

Department of Biotechnology



Annual Report

2024 - 2025

Faculty Members

Dr. Lini N. (HOD)

Dr. Deepthy Alex

Dr. Reema George

At a Glance: 2024–2025

- Implementation of the DBT Skill Vigyan Technician Training Programme in association with KSCSTE and funded by DBT, New Delhi.
- Organisation of impactful seminars and invited talks, including observance of World Microbiome Day and discussions on career orientation, sustainability, and space science.
- Hands-on workshops on bioinformatics tools and laboratory techniques, conducted in collaboration with the University of Kerala.
- Science Popularisation Programmes in local schools and colleges, promoting biotechnology awareness among over 300 students.
- Advanced Learners Programme featuring peer-led sessions, debates, and competitive exam preparation modules.
- Institutional visits to research centres and biotech industries such as IISER, HLL, and Life Science Park.
- Recognition of student achievements at intercollegiate and national-level competitions in paper presentations and documentaries.

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Introduction

The Department of Biotechnology at Mar Ivanios College (Autonomous), Nalanchira, has continually strived to provide excellence in education, research, and innovation since its inception. Anchored in a strong interdisciplinary foundation and guided by the vision of integrating academic rigour with real-world applications, the department plays a pivotal role in shaping future biotechnologists equipped to meet societal and scientific challenges.

The academic year 2024–2025 witnessed the department's proactive engagement in a spectrum of academic, co-curricular, and outreach activities. These initiatives were designed not only to strengthen conceptual understanding and technical skills but also to foster scientific curiosity, ethical responsibility, and community engagement among students. Emphasis was placed on experiential learning, evident in the successful implementation of the DBT Skill Vigyan Technician Training Programme, hands-on workshops, and a series of industrial and institutional visits.

In addition to core academic activities, the department organised impactful seminars, invited expert talks, and commemorative lectures that offered students and faculty members insights into emerging trends in life sciences. The department's efforts in science popularisation and extension activities demonstrate its commitment to knowledge dissemination beyond the classroom, particularly to school students and the general public.

This annual report presents a comprehensive account of the department's academic engagements, student achievements, research advancements, and community outreach efforts for the academic year. It reflects our dedication to academic integrity, institutional collaboration, and the holistic development of our students in alignment with the mission of Mar Ivanios College and national goals in biotechnology education.

DBT Skill Vigyan Programme: Bridging Academia and Industry

Organised by: Department of Biotechnology, Mar Ivanios College (Autonomous), Nalanchira, Thiruvananthapuram

In Association with: Kerala State Council for Science, Technology, and Environment (KSCSTE)

Funded by: Department of Biotechnology (DBT), New Delhi

Grant Support: ₹29.1 lakhs

Course Coordinator: Dr. Lini N., Head, Department of Biotechnology

Duration: 340 hours

NSQF Level: 3

The Department of Biotechnology, Mar Ivanios College, in collaboration with the Kerala State Council for Science, Technology, and Environment (KSCSTE), successfully implemented the DBT Skill Vigyan Technician Training Programme under the DBT Skill Vigyan State Partnership Programme in Biotechnology. Funded by the Department of Biotechnology (DBT), New Delhi, with a grant of ₹29.1 lakhs, this initiative aimed to provide essential technical skills in biotechnology and prepare students for competitive roles in research, development, quality control, and laboratory management.

The training commenced in July 2024, with 40 students selected through a national entrance examination conducted by KSCSTE. These students were divided into two batches of 20 each. The programme offered 340 hours of training under the NSQF Level 3 framework, integrating theoretical instruction, hands-on laboratory sessions, specialised workshops, and industrial visits.

With the inclusion of the LSSDC syllabus, the training was aligned with the latest trends and requirements of the biotechnology industry. The curriculum covered key areas such as research methodologies, laboratory techniques, microbiology, molecular biology, genetics, and quality control measures.

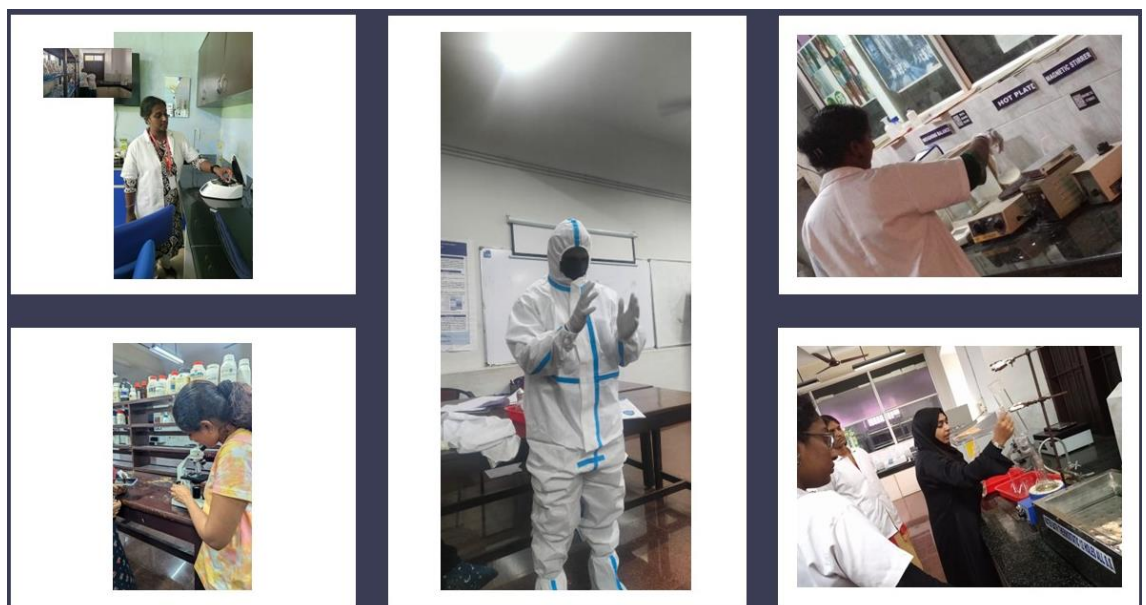
Key Components of the Programme:

- **Theoretical Sessions** on core biotechnology topics including microbiology, molecular biology, and genetics.
- Hands-On Training in biotechnology tools, techniques, and sample analysis through active laboratory work.
- **Workshops** focused on bioremediation, genetic engineering, and microbiological methods.
- **Industrial Visits** to biotechnology firms and research laboratories to provide real-world exposure.

As part of the programme, **placement assistance** was actively provided to students.

Companies such as **Dr. Reddy's Laboratories** conducted interviews, and placements are currently underway. The programme effectively positioned students for employment in reputable biotechnology organisations.

By bridging the gap between academic training and industry demands, the DBT Skill Vigyan Technician Training Programme has significantly contributed to strengthening the biotechnology workforce in Kerala. It stands as a model for integrating academic excellence with technical skill development to meet the evolving needs of the life sciences sector.



Expert Dialogues: Seminars and Invited Talks

A series of seminars and invited talks were organised by the Department of Biotechnology, Mar Ivanios College, during the academic year 2024–2025. These sessions offered students valuable insights into current trends in biotechnology, career planning, environmental sustainability, industrial safety, and the intersection of biotechnology with space science. Eminent speakers from academia, research institutions, and industry shared their expertise and interacted with students, enriching their scientific perspectives and aspirations.

1. World Microbiome Day Observance Seminar

Date: 27th June 2024

Time: 9:00 AM – 1:00 PM

Venue: Mar Gregorios Hall, Mar Ivanios College

Organised by: Department of Biotechnology, Mar Ivanios College (Autonomous), Nalanchira

In Association with: Centre of Excellence in Microbiome (KSCSTE) and NASI Kerala Chapter

Coordinator: Dr. Lini N., Head, Department of Biotechnology

This seminar focused on the theme "*Microbiome: Current Research Trends and Future Perspectives.*"

Key dignitaries included:

- Dr. Rajan Khobragade, IAS – Inaugural Address
- Shri. M.C. Dathan – Guest of Honour
- Dr. Sabu Thomas – Programme Overview
- Dr. Meera George – Presidential Address
- Prof. Dr. Edathil Vijayan – Special Address

The event also featured an **Agar Art Competition** and **felicitation ceremony** recognizing student contributions.



Centre of Excellence in Microbiome-KSCSTE World Microbiome Day Observance

JUNE 27, 2024
One-day Seminar on
Microbiome : Current Research Trends and Future Perspectives

9.00 AM-1.00 PM
Venue : Mar Gregorios Hall,
Mar Ivanios College
Thiruvananthapuram

In association with
**NATIONAL ACADEMY OF SCIENCES INDIA-KERALA CHAPTER &
DEPT OF BIOTECHNOLOGY
MAR IVANIOS COLLEGE, THIRUVANANTHAPURAM**

<p>Prayer</p> <p>Welcome</p> <p>About the program</p> <p>Presidential address</p> <p>Inaugural address</p> <p>Guest of honour address</p> <p>Special address</p> <p>Felicitation</p> <p>Prize Distribution (Agar Art Competition & Science Popularization Competition)</p> <p>Vote of thanks</p> <p>Tea Break (10.30 AM-11.00 AM)</p> <p>SCIENTIFIC SESSION 1 (11.00 AM-12.00 NOON)</p> <p>Chair</p> <p>Speaker</p> <p>Topic</p>	<p>Registration (09.00 AM-09.30 AM)</p> <p>Inauguration (09.30 AM-10.30 AM)</p> <p>Dr.Sarika A.R. (Senior Scientist, KSCSTE)</p> <p>Dr.Sabu Thomas (Director, Centre of Excellence in Microbiome (CoEM)</p> <p>Dr.Meera George (Principal, Mar Ivanios College, Thiruvananthapuram)</p> <p>Dr.Rajan Rhotiragade, IAS (Additional Chief secretary to Government Health & Family Welfare Department, Govt of Kerala)</p> <p>Shri.M.C.Dathan (Mentor, Science, Govt of Kerala)</p> <p>Prof.Dr.Edathil Vijayan (President, NABSI Kerala Chapter)</p> <p>Var.Rev.Fr.Thomas Kayyalkal (Bishop, Mar Ivanios College, Thiruvananthapuram)</p> <p>Dr.Lini N. (Assistant Professor & Head Dept of Biotechnology, Mar Ivanios College, Thiruvananthapuram)</p> <p>Prof.Dr.Edathil Vijayan (President, NABSI-KERALA Chapter)</p> <p>Dr.Santanu Chattopadhyay (Scientist BRIC-Ray Gandhi Centre for Biotechnology, Thiruvananthapuram)</p> <p>You, Me and Our Gut Microbiome</p> <p>Dr.Sabu Thomas (Director, CoEM)</p> <p>Dr.Krishnakumar B (Senior Principal Scientist, CSIR-National Institute For Interdisciplinary Science and Technology, Thiruvananthapuram)</p> <p>Sustainable Sanitation Systems through Microbiome Engineering</p>
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For more details and registration, please email to coemkscste@gmail.com

Activities

World Microbiome Day Observance in association with National Academy of Sciences, Kerala Chapter at Mar Ivanios College, Nalanchira, Thiruvananthapuram



2. Career Orientation for Students in Life Sciences

Date: 3rd January 2024

Speaker: Dr. Vishnu Vijay Vijayan, Senior Postdoctoral Fellow, Dalhousie University, Canada

Coordinator: Dr. Lini N.

This invited talk provided an inspiring career orientation for students in life sciences, particularly focusing on the potential career pathways in Botany, Biotechnology, and related fields. Dr. Vishnu Vijay Vijayan, an alumnus of Mar Ivanios College, shared his personal journey from being a student in the Biotechnology department to securing a postdoctoral position in Canada. The talk emphasised various opportunities in academic research, higher education, and the private sector. Real-world examples highlighted the

importance of networking, gaining hands-on experience, and continuously updating skills to remain competitive in the rapidly evolving field of life sciences.

3. Job Opportunities in Life Sciences and Allied Industries

Date: 3rd September 2024

Speaker: C. Padmakumar, Special Officer, Kerala Medical Technology Consortium

Coordinator: Dr. Lini N.

This invited talk provided a comprehensive overview of the life sciences industry, highlighting key sectors such as pharmaceuticals, biotechnology, and medical device manufacturing. The speaker discussed the growing demand for skilled professionals and the diverse career opportunities available in laboratories, research institutions, and industrial settings. Real-world examples demonstrated the critical role of laboratory technicians in ensuring quality control, compliance, and safety in scientific processes.

4. Environmental Sustainability in Laboratory Practices

Date: 27th August 2024

Speaker: Dr. Shiburaj Sugathan, Professor & Head, Department of Botany, University of Kerala

Coordinator: Dr. Lini N.

The discussion emphasised the importance of sustainability in laboratory operations. The speaker explored waste management strategies, energy-efficient lab practices, and green chemistry applications. Case studies of sustainable labs adopting eco-friendly alternatives were presented, along with insights into regulatory compliance related to environmental sustainability.

5. Complying with EHS Rules in GMP/GLP Labs

Date: 10th August 2024

Speaker: Dr. Santhosh R.S., CEO, Phytocom Pharmaceuticals, Ernakulam

Coordinator: Dr. Lini N.

The session provided an in-depth understanding of Environment, Health, and Safety (EHS) regulations applicable to GMP/GLP-controlled lab areas. Key topics included safety protocols, the use of personal protective equipment (PPE), and risk assessment

strategies. The speaker presented real-world compliance failures and their consequences, emphasising the need for strict adherence to safety guidelines.

6. Biotechnology and Space Science

Date: 6th January 2024

Speaker: Dr. Suresh Babu S., Scientist/Engineer G, VSSC – ISRO

Coordinator: Dr. Lini N.

The Biotechnology Association Day at Mar Ivanios College was an insightful and engaging event held on 6th January 2024. The event witnessed a distinguished guest, Dr. Suresh Babu S., Scientist/Engineer G at the Space Physics Laboratory, Vikram Sarabhai Space Centre (VSSC), as the Chief Guest.

Dr. Suresh Babu, in his address, emphasised the growing importance of space science and biotechnology as key emerging interdisciplinary fields. He highlighted the role of biotechnology in space missions, including applications such as biological payloads, life support systems, and space agriculture. Dr. Babu also spoke about the innovative potential of biotechnology for long-term space exploration, underscoring the need for integrated approaches in future missions.

The event was attended by students and faculty members of the Biotechnology Department. Dr. Lini N., the head of the department and coordinator of the event, also spoke, stressing the importance of such cross-disciplinary knowledge for students aiming to enter the fields of biotechnology and space science.

The session was followed by a productive discussion and interaction between the students and the speaker, where attendees got a deeper understanding of the intersection between space science and biotechnology, and the career opportunities that lie within these fields.

The event successfully brought attention to the rising significance of biotechnology in space exploration, fostering an inspiring dialogue between the speaker, students, and faculty members.

7. Thomson Kuruvilla Memorial Lecture and Prize Distribution Ceremony

Date: 6th December 2024

Time: 10:00 AM – 12:00 PM

Venue: Mar Gregorios Hall, Mar Ivanios College

Organized by: Department of Biotechnology, Mar Ivanios College (Autonomous), Nalanchira

Coordinator: Dr. Deepthy Alex

On 17th December 2024, the Department of Biotechnology at Mar Ivanios College organised a memorial lecture in honour of Dr. Thomson Kuruvilla, the department's first head, recognising his foundational contributions. The event featured a lecture by Dr. Jinu John (CMS College, Kottayam) on "*Bioprospecting of Microorganisms: Research to Industry*", which was well received. The Fourth Endowment Prize, instituted in Dr.



Kuruvilla's memory, was awarded to Mr. Adil Nizam (S5 Botany and Biotechnology) and Ms. Christy Sara Thomas (S5 Botany) for academic excellence. Around 200 students attended, and the programme concluded with a workshop on biotechnology applications.

Alumni talk series

1. A Journey Through MSc Entrance Exams in Life Sciences

Speaker: Ms. Anjana V.S., MSc Biotechnology Student, Pondicherry University; Research Intern, RGCB

Time: 9:30 AM

Venue: Silver Jubilee Hall, Mar Ivanios College

Coordinator: Dr. Lini N.

The Alumni Talk Series began with a session titled "*A Journey Through MSc Entrance Exams in Life Sciences*", delivered by **Ms. Anjana V.S.**, an alumna of Mar Ivanios College. Currently pursuing her MSc in Biotechnology at Pondicherry University and serving as a research intern at RGCB, she shared her personal experiences and practical strategies for preparing for competitive entrance exams in the life sciences domain.

Ms. Anjana emphasized the importance of mastering the fundamentals, adopting a structured approach to study, and making use of recommended resources and reference materials. She also highlighted the value of research experience and hands-on exposure in building a strong academic foundation for postgraduate studies. The session concluded with a vibrant Q&A, during which students actively engaged with the speaker to clarify doubts regarding exam strategies and career planning.

2. Laboratory Best Practises and Exam Preparation Guidance

Speaker: Mr. Suneesh S., Research Scholar, ICMR–National Institute of Translational Virology and AIDS Research

Date & Time: 5th August 2024, 9:30 AM – 10:30 AM

Coordinator: Dr. Lini N.

The department hosted an orientation session led by Mr. Suneesh S., focusing on proper laboratory procedures and exam readiness. The session covered critical aspects of handling, cleaning, and maintaining laboratory glassware and plasticware, with an emphasis on precision, decontamination, autoclaving, and storage practises to ensure experimental integrity.

Additionally, Mr. Suneesh offered valuable tips on preparing for MSc entrance exams, including study techniques, time management strategies, and the importance of discipline and conceptual clarity. His dual focus on technical lab practises and academic preparation made the session especially relevant for final-year students.

3. Exploring Careers in Life Sciences

Speaker: Dr. Vishnu J. Menon, Project Head, Green Village

Time: 9:30 AM – 10:30 AM

Venue: Seminar Hall, Mar Ivanios College

Coordinator: Dr. Lini N.

The Career Orientation Session began with Dr. Vishnu J. Menon, Project Head at Green Village, who delivered an engaging talk on career opportunities in life sciences. With over eight years of experience in project planning, proposal development, and project management, Dr. Menon discussed various career paths within the life sciences industry and emphasized the importance of continually upgrading skills. He encouraged students to focus on both academic excellence and practical experience, advising them to develop a multidisciplinary skill set to enhance their career prospects.



4. Clinical Research and Its Impact

Speaker: Dr. Hafeez, Clinical Research Head, Regional Cancer Centre (RCC), Thiruvananthapuram

Time: 10:30 AM – 11:30 AM

Venue: Seminar Hall, Mar Ivanios College

Coordinator: Dr. Lini N.

In this session, **Dr. Hafeez** emphasized the growing significance of **clinical research** in modern healthcare. He discussed clinical trials, regulatory frameworks, and career

pathways in clinical operations and patient care. The session highlighted the real-world value of clinical research in improving health outcomes and offered a compelling case for considering careers in this evolving field.

5. The Value of Relationships in Career Growth

Speaker: Mr. Jijo Thankchan, Industry Professional

Time: 12:00 PM – 1:00 PM

Venue: Seminar Hall, Mar Ivanios College

Coordinator: Dr. Lini N.

Mr. Jijo Thankchan concluded the orientation series with a reflective session on the **importance of professional relationships, mentorship, and networking**. Through personal stories and real-life lessons, he illustrated how strategic connections and mentorship have influenced his career journey. He urged students to build meaningful professional relationships early on to support their long-term growth and adaptability in the workplace.

Inspiring Young Minds: Science Popularisation and Outreach Programmes

The Department of Biotechnology has consistently extended its academic influence beyond the college walls through well-structured science popularisation and outreach programmes, aimed at fostering scientific curiosity and awareness among school students. In the academic year 2024–2025, a series of initiatives brought hands-on biotechnology learning to hundreds of young learners across Thiruvananthapuram.

As part of this mission, the department organised interactive sessions, lab demonstrations, and awareness programmes across multiple venues—including schools and the college lab itself. Student volunteers and faculty collaborated to make fundamental biology concepts accessible and exciting to 8th standard students and higher secondary participants.

1. Interactive Science Learning at St. Goretti School

Date: 18th June 2024

Time: 9:30 AM – 3:30 PM

Venue: St. Goretti Higher Secondary School, Nalanchira

Coordinator: Dr. Lini N.

Team Members: Cilja Rose Jomon, Anakha K. Nair, Malavika Manoj

A team of three students from the department engaged two batches of 8th standard students through a highly interactive session that included:

- Introduction to the microscope using engaging activities
- Live observation of hibiscus stomata under the microscope
- Comparison of prokaryotic and eukaryotic cells
- Demonstration of bacterial and fungal cultures
- Hanging drop technique to visualize bacterial motility using *Rhizobium* from *Mimosa pudica* root nodules

The programme successfully introduced students to scientific tools and processes, making abstract textbook content come alive through direct observation.

2. Hands-on Biotechnology Workshop for School Students

Date: 18th June 2024

Time: 9:30 AM – 3:30 PM

Venue: Department of Biotechnology, Mar Ivanios College

Coordinator: Dr. Lini N.

Team Members: Adil Nizam, Malavika Karthikeyan

On 18th June 2024, as part of the Science Popularization Programme, Adil Nizam and Malavika Karthikeyan from the Department of Biotechnology conducted a hands-on workshop for students and faculty from St. John's Higher Secondary School. The session included demonstrations of plant tissue culture, bacterial motility staining, and streaking techniques. Participants actively engaged in the experiments, gaining practical insights into biotechnology. The workshop was well-received and sparked interest in further exploration of the field.

3. Microbiology Lab Exploration Visit

Date: 8th August 2024

Time: 9:30 AM – 3:30 PM

Venue: Department of Biotechnology, Mar Ivanios College

Coordinator: Dr. Lini N.

Student Coordinators: Cilja Rose Jomon, Devadarsan

School students were given immersive exposure to the lab environment and participated in the following activities:

- Gram staining using *Rhizopus* from *Mimosa pudica* root nodules
- Bacterial motility observation under the microscope
- Pipetting techniques
- Demonstrations of key laboratory instruments

The visit was highly engaging and gave students a glimpse into microbiological practises used in academic research.

4. National Science Day Outreach on Fermented Foods and Microbiology

Date: 1st March 2025

Time: 9:30 AM – 3:30 PM

Venue: Department of Biotechnology, Mar Ivanios College

Coordinator: Dr. Deepthy Alex

Held as part of the **Diamond Jubilee of Mar Ivanios College** and **National Science Day celebrations**, this event focused on the theme “*Microbes in Fermented Foods.*”

- Hosted by Semester 4 Botany and Biotechnology students
- Participated by ~300 students from St. John's HSS and St. Goretti's HSS
- Concluded with a one-day **hands-on training** session for 75 selected students

Dr. Aparna Shanker, Scientist at the Centre of Excellence in Microbiome, delivered an awareness session on microbial diversity and planetary health.

The event was inaugurated by **Prof. Meera George (Principal)** and attended by **Prof. Arvind Deshmukh (National President, MBSI)** and **Dr. Deepthy Alex (Programme Coordinator)**.



About the programme

The Science Popularisation Programme, conducted by the Department of Biotechnology at Mar Ivanios College, aims to encourage school students to explore science, pursue careers in scientific fields, and contribute to the betterment of humanity.

Faculty coordinator: Dr Lini N

MAR IVANIOS COLLEGE AUTONOMOUS
TRIVANDRUM

DEPARTMENT OF BIOTECHNOLOGY

Team 1

Team members : Adil nizam
Malavika karthikeyan

Venue: Mar Ivanios College Nalanchira
Biotechnology laboratory

TIME : 9:30 AM TO 3:30 PM

Team 2

Team members : Cilja rose jomon
Anakha k Nair
Malavika manoj

Venue: St. Goretti Higher secondary
school
Nalanchira

TIME : 9:30 AM TO 3:30 PM



**SCIENCE
POPULARISATION
PROGRAMME**
**18th JUN
2024**





Skill Development in Focus: Workshops and Training

As part of its commitment to hands-on education and capacity building, the Department of Biotechnology organised targeted workshops and training programmes during the academic year 2024–2025. These sessions were designed to enhance students' technical proficiency in both classical and emerging areas of biotechnology, with a strong emphasis on bioinformatics, laboratory instrumentation, and entrepreneurial skills. Many of these programmes were conducted in collaboration with reputed institutions, providing students with practical exposure and research-level insights.

1. Hands-on Workshop on Bioinformatics Tools and Techniques

Date: 15th March 2025

Time: 9:30 AM – 3:30 PM

Venue: Computer Lab, Mar Ivanios College

Organised by: Department of Biotechnology, Mar Ivanios College (Autonomous)

In Association with: Department of Computational Biology and Bioinformatics, University of Kerala

Coordinator: Dr. Lini N.

Department of Biotechnology, Mar Ivanios College, in association with the Department of Computational Biology & Bioinformatics (DCB), University of Kerala

A Hands-on Workshop on Bioinformatics Tools and Techniques was organized by the Department of Biotechnology, Mar Ivanios College, in association with the Department of Computational Biology & Bioinformatics (DCB), University of Kerala. The workshop, held on 15th March 2025, provided participants with practical experience in using bioinformatics tools for biological data analysis.

The workshop began with an inauguration by Dr. Shibura J. S., Head (I/C) of the Department of Computational Biology & Bioinformatics, University of Kerala. He introduced the participants to the growing importance of bioinformatics in modern biological research.

Dr. Meera George, Principal of Mar Ivanios College, delivered the Presidential address, emphasizing the role of bioinformatics in enhancing biotechnology research and innovation.

The resource team consisted of several experts from the Department of Computational Biology & Bioinformatics, University of Kerala. They led the hands-on sessions, which included topics such as sequence alignment, gene prediction, and protein structure analysis.

Participants were given the opportunity to work directly with bioinformatics software and were guided through real-life applications. They were trained on how to use these tools for analysing biological data, such as gene sequences and protein structures.

The workshop concluded with a certificate distribution ceremony, and feedback from participants was overwhelmingly positive, with many expressing their appreciation for the practical insights gained through the workshop.



Hands-on Workshop on "Bioinformatics Tools and Techniques"

DATE: MARCH 15, 2025 TIME: 9:30 AM TO 3:30 PM VENUE: COMPUTER LAB, MAR IVANIOS COLLEGE
REGISTRATION FEES: 200 RS.

RESOURSE TEAM

 DR. SUNITHA P. ASST. PROF (IC), DCB UNIVERSITY OF KERALA	 DR. ASWATHY T. R. RESEARCH ASSOCIATE, DCB UNIVERSITY OF KERALA	 DR. SHEEBA K. POST-DOCTORAL FELLOW, DCB UNIVERSITY OF KERALA	 DR. ARYA K. R. POST-DOCTORAL FELLOW, DCB UNIVERSITY OF KERALA	 VINOD M. P. RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA
 SWATHY K. RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA	 NEENU MOHAN RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA	 ARYA V. V. RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA	 DELPHIN B. D. RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA	 ANU SASI RESEARCH SCHOLAR DCB UNIVERSITY OF KERALA

DR. LINI N.
HEAD, DEPARTMENT OF BIOTECHNOLOGY, MAR IVANIOS COLLEGE, CONTACT: 8129172238
PROF. (DR.) SHIBURAJ S.
HEAD (IC), DEPARTMENT OF COMPUTATIONAL BIOLOGY & BIOINFORMATICS, UNIVERSITY OF KERALA





2. Entrepreneurship Development Programme

Date: 15th–17th October 2024

Venue: MG University, Kottayam

Participants: Adil Nizam and Devdarsan (B.Sc. Final Year Students)

Two students from the department were selected to attend this entrepreneurship boot camp aimed at nurturing biotech startup ideas. They received training in **business planning, IP rights, regulatory pathways**, and pitching ideas to investors. The programme fostered innovation-driven thinking aligned with India's growing biotechnology startup ecosystem.

3. Biotechnology Instrumentation Systems Training

Date: 18th September – 1st October 2024

Venue: Rajiv Gandhi Centre for Biotechnology (RGCB), Trivandrum

Participants: Adil Nizam and Devdarsan

As part of a competitive selection, the students underwent 14 days of intensive training in biotechnology instrumentation at RGCB. The training included modules on spectrophotometry, gel electrophoresis, chromatography, PCR, and centrifugation techniques under the supervision of senior scientists. This opportunity significantly boosted their confidence in core laboratory methods and technical execution.

Nurturing Excellence: The Advanced Learners Programme (ALP)

Organised by: Department of Biotechnology, Mar Ivanios College

Coordinator: Dr. Lini N.

Student coordinators:

- First Year BBT: Maanasa BJ
- Second Year BBT: Karthik S Sajay, Nidhi Dinu
- Third Year BBT: Devadarshan V.B., Ayana S Khan

Overview of the Programme:

The Advanced Learners Programme (ALP) is an initiative by the Department of Biotechnology, Mar Ivanios College, aimed at providing students with deeper insights into advanced life sciences topics and preparing them for competitive examinations. The programme features interactive sessions, debates, seminars, and entrance expresso questions on various sections of the curriculum. Sessions are conducted from 3:30 PM to 4:30 PM in Room No. 115 and are open to students from both the Biotechnology department and other departments. Below are the various sessions conducted.

1. A review of Scientific History: The Story Behind the Secret of Life!

Speaker: Anakha K Nair (3rd DC BBT)

Host: Cilja Rose Jomon (3rd DC BBT)

Entrance Expresso: Arya JP (3rd DC BBT)

Date: 3rd September 2024, **Time:** 3:30 PM - 4:30 PM

This session focused on scientific history and the foundational discoveries that shaped modern life sciences. Anakha K Nair provided an engaging talk on how the building blocks of life were discovered and explained their importance in the current context. The session was followed by an intense debate hosted by Cilja Rose Jomon on 'Bioweapons for Biowar,' sparking interest and participation among students.

2. Debate on Gene Editing – Pros and Cons

Date: 6th February 2024 **Time:** 3:30 PM - 4:30 PM

Venue: Room 115, Main Block

This session focused on the controversial and rapidly advancing field of gene editing. Students discussed both the potential benefits, such as disease prevention, and the ethical concerns surrounding gene manipulation. This debate encouraged a deep dive into genetic engineering and its implications on future generations.

3. Biometrics and its Applications for Future Data Collection

Speaker: Karthik S Sajay (2nd DC BBT)

Entrance Espresso: Rena Fathima IK (2nd DC BBT)

Date: 24th September 2024, **Time:** 3:30 PM - 4:30 PM

The session began with Karthik S Sajay's interactive discussion on biometrics and its role in modern data collection systems. The topic was timely, given the growing importance of biometric data in healthcare and security. The session ended with the entrance espresso question segment, where Rena Fathima IK quizzed students on the concepts of biometrics.

4. From Cornfields to Jumping Genes

Speaker: Cripa Elsa Bikash (3rd DC BBT)

Host: Malavika Manoj (3rd DC BBT)

Debate: The Pros and Cons of Using Animals for Scientific Testing

Entrance Espresso: Manasa BJ (1st DC BBT)

Date: 15th October 2024, **Time:** 3:30 PM - 4:30 PM

Cripa Elsa Bikash presented a historical perspective on Barbara McClintock's work on jumping genes, drawing students into the world of genetic research. The debate on animal testing followed, provoking strong reactions and discussions on ethics, with Malavika Manoj moderating. The session concluded with Manasa BJ leading the entrance espresso segment.

5. Benefits and Risks of Bioremediation

Speaker: Devika S R (2nd DC BBT)

Entrance Espresso: Gautham Krishna (2nd DC BBT)

Date: 2nd February 2025, **Time:** 3:30 PM - 4:30 PM

Devika S R facilitated a debate on the benefits and risks of bioremediation, focusing on the use of biological processes to clean up environmental pollutants. The session provided students with insights into sustainable solutions for environmental issues. The entrance espresso session was conducted by Gautham Krishna, reinforcing the day's learning.

6. Biometrics: The Future Gateway to Data Collection

Speaker: Karthik S Sajay (2nd DC BBT)

Entrance Expresso: Rena Fathima IK (2nd DC BBT)

1st October 2024, Time: 3:30 PM - 4:30 PM

Venue: Room 115

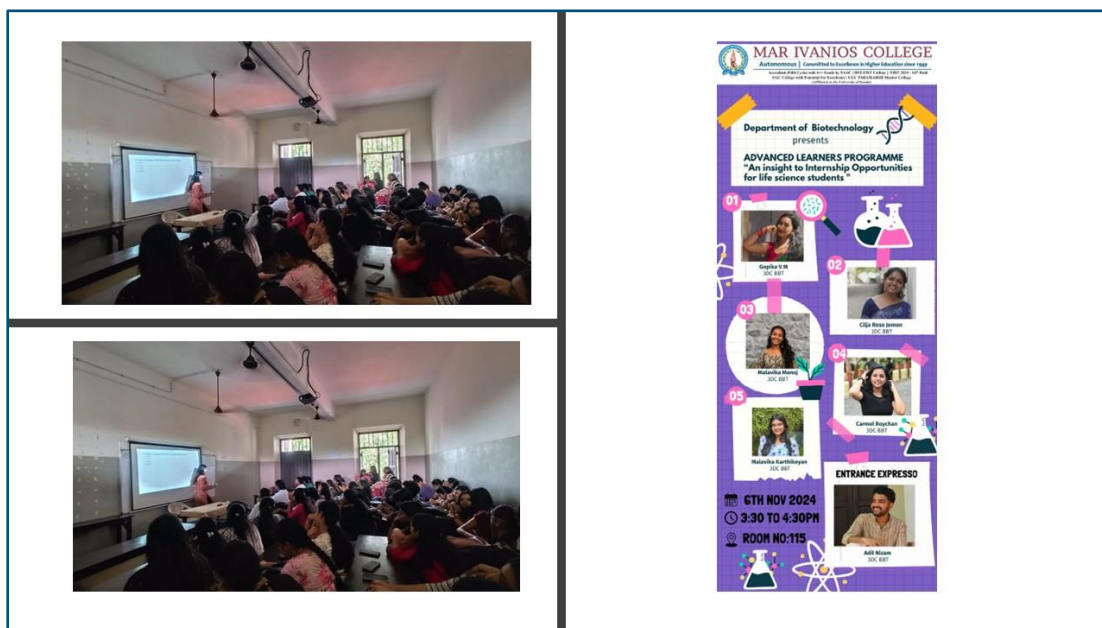
Karthik S Sajay provided a comprehensive introduction to biometrics and its future applications, followed by Rena Fathima IK's session on biometric data collection tools. The session sparked a lively discussion about the growing role of biometrics in security and healthcare.

Feedback and Impact:

Based on the feedback from the students, the Advanced Learners Programme (ALP) continues to be highly beneficial. It has provided students with a deeper understanding of emerging scientific advancements and technological developments. The debates have proven to be especially valuable in boosting students' confidence and public speaking abilities. The programme has successfully explored various topics beyond the academic syllabus, giving students a well-rounded perspective on the diverse fields of biotechnology and life sciences.







From Classroom to Cutting-Edge Labs: Institutional and Industrial Visits

The Department of Biotechnology strongly believes that learning must transcend textbooks, and the academic year 2024–2025 was no exception. Through a series of well-coordinated institutional and industrial visits, students were introduced to the practical applications of biotechnology in research, diagnostics, and product development. These curated visits provided first-hand exposure to advanced instrumentation, compliance frameworks, and translational science—broadening the academic horizon of participants.

Institutions Visited:

1. University of Kerala, Department of Botany (25th September 2024)

Students explored ongoing research in plant biotechnology, environmental microbiology, and tissue culture. Interactive sessions with faculty gave students a better understanding of academic research workflows.

2. IISER Thiruvananthapuram (4th October 2024)

At one of India's premier science institutes, students viewed Scanning Electron Microscopes (SEM), Transmission Electron Microscopes (TEM), Real-Time PCR systems,

and Next-Generation Sequencers. This visit offered rare insights into the use of high-end instruments in genomic research and molecular diagnostics.

3. HLL Lifecare Ltd., Trivandrum (30th October 2024)

Students witnessed Good Manufacturing Practises (GMP) in action at this leading public-sector biotech company. They learned about blood bag production, sterility assurance, and regulatory standards in pharmaceutical manufacturing.

4. Life Science Park, Thonnakkal (8th October 2024)

This innovation hub exposed students to the interface between research and entrepreneurship. They interacted with biotech start-ups and learned about technology transfer, product development, and industry-academia collaboration.

5. NIMS, Neyyatinkara (28th March 2025)

The visit to the National Institute of Medical Statistics allowed students to understand how biotechnology contributes to public health data analysis, epidemiological studies, and healthcare policy frameworks.

These visits were more than educational trips—they were transformational experiences that allowed students to:

- Visualise how classroom concepts are implemented in the field
- Gain career insights from working professionals
- Understand interdisciplinary applications of biotechnology
- Discover areas of specialisation for higher studies or employment

By integrating these field-based learning experiences into the academic calendar, the department has set a benchmark in holistic biotechnology education, ensuring that students graduate with both knowledge and context.



Celebrating Excellence: Student Achievements

The academic year 2024–2025 was not only marked by departmental initiatives but also by the outstanding accomplishments of students who brought recognition to the Department of Biotechnology at both intercollegiate and national platforms. Their performance reflected not just academic merit, but also creativity, communication skills, and research aptitude—hallmarks of a well-rounded scientific education.

1. Academic and Competitive Excellence:

- Cilja Rose Jomon won the Second Prize in the Paper Presentation Competition at the International Seminar on Stem Cell Research organised by the NIMS Centre for Genomic Medicine.
- She also secured the Second Prize at the National Conference on Challenges in Microbiology, held at Graphic Era Deemed to be University, Dehradun.
- The Department's team clinched the Second Prize in the Inter-Collegiate Documentary Competition conducted by MSM College, Kayamkulam.

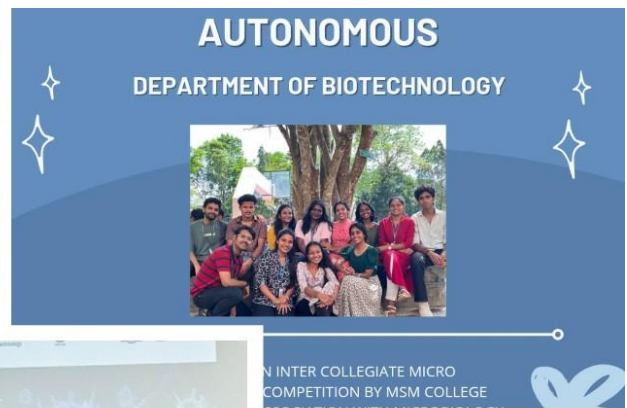
2. Documentary Recognition:

- A separate Second Prize was awarded to the department in a Documentary Competition organised in association with the Microbiology Society, reflecting students' ability to communicate science through multimedia formats.

3. Training and Skill Development:

- Adil Nizam and Devdarsan successfully completed advanced training in Biotechnology Instrumentation Systems at the Rajiv Gandhi Centre for Biotechnology (RGCB) from 18th September to 1st October 2024.
- They also participated in an Entrepreneurship Development Programme at MG University, Kottayam, held from 15th to 17th October 2024, gaining exposure to innovation, business planning, and biotech entrepreneurship.

These accolades are a testament to the department's emphasis on student mentoring, hands-on learning, and performance-based development. By excelling in diverse formats—from scientific presentations to national conferences and research training—our students continue to uphold the department's legacy of academic distinction and future leadership in biotechnology.






Conclusion

The academic year 2024–2025 has been a period of purposeful growth, innovation, and outreach for the Department of Biotechnology at Mar Ivanios College. Through a series of strategically designed programmes—from advanced training initiatives and expert-led seminars to impactful outreach activities and institutional collaborations—the department has continued to foster a vibrant learning ecosystem grounded in academic excellence and social relevance.

Central to these achievements has been the active involvement of students, the dedication of faculty, and the support of institutional and external partners such as DBT, KSCSTE, and leading research institutions. The department has not only strengthened its curriculum delivery and technical training but has also succeeded in cultivating scientific curiosity, ethical responsibility, and professional readiness among its learners.

As we look ahead, the department remains committed to embracing emerging technologies, expanding research engagement, and strengthening industry linkages. With a firm foundation and a forward-looking vision, the Department of Biotechnology reaffirms its role as a centre for quality education, innovation, and community-oriented science.

Excellent point—and yes, this should absolutely be revised for appropriate tone and third-person professionalism.



**The future of science will not be inherited—it must be cultivated with
curiosity, ethics, and courage**

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