

Information Brochure of Microbiology 2025



**POSTGRADUATE DEPARTMENT
OF MICROBIOLOGY**

BIDHANNAGAR COLLEGE

GOVT. OF WEST BENGAL

EB-2, SECTOR 1, SALT LAKE, KOL-700064

Brief Introduction:

- ***Department of Microbiology in Bidhannagar College started its journey on 2002 under the headship of Dr.A.K.Guin.The course was started under the affiliation under the University of Calcutta. Post Graduate course started on 2004. At present the college is under West Bengal State University, Barasat. We are following NEP system in UG & CBCS syllabus in PG course.***
- ***The Department is well equipped with sophisticated instruments like UV-Spectrophotometer, GelDoc System, Fermentor, PCR,ELISA Reader along with the other basic instruments required for UG & PG practical classes***
- ***The faculties are highly qualified. Among the present faculties five faculties have Ph.D.degree and one have Post Doctoral experience. At present there are 7 permanent faculties. The faculties have expertise in different microbiological field and are able to cover all the topics incorporated in UG & PG syllabus.All Practical included in the syllabus are being executed by the UG & PG students in the laboratory.***
- ***This department provides Research facilities to students and faculty members. In past, 2 students have completed their Ph.D. degree from this department. Faculties also have received minor & major Research Project funded by different state & central funding agencies like Ministry of Environment, Govt.of West Bengal, WBDST, UGC, CSIR etc. Total publication by our faculties in last five years is 36 in peer reviewed, indexed and UGC recommended Journals. Our faculty members are continuing their research work in their respective areas like, cell biology, environmental microbiology, bioinformatics, biochemistry etc.***
- ***Department has strong student Alumni. Our students have received several prestigious national and international fellowships like CSIR-UGC NET JRF FELLOWSHIP, Max Planck Fellowship, SPM-fellowship, Rama Lingam Fellowship etc. Several students are post Doctoral Fellow in USA and other European Countries. Some of them also got permanent assignment as Assistant Professor in different Universities in India & abroad. Many students are well placed in different Colleges, Research Institutes and R&D section of many reputed MNCs. In recent years our B.Sc.and M.Sc. students have qualified TIFR,JAM,IISc,CSIR-UGC NET, GATE and other all India entrance exam successfully.***
- ***Our students, very often, get the opportunity to experience different R&D Laboratories,Research Institute, Universities etc.like IICB, NICED, Bose Institute, Jadavpur University, Calcutta University, St. Xavier's College IIT Kharagpur etc. for their summer project as per guideline of their course curriculum.P.G students of our own department and also from outside colleges and Universities execute their M.Sc dissertation in this department.***

2. Best Placements:

Sr.No	Nameofthe student	Batch	Placement
1	AvijitPoddar	2007	DBTScientistinNew Delhi
2	Deep Chatterjre	2008	MaxPlankfellow, Faculty in German University
3	Prosun Trivedi	2008	AssociateProfessorTheNe otia University
4	RahulBhowmik	2010	Rama Linga Swami Fellow, ResearchTrack Faculty, Biochemistry Department, Vanderbilt University, USA
5	Toshali Banerjee	2013	JAMAIR 03, qualified TIFR, Completed Ph.D., Post Doc Fellow inAustralia
6	RaktimMaiti	2013	SPMfellow, AIR13in CSIR-NET in Life Sciences, IISc. Bangalore
7	Rakesh Sarkar	2013	SPMfellow, AIR04in CSIR-NET in Life Sciences, NICED, Kolkata
8	Prakash Biswas	2020	qualified JointCSIR-UGC NET for JRF and LS, Dec 2020, GATE in 2021, pursuing PhDatIISER, Kolkata.
9	SauravKumar Saha	2020	qualified DBT-JRF Category-IIin2021, CSIR-UGCNETLS in 2020andGATE2021and 10is pursuing higher Ph.D. work at IISER, January2022.
10	Souporno Das	2021	TIFR, Mumbai
11	Priyabrata Chakraborty	2022	JAMAIR25, IISc.
12	Masuda Samiah	2024	UGC JRF
13	Sayan Sarkar	2022-25, UG	GATE, Admitted to IISc.

3.Faculties:

DR.ABULKALAM

Associate Professor (WBES)& Head, P.G. Department of Microbiology, Bidhannagar College.



Academic Qualifications

M.Sc.: Passed M.Sc in Botany with 1st class in the year 1988 from the University of Burdwan.

Ph.D.: Awarded Ph.D.degree in 1997 from University of Burdwan

Award:

STATE AWARD in the category of OUTSTANDING EMPLOYEE WITH DISABILITY FOR EFFICIENCY, DEDICATION, SINCERITY AND DEVOTION given by the Ministry of Women Development & Social Welfare Department, Govt. of West Bengal, in 3rd December, 2012.

International Foundation for Environment and Ecology (*Incorporated under the Act II of 1882, Govt. of India*) awarded NATIONAL ENVIRONMENTAL EDUCATION AND RESEARCH EXCELLENCE AWARD on the occasion of 7th International Conference on Environment and Ecology held on 26-28 November 2021.

Teaching Experience : 23 years of teaching in UG and 18 years in PG level.

Research Experience: 28 years

Publications: 31

Dissertation/Project Guidance: 13

Project:

1. Characterization and Enhancement of phosphotriesterase & alkaline phosphatase activity of *Eisenia foetida* through soil amendments by trace elements and nutrient qualities and their ultimate use in organophosphorous pesticide detoxification. Funding Agency - Ministry of Environment, Govt. of W.B. (2008-10) Total Amount - Rs. 239000/-
2. Biopreservation Hilsa Fish by antimicrobial protein (amp) isolated from fermentative bacteria. Funding Agency - UGC Minor Project grant (2009-10) Total Amount - Rs. 119,000/-
3. Study of biologically diverse fungi from selected natural spot of South 24-parganas including East Kolkata wetland and their purification, identification, cataloguing and preservation. Funding Agency - Ministry of Environment, Govt. of W.B., (2011-2013), Total Amount - Rs 3,92,000/-
4. Isolation of antimicrobial protein from Lactic Acid Bacteria and its potential application as a bio-preservative along with a combination of some natural products. Funding Agency - W.B. Department of Sci. & Tech Major project (2012-2015), Total Amount - Rs 9,05,000/-

Research Interest: Pesticide Microbiology, Pesticide biodegradation, Environmental Microbiology, Vermi technology, Microbial Biodiversity and Food Microbiology

Dr. Bani Kumar Pathak

Assistant Professor (WBES)



Academic Qualifications:

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2007 from Guru Ghasidas University.

Ph.D.: Awarded Ph.D. degree in 2016 from **University of Calcutta**.

Award:

Dr. D.S Kothari Postdoctoral Fellowship (DSKPDF), UGC, Govt. of India [2021]

DBT- Research Associate, Department of Biotechnology, Govt. of India [2016]

Teaching Experience : 5 years of teaching in both UG and PG level.

Research Experience: 16 years

Publications: 12

Dissertation/Project Guidance: 18 M.Sc/M.Tech Students

Research interest: Natural product derived bioactive Molecules, Protein misfolding and Aggregation related metabolic and neurodegenerative diseases.

Ms. Sonali Saha

Assistant Professor (WBES)



Academic Qualifications:

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2008 from the University of Calcutta.

Award: Qualified CSIR-JRF in 2009

Teaching Experience: 18 years teaching experience in UG and PG level

Research Experience: 8 years

Publications: 5

Project: Completed one WB DST minor project as Co-PI.

Area of Specialization: Environmental Microbiology

Research interest: Food microbiology, Antimicrobial resistance genes.

Dr. Upal Das Ghosh

Assistant Professor (WBES)



Academic Qualifications

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2008 from the University of Kalyani.

Ph.D.: Awarded Ph.D. degree in 2015 from University of Calcutta.

Award: Qualified CSIR-JRF in 2009

Teaching Experience: 9 yrs teaching experience in UG and PG level

Publications: 10

Dissertation/Project Guidance: 6 M.Sc/M.Tech Students

Area of Specialization: Microbial Biotechnology, Molecular Biology, Virology, Bioinformatics

Research interest: Computer aided drug designing,

Ms. Parama Das Gupta

Assistant Professor (WBES)



Academic Qualifications

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2004 from the University of Calcutta.

Award: GATE Examination 2009 in Life Sciences, CSIR-NET Examination, June 2009 in Life Sciences, UGC-NET Examination, Dec. 2009 in Life Sciences

Teaching Experience: 18 yrs in UG and 9 years in PG level

Publications: 1

Dissertation/Project Guidance: 7 M.Sc/M.Tech

Research interest: Environmental Microbiology, General Microbiology

Dr. Sandip Misra

Assistant Professor (WBES)



Academic Qualifications

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2010 from the Barrackpore Rastraguru Surendranath College

Ph.D.: Awarded Ph.D. degree on 22.09.2020 from Jadavpur University.

Teaching Experience : 9 years of teaching experience in UG and PG level.

Publications: 9

Dissertation/Project Guidance: 4M.Sc/ B.Tech. projects in Bidhannagar College

Area of Specialization: Cell biology, Immunology, Molecular Biology, Medical Microbiology

Research interest: Investigate the role of non-canonical function of PTEN in development of cancer.

Dr. Sourav Pakrashi

Assistant Professor (WBES)



Academic Qualifications

M.Sc.: Passed M.Sc in Microbiology with 1st class in the year 2009 from the West Bengal University of Technology.

M.Tech: Passed M.Tech in Marine Biotechnology with 1st class in the year 2011 from the Cochin University Science and Technology.

Ph.D.: PhD in Biotechnology, Maulana Abul Kalam Azad University of Technology, West Bengal.

Award: Qualified as UGC-JRF in 2010 with AIR 309. Qualified as ICMR-JRF in 2013, Qualified as UGC- LS in 2011.

Teaching Experience : 9 years of teaching experience in UG and PG level.

Publications: 10

Dissertation/Project Guidance: 5 M.Sc/M.Tech students

Research interest: Cell Biology, Medical Microbiology, Recombinant DNA Technology

Our Laboratory:

Well equipped air-conditioned separate spacious laboratory for Microbiology, Biochemistry, Immunology and Molecular Biology. We have total 3 laboratories 2 culture inoculation rooms. All the laboratories are being cleaned and sanitized on regular basis. Enough numbers of glass goods and chemicals along with all types of molecular biological and immunological kits and other resources allow all the students to do the benchwork individually in hand. All practicals included in syllabus are performed by the students during their tenure. Our students are allowed to perform extra-curricular project work in laboratory.

Some instruments of our Laboratory:



UV-Visible Spectrophotometer



Thermocycler



Fermentor

Departmental Activities:



UG students are performing spectrophotometric study in practical



Departmental seminar



Parent Teacher meeting in our department



Departmental reunion “VIBRIOS” 2022



Teachers' day, 2022 celebration in our Department



Industrial Visit 2024

Proposed structure of PG Course Content in Microbiology as per CBCS guideline

Semester	Paper	Theory/ Practical	Title of the Paper	Paper Full Marks	Paper Credit
Semester 1	MCBT101	Theory	Biomolecules & Enzymes	50	4
	MCBT102	Theory	Basic Microbiology & Cell biology	50	4
	MCBT103	Theory	Biophysical Techniques	50	4
	MCBP101	Practical	Biomolecules & Enzymes	50	4
	MCBP102	Practical	Basic Microbiology	50	4
	MCBAECC	Theory	Laboratory Safety Measures & Intellectual Property Rights	50	2
	TOTAL			300	22
Semester 2	MCBT201	Theory	Metabolism & Bioenergetics	50	4
	MCBT202	Theory	Fundamentals of Molecular Biology	50	4
	MCBT203	Theory	Recombinant DNA Technology (RDT)	50	4
	MCBP201	Practical	Molecular Biology & RDT	50	4
	MCBP202	Practical	Environmental Microbiology	50	4
	MCBSEC	Theory	Environmental Microbiology	50	2
	TOTAL			300	22
Semester 3	MCBT301	Theory	Microbial Genetics	50	4
	MCBT302	Theory	Virology	50	4
	MCBT303	Theory	Immunology	50	4
	MCBDSE01/ MCBDSE02	Theory	Bioprocess Technology/ Industrial & Food Microbiology	50	4
	MCBP301	Practical	Immunology & Virology	50	4
	MCBP302	Practical	Industrial & Food Microbiology	50	4
	MCBGEC	Theory	Basic and Applied Microbiology	50	4
	TOTAL			350	28
Semester 4	MCBT401	Theory	Medical Microbiology	50	4
	MCBDSE03/ MCBDSE04	Theory	Developmental & Evolutionary Biology/ Advance Biotechnology	50	4
	MCBP401	Practical	Bioinformatics & Biostatistics	50	4
	MCBP402	Practical	Project Seminar & Grand Viva	100	8
	TOTAL			250	20
TOTAL (4 SEMESTERS)				1200	92

Table 2: List of Project performed in Bidhannagar College in last 5 years

SL.No.	PROJECT TITLE	NAME OF GUIDE
1	Isolation and Characterisation of Mercury Resistant Organisms from samples collected From tanneries in Kolkata	Dr.SouravPakrashi
2	<i>In silico</i> docking analysis of bio-actives from <i>Zingiber officinale</i> , <i>Allium sativum</i> with RdRP of SARS CoV-2 Delta Variant	Dr.UpalDasGhosh
3	Isolation And Characterization Of Rhizospheric Microorganisms From Potato Plant And Evaluation Of Their PGPR Characteristics	Ms.ParamaDasGupta
4	Assessment of antimicrobial activities of <i>Sarac aasoca</i> flower extract against gram positive and gram negative bacteria.	Dr.Sandip Misra
5	Isolation and characterization of amylase Producing bacteria	Dr.UpalDasGhosh
6	<i>In silico</i> comparative study between beta lactamases from <i>Klebsiella pneumonia</i> and <i>Mycobacterium tuberculosis</i>	Dr.UpalDasGhosh
7	In silico docking analysis of different bioactives from ginger and garlic over RdRP of SARS CoV2	Dr.UpalDasGhosh
8	Isolation and characterization of protease producing bacteria from soil	Ms.ParamaDasGupta
9	Isolation and characterization of protease enzyme produced by soil bacterium	Ms.ParamaDasGupta
10	Isolation of a Potent Bio-Control Agent (A lactic acid producing bacteria) from Sauerkraut and its effect against vegetables/Fruit Spoilage Fungi)	Dr. Abul Kalam
11	Isolation and characterization of amylase and protease producing bacteria from soil	Dr.Abul Kalam Dr.Sandip Bandopadhyay
12	Isolation and biochemical characterization of heavy metal and antibiotic tolerant bacteria from environmental sample	Dr.SouravPakrashi
13	Partial purification of the blue-green pigment of pseudomonas sp. BNC2906 and analysis the antimicrobial and anticancer activity of this pigment.	Dr.Sandip Misra
14	Isolation and characterization of lactic acid bacteria from fermented food product (curd) and evaluating their antimicrobial activity on selected microorganisms	Mrs.ParamaDasgupta
15	<i>In silico</i> docking analysis of bioactive from <i>Azadirachta indica</i> with MECA of MRSA	Dr.Upal Das Ghosh
16	Analysis & killing of antibiotic resistant bacteria isolated from fecal sample	Dr. Sandip Misra

Table3: List of Review guided by Faculties of Bidhannagar College

\	Review Title	Name of guide
1	Application of statistical methods in Microbiological research	Dr. Sandip Bandyopadhyay
2	Isolation, characterization, estimation and Significance of the salt tolerance bacteria	Dr. Abul Kalam
3	Biological role of non-standard amino acid.	Dr. Rini Roy
4	Application of microbial enzymes	Dr. Rini Roy
5	Role of gut micro flora in health and disease	Parama Das Gupta
6	Role of microbes in agriculture sustainability	Parama Das Gupta
7	Effects of novel chemical compounds in the oxidative phosphorylation of unicellular Pathogenic eukaryotes.	Dr. Sudipta Chakraborty.
8	Development of antibiotics resistance in Biofilm forming ESCAPE pathogens.	Dr. Sudipta Chakraborty
9	Phylogenetic diversity and identification of non-culturalable microbes from a hot spring.	Dr. Upal Das Ghosh
10	Development of antimicrobial drug resistance in Covid19 survivors.	Dr. Upal Das Ghosh
11	DNA bar coding in bacteria	Dr. Upal Das Ghosh
12	Importance of microbes in pharmaceutical industry	Dr. Sandip Misra
13	Lifestyle and risk of cancer	Dr. Sandip Misra
14	Classification, habitat, cell structure of Archaea	Dr. Sourav Pakrashi
15	Membrane transport and its therapeutic	Dr. Sourav Pakrashi
16	Cell wall structural differences in various microbes and cell wall as antimicrobial target	Dr. Sourav Pakrashi

