phage Biology Laboratory**  
A Research Laboratory Funded by SERB, DBT, UGC, and ICMR, Govt. of India

PI: Dr. Nabanita Giri  
Associate Professor  
Postgraduate Department of Microbiology,  
Acharya Prafulla Chandra College, New Barrackpore, Kolkata 700131

**Project Overview**

This project focuses on the isolation and comprehensive characterization of novel bacteriophages from environmental samples and evaluates their therapeutic and antibiofilm potential against multidrug-resistant (MDR) pathogens, with special emphasis on comparative efficacy against antibiotics in a mice model.



**Project Modules**

**1. Phage Isolation & Characterization**

- ❖ Isolation, amplification, and purification of bacteriophages
- ❖ Host range determination
- ❖ Cell lysis assays against multiple bacterial strains
- ❖ Thermal and pH stability studies
- ❖ Adsorption rate and one-step growth curve analysis
- ❖ Transmission Electron Microscopy (TEM)

**2. Genomic Analysis of Bacteriophages**

- ❖ Whole-genome sequencing and annotation
- ❖ Genome end determination of isolated phages
- ❖ Identification of lytic, lysogenic, and virulence-associated genes
- ❖ Phylogenetic and comparative genomic analysis

**3. Phage-Host Interaction Studies**

- ❖ Characterization of bacterial phage receptors
- ❖ Synergistic lytic activity of phages in combination with antibiotics
- ❖ Evaluation of resistance development

**4. Antibiofilm & Food Safety Applications**

- ❖ Spectroscopic and microscopic evaluation of biofilm disruption
- ❖ Assessment of phage efficacy against mature biofilms
- ❖ Food safety application assays for pathogen reduction

**5. In Vivo Therapeutic Evaluation (Mice Model); Comparative assessment of phage versus antibiotics**

**A. Microbiology**

- ❖ Stool CFU enumeration
- ❖ Quantification of bacterial load using qPCR

**C. Physiology**

- ❖ Body weight monitoring
- ❖ Clinical score assessment

**B. Histopathology**

- ❖ H&E-stained colon tissue analysis
- ❖ Lesion and inflammation scoring

**D. Microbiome Analysis**

- ❖ 16S rRNA sequencing
- ❖ OTU table generation
- ❖ Alpha and beta diversity analysis

**E. Immunology**

- ❖ ELISA analysis of serum cytokines (IL-6, IFN- $\gamma$ , TNF- $\alpha$ )
- ❖ Quantification of pathogen-specific antibodies (IgG, IgA)
- ❖ Immunofluorescence microscopy
- ❖ Western blot analysis

**Join Us in Advancing Phage Therapy Research**  
An integrated microbiology, genomics, immunology, and microbiome approach toward combating antimicrobial resistance.

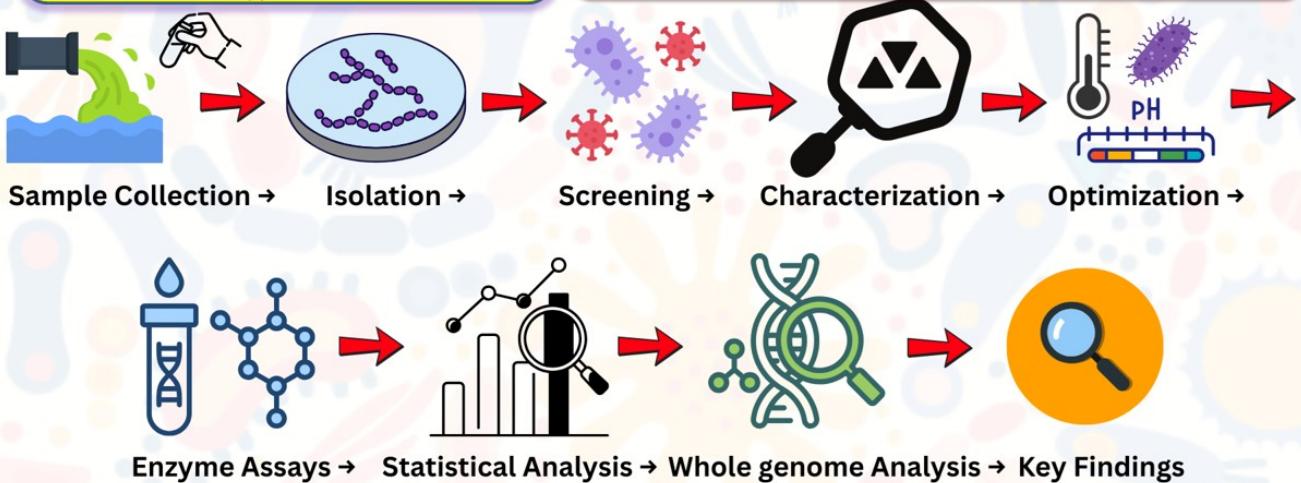
Website: [www.apccollege.ac.in](http://www.apccollege.ac.in) | Email: [nabanita@apccollege.ac.in](mailto:nabanita@apccollege.ac.in) | Ph: 99032 55548

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INTERNSHIP PROJECT ON THERMOSTABLE LIPASE FROM MESOPHILIC BACTERIA & BIOINFORMATICS  
STUDY OF LIPASE GENES  
Supervisor  
SISIR RAJAK  
Associate Professor of Microbiology  
Email: sisirbiotech@gmail.com | Mob: 7003169604  
Last Date of Application: 31.03.2026



Acharya Prafulla Chandra College, New  
Barrackpore, Kolkata- 700131



1



## Medical Microbiology Internship Projects



Acharya Prafulla Chandra College, New Barrackpore, Kolkata-700131

Last date: 31/03/2026



Exposure to laboratory-workflows related to Isolation,  
Identification and Characterization of organisms



Genome DNA Isolation, Detection of virulence and  
antibiotic resistance genes

Hands on training with PCR techniques



Antibiotic resistant genes Profiling  
Statistical analyzing using Graph Pad Prism

For details : [www.apccollege.ac.in](http://www.apccollege.ac.in) Contact : Email: srijanaapccollege.ac.in , Mob. no. 7001740560



**Summer Internship Programme - 2026**  
**Acharya Prafulla Chandra College, New Barrackpore, Kolkata 700131**

**Last Date of Application  
31 March 2026**

**Bioinformatics and Computational Biology**

**Programme Starts  
End of May 2026**

**Internship Areas**

**From sequence to structure: an integrated workflow for protein structure prediction.**

**Comparative evaluation of protein tertiary structure prediction tools**

**Structure-based drug design using molecular docking and binding energy analysis**

**AI-driven approaches in protein structure prediction: Performance and limitations**

**Benchmarking bioinformatics tools for structural and functional protein analysis**

**AI-assisted structure-based screening of small molecules to identify plausible drug candidates**

**Comparative structural bioinformatics of therapeutically relevant proteins**

**Computational investigation of protein dynamics and ligand binding mechanisms**

**Decode Biology Through Bioinformatics**

**Who can apply?  
Students pursuing BSc and MSc in Life Sciences**

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Ph: (+91)86972 64467

**Summer Internship Programme - 2026**  
**Acharya Prafulla Chandra College, New Barrackpore,  
Kolkata- 700 131**

**Internship Area**

**01** **Use of Antibiotics-  
Impact on antibiotic  
resistance and on the  
society.**

**02** **Bioactivity-guided  
evaluation of plant  
extracts.**

**03** **Computational assessment  
of active compounds for  
drug-likeness, ADMET  
properties, and interaction  
with microbial targets.**

**04** **Bioremediation of plastic  
waste using conventional  
and state-of-art methods.**

**Last Date of  
Application:  
31<sup>st</sup> March 2026**

**Programme starts:  
End of May 2026**

**Who Can Apply?**  
Students of Microbiology, Molecular  
Biology and Biotechnology can apply.

**Contact:**  
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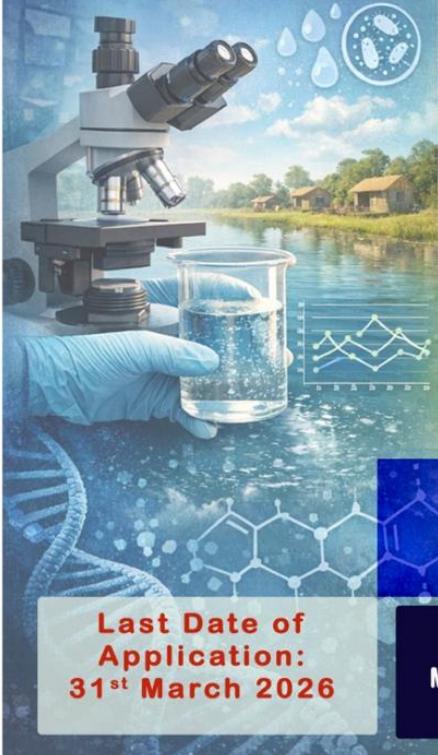


## Summer Internship Programme - 2026

**Acharya Prafulla Chandra College, New Barrackpore,  
Kolkata- 700 131**

### Water Microbiology

Seasonal Variation of Groundwater Quality  
in New Barrackpore



**Last Date of  
Application:  
31<sup>st</sup> March 2026**

### Biochemistry

Screening Medicinal Plant Extracts for  
Enzyme Inhibitory Activity

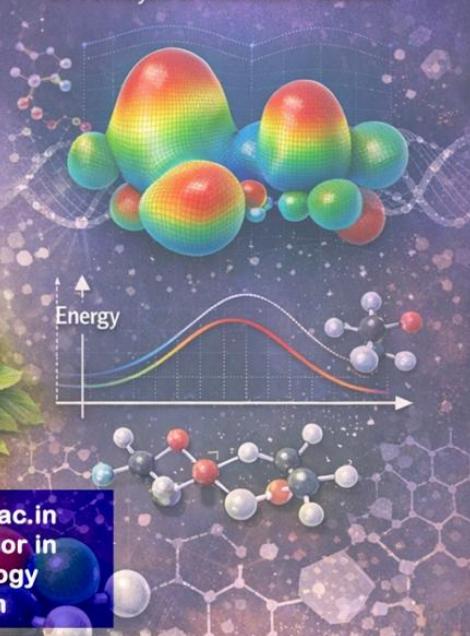


**Contact:** Website: [www.apccollege.ac.in](http://www.apccollege.ac.in)  
**Dr. Indrani Datta, Associate Professor in**  
**Molecular Biology and Biotechnology**  
**Email:** [indrani@apccollege.ac.in](mailto:indrani@apccollege.ac.in)

**Students of Microbiology, Biochemistry,  
Molecular Biology and Biotechnology can  
apply.**

### Biophysics

DFT Analysis of Medicinal Molecules



**Programme starts:  
End of May 2026**