

**MAULANA AZAD COLLEGE
8, RAFI AHMED KIDWAI ROAD,
KOLKATA - 700013**

Affiliated to the University of Calcutta
Accredited by NAAC in Cycle-3 with an 'A+' Grade (CGPA 3.46)

Summer Internship Programme - 2026

Serial No: 1
Title: From Lab to Life: Detergent to DNA
Internship Supervisor: Dr. Rajendra Saha, Department of Chemistry
Intended Students: Undergraduate students from Chemical and Biological Sciences
Maximum Intake : 20
Brief Description of Internship programme: This programme is designed to enhance student proficiency in applied chemistry and essential bioactive molecules. The curriculum covers the formulation and quality control of household necessities, including soaps, phenyl, and sanitizers. Furthermore, students will receive training in drug synthesis and characterization using spectrophotometric methods, as well as the extraction of vital components from bioactive molecules via various physico-chemical techniques.
Programme Outcomes: The internship aims to enable students: <ul style="list-style-type: none">● To comprehend the complex applications of chemistry in everyday contexts.● To enhance practical proficiency in physico-chemical laboratory techniques.● To promote the development of an analytical approach to methodology.● To encourage hands-on learning supplementary to the regular academic curriculum.
Programme Layout: https://drive.google.com/file/d/1K7hyOIyxv1S3AkUrtvKqPpr6kL0v47_G/view?usp=drive_link

Serial No: 2

Title: Data Analysis and Visualization using Python

Internship Supervisor: Mr. Soumya Mukherjee,
Department of Physics

Intended Students: Undergraduate students of any science discipline

Maximum Intake : 15

Brief Description of Internship programme: This course introduces undergraduate science students to data handling and analysis using the Python programming language, with a focus on applications relevant to chemistry and scientific research. The course covers fundamental Python programming concepts, core data structures, and essential scientific libraries such as NumPy, Pandas, Matplotlib, and Seaborn. Through hands-on practice, students learn to process, analyze, visualize, and interpret datasets, manage files, and perform basic numerical computations. Emphasis is placed on developing practical computational skills that support experimental data analysis, research projects, and interdisciplinary scientific problem-solving, preparing students for higher studies and data-driven careers.

Programme Outcomes: The internship aims to enable students:

- To demonstrate fundamental knowledge of scientific data manipulation.
- To apply computational principles to address real world data driven problems.
- To communicate scientific information through reports, graphs and presentations.
- To analyze experimental and numerical data using appropriate tools and techniques.

Programme Layout:

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Serial No: 3

Title: AI Empowered Professional skill Development

Internship Supervisor: Dr. Mahfuzur Rahaman,
Department of Physics

Intended Students: Undergraduate students of Humanities and Commerce discipline

Maximum Intake : 15

Brief Description of Internship programme: This course introduces undergraduate students to Generative Artificial Intelligence (AI) and its practical applications in learning, research, creativity, analytics, and professional work. Designed for non-technical learners, the course focuses on using AI tools for content creation, academic writing, presentations, data visualization, productivity enhancement, and decision-making, without requiring any programming background. Emphasis is placed on prompting skills, ethical and responsible use of AI, data privacy, and academic integrity. Through hands-on activities and real-world case studies, students develop future-ready digital skills that enhance creativity, critical thinking, and career preparedness in an AI-enabled world.

Programme Outcomes: The programme will be able to:

- Acquire broad-based knowledge in humanities and social sciences.
- Apply critical and analytical thinking to academic and real-world problems.
- Communicate effectively using appropriate written, oral, and digital methods.
- Demonstrate research aptitude and information literacy.
- Utilize digital tools and technologies relevant to contemporary society.
- Exhibit creativity, innovation, and problem-solving abilities.
- Uphold ethical values, academic integrity, and social responsibility.
- Engage in lifelong learning and adapt to emerging technologies.

Programme Layout:

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Serial No: 4

Title: Turning Waste into Wealth: Solid-State Microbial Amylase Production from Bioethanol Synthesis from Banana Peels

Internship Supervisor: Dr. Mazharul Abbasi,
Department of Microbiology

Intended Students: Undergraduate students from various Biological & Chemical Science background

Maximum Intake : 15

Brief Description of Internship programme: One of the most often utilised enzymes in the sector is amylase. It is used commercially to hydrolyse starch and produce sugar syrups that include glucose, maltose, and higher oligosaccharides. In biotechnological applications, amylases are crucial in the food, fermentation, detergent, pharmaceutical, brewing, textile, and paper industries. Low-cost amylase manufacturing is necessary to satisfy these industries' increased demands.

This programme aims to explore isolates amylase-producing bacteria/fungi from different soil samples, optimize amylase enzyme production, and study its application towards bioethanol production.

Programme Outcomes:

- Students will be proficient in enzymatic and research strategies that promote knowledge development.
- They will be able to understand complicated issues and come up with answers for difficulties that arise in the actual world.
- The programme will provide participants with valuable hands-on training using modern biological tools and techniques.

Programme Layout:

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Serial No: 5

Title: Mushroom Cultivation

Internship Supervisor: Dr. Selima Khatun
Department of Botany

Intended Students: Undergraduate students of any discipline

Maximum Intake : 20

Brief Description of Internship programme: Mushroom internship programmes offer hands-on training in cultivating, harvesting, and marketing edible mushrooms (e.g. Oyster and milky mushroom) over 3 weeks. Designed for students, they cover composting, spawn production, and, in some cases, business development. These practical sessions often include laboratory work, pest management, and sustainability, preparing participants to start their own mushroom farms.

Key Components of Mushroom Internships:

- **Hands-on Cultivation:** Training in substrate preparation, inoculation, spawning, and managing conditions for mushroom growth.
- **Technical Knowledge:** Learning about different mushroom species, identifying, preventing, and managing common contamination.
- **Operational Training:** Experience in harvesting, packaging, and marketing.
- **Program Structure:** Generally, includes laboratory work, farm maintenance, and sometimes business plan development.
- **Duration:** 15 days, ranging for 60 hours.

These programmes provide crucial skills for agricultural enthusiasts aiming to become self-employed mushroom farmers or enter the commercial mushroom industry.

Programme Outcomes: Key outcomes include:

1. Technical Proficiency and Skills Acquisition

End-to-End Cultivation Knowledge: Interns may gain hands-on experience in the entire production cycle, including substrate preparation, chemical treatment, spawn running, casing, and managing cropping rooms.

Specialized Techniques: Training covers specialized techniques for various species, including Oyster, Button, Milky, and medicinal mushrooms (Shiitake, *Cordyceps*).

Environmental Control: Skills in managing hygiene, temperature, humidity, and ventilation for indoor farming.

Post-Harvest Management: Knowledge of harvesting, sorting, grading, packaging, and value addition (e.g., producing pickles, powder, or dried mushrooms).

2. Entrepreneurship and Economic Empowerment

Self-Employment Generation: The training is designed to transform participants (students, rural youth, women, and farmers) into entrepreneurs.

Increased Income: Participants frequently adopt mushroom cultivation as a primary or supplementary income source, with studies showing significant, increasing income trends after training.

Low-Cost Setup Knowledge: Training imparts strategies for starting, managing, and maintaining small-scale mushroom farms with minimal capital.

Business Skills: Participants learn to develop business models, calculate cost-benefit ratios, and understand marketing strategies, such as setting up a supply chain for farm-fresh mushrooms.

3. Knowledge and Social Impact

Skill-Based Learning: Increase knowledge in identifying edible vs. wild mushrooms and managing pests and diseases.

Waste to Wealth: Trainees learn to use agricultural residues (like paddy straw) as substrates, promoting sustainable, eco-friendly farming practices.

Nutritional Security: Participants gain knowledge about the high protein and medicinal value of mushrooms, contributing to better nutrition in rural communities.

Confidence Building: The hands-on experience builds confidence in setting up independent ventures.

4. Challenges and Post-Training Support

While many thrive, some trainees face challenges in continuing production due to:

Lack of timely, high-quality spawn supply.

Inconsistent marketing facilities.

Difficulty in maintaining proper environmental conditions for specific seasons.

Suggestions from trained individuals often highlight the need for better financial assistance, market linkages, and continuous supply of quality inputs.

Programme Layout:

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Serial No: 6

Title: Ecological Survey Techniques: Mastering Tools for Environmental Assessment

Internship Supervisor: Dr. Abhishek Mukherjee,
Dr. Dipak Kumar Som,
Department of Zoology

Intended Students: Undergraduate students from Biological Sciences, Geography and Environmental Science

Maximum Intake : 20

Brief Description of Internship programme: The internship, “Ecological Survey Techniques: Mastering Tools for Environmental Assessment,” provides hands-on training in ecological field methods and environmental data analysis. Participants learn biodiversity assessment, habitat evaluation, sampling techniques, statistical analysis, and environmental monitoring through classroom sessions, fieldwork, and report writing. The programme prepares students for careers in environmental consultancy, research, conservation, and sustainable development.

Programme Outcomes: The internship aims to enable students to:

- **Understand Ecological Principles** – Gain basic knowledge of ecology, ecosystems, ecological surveys, and EIA.
- **Apply Survey Techniques** – Conduct surveys using quadrat, transect, canopy cover, and community methods.
- **Assess Biodiversity & Quality** – Evaluate biodiversity (PAST software) and perform water, soil, and air sampling.
- **Use Field Instruments** – Operate GPS and Laser View Finder for accurate field data collection.
- **Perform Statistical Analysis** – Apply mean, median, mode, Chi-square, t-test, and ANOVA using MS Excel.
- **Manage Environmental Data** – Record, analyze, and interpret data for reporting and decisions.
- **Prepare Professional Reports** – Develop and present structured environmental assessment reports.
- **Demonstrate Professional Skills** – Show teamwork, ethical practices, accuracy, and communication skills.

Programme Layout: <https://drive.google.com/file/d/1SzxHU8yq-Kk5uvpkBjHF7KsMotxCjN5r/view?usp=sharing>

