

Department of Microbiology
Bhaskaracharya College of Applied Sciences (University of Delhi)
Sector - 2, Phase - 1, Dwarka, New Delhi - 110075

About the Department

Louis Pasteur once said, “*The role of infinitely small is infinitely large*”. Microbiology is one of the most dynamic areas of biological sciences, as microbes are evolutionary and ecological pioneers and have a huge influence on our day-to-day life. These miniscule organisms play an indispensable and vital role in research in all areas of basic and applied sciences. It is an exceptionally broad discipline encompassing and integrating areas as diverse as Biochemistry, Cell Biology, Genetics, Molecular Biology, Environment, Agriculture, Taxonomy, Bioinformatics and Biotechnology.

The course curriculum provides a balanced introduction to basic, applied and advanced aspects of Microbiology and allied fields. Microbiologists are employed in a variety of industries ranging from Food, Dairy, Pharmaceuticals, Chemicals to Hospitality industry. The students are acquainted with the knowledge about all major groups of microorganisms, their influence and applications in our daily lives and how their potential can be harnessed for the betterment of the human life. The pandemic of COVID 19 is once again a stark reminder of the importance of this discipline. Graduates of this discipline can use this knowledge to take up research in combating these deadly diseases, develop new technologies, drugs and vaccines and thus help in making our lives better.

The Department of Microbiology of our college has qualified faculty. Our laboratories are well equipped with state-of-the-art equipment to provide hands-on-training to our undergraduate students such as Biological Safety Cabinets, Monocular and Binocular Microscopes, Trinocular Microscope, Spectrophotometers, Thermal Cycler (PCR), UV-visible double beam Spectrophotometer, Autoclaves, Incubators, Centrifuges, Shaker incubators, Electrophoresis set up, High precision electronic balances, pH analyzers, Cooling centrifuge, Deep freezer, Cooling cabinet, Reverse Osmosis water purifier (large scale), Gel Documentation System, Ice-making Machine, Hybridization oven, Mini Spinner, Dry heating block, Auto pipettes etc.

The department is also a proud member of the Star College Scheme of DBT, Government of India, and has been receiving grants since 2010 from the scheme. The college was awarded **Star status in June 2017** of which our Department is one of the beneficiary. The grant helps us to go beyond the curriculum in training our students.

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Activities organized in the academic year 2020-2021

“SUKSHMJEEV” our departmental society organizes a variety of academic and co-curricular activities in the form of conferences, seminars and lectures for the holistic development of students. Sukshmjeev provides a platform for interaction amongst students, faculty members and various academicians invited from renowned institutes.

This year several activities were organized by the Department in both online and offline modes. The annual festival of the Department ‘MicroQuest’ and a webinar series on ‘Advances in Microbiology: An Interdisciplinary Approach’ was held from 9th – 26th March 2021. Academicians from various institutes of repute including AIIMS, New Delhi, Regional Centre for Biotechnology, Faridabad, National Institute of Food Technology Entrepreneurship and Management, Sonapat and Pathkind Labs interacted with the students and delivered lectures on cutting edge research going on in the areas of DNA Replication, Gene Editing, Microbial Biofilms and Automation in Clinical Microbiology in this webinar series.

Due to Covid 19 pandemic classes were held online but after the lockdown Microbiology Department took initiative and organized an interdepartmental workshop on ‘Basics of Biosensor and its Techniques’ on 17th-18th March 2021 in association with Electronics and Biochemistry departments to provide hands on training to the students in offline mode. A visit of first year students to the Department of Microbiology at BCAS was held on 22nd February 2021, as a part of Campus Darshan initiative of the college.

Faculty members from the Department were instrumental in the organization of ‘National Science Series 2020: Igniting Young Minds’, a four-day Virtual Learning Program organized under the aegis of Star College Scheme, Department of Biotechnology, Government of India and IQAC of the college from August 4-7, 2020.

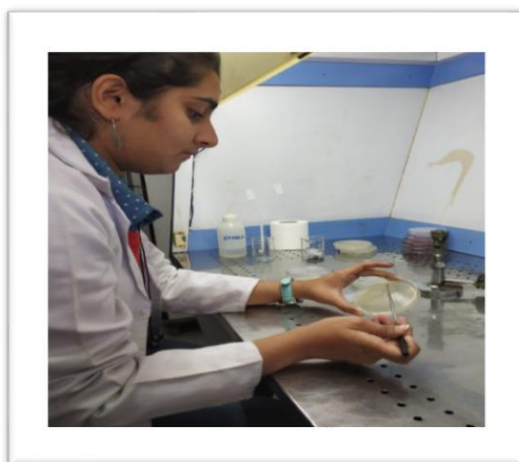
The Department organized a Webinar Series on ‘COVID 19 Pandemic: The Road Map to Recovery’ from 21st May- 25th July 2020. Scientists from industry and various institutes such as Indian Institute of Technology, Bombay, Institute of Genomics and Integrative Biology, Delhi, Central Research Institute, Kasauli, Indian Institute of Technology, Roorkee, Pathkind Labs, Gurugram, Food and Drug Administration, US, Institute of Integrative Medicine, Jammu etc delivered lectures pertaining to various aspects of Covid-19 as a disease and its impact on the global scale.

The Department has a strong network with our alumni both in India and abroad. Our distinguished alumni come to the college from time to time to deliver lectures to our students and keep them abreast about the latest developments in the field of microbiology and related areas. During the last academic year Dr. Sanjana Mukherjee, Orise Fellow, Public Health Policy and Any information given here is subjected to change as per the guidelines of DU as and when received.

Regulatory Research, US, Food and Drug Administration and Ms. Pooja Gupta, Ph.D student York University, UK delivered lectures in webinar series on ‘Covid 19 Pandemic’ and ‘National Science Series’ respectively. Several alumni members of the Department including Dr. Prateek Bharadwaj, Ph.D, IIT Bombay, Ms. Vandana Singh, Research Scholar, IGIB, Delhi, Mr. Anay Kumar, Research Scholar, Heinrich Heine University Düsseldorf, Germany and Mr. Shlok Jindal, Research Scholar, IIT, Roorkee acted as alumni coordinators for various webinars held by the Department. Apart from informing students about their research alumnus of the Department also interact with the students and guide them about various career opportunities in the related fields through their own experience. This year an International Webinar as part of ‘Alumni Interaction Day’ was organized by the Department on 26th March 2021. Ms. Manpreet Kaur Bagga, Research Assistant, New Castle University, UK and Ms. Shefali Thakur, Doctoral fellow at WHO’s International Agency for Research in Cancer, Lyon, France delivered lectures in this webinar and motivated the students to take up Microbiology as a research career. Besides all these activities, the students also actively participate in several in-house research projects (under the Star College Scheme, DBT, Govt. of India) which go beyond their curriculum and foster their interest and research aptitude. Students of the Department are also encouraged to participate in various sports, ECA and NSS activities.

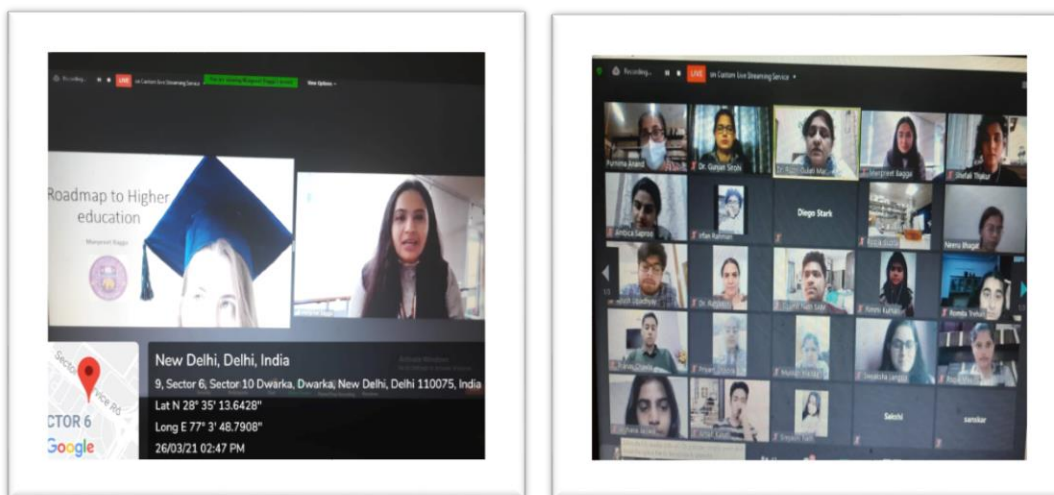
Special Achievements of the students in the year 2020-21

- Tanushree Singh (Batch 2017-20) secured second position in B. Sc. (H) Microbiology in the University.
- Ayush Upadhyay (Batch 2017-20) was awarded the Best Student of the college for the year 2019-20
- Every year our students after graduating get placed in reputed higher education institutes in India and abroad like IITs, AIIMS, IISERs, RCB, various central universities, University of Cambridge, University of Manchester, Illinois Institute, Chicago, Michigan State University etc. to name a few.



Student working in a Biosafety Cabinet

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Students participating in the webinars organized by Microbiology Department

Admission Eligibility Criteria and Combination of Subjects for Calculation of Merit

- 55% or more marks in the aggregate of Physics, Chemistry, Biology/ Biotechnology/ Biochemistry (Practical & Theory together) and 50% or more marks in one compulsory language i.e. English.
- Merit will be calculated based on aggregate percentage in Physics, Chemistry, Biology/Biotechnology/Biochemistry.

Faculty Details

Name	Qualification	Specialization
Dr. N. Vijaya Kumar	Ph.D. (JNU)	Molecular Biology
Dr. Purnima Anand	Ph.D. (DU)	Environmental Microbiology
Dr. Ruchi Gulati Marwah	Ph.D. (DU)	Industrial Microbiology
Dr. Pawas Goswami <i>(Teacher-In-Charge)</i>	Ph.D. (NDRI)	Dairy Microbiology

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Semester-wise distribution of Papers under CBCS (Revised)					
SEMESTER-I		SEMESTER-III		SEMESTER-V	
C-1**	Introduction to Microbiology and Microbial Diversity	C-5**	Microbial Physiology and Metabolism	C-11**	Industrial Microbiology
C-2**	Bacteriology	C-6**	Environmental Microbiology	C-12**	Immunology
AEC-1^	Environmental Science/ English Communication	C-7**	Molecular Biology	DSE-1#	
GE-1*	Generic Elective	SEC-1#		DSE-2#	
		GE-3*			
SEMESTER-II		SEMESTER-IV		SEMESTER-VI	
C-3**	Biochemistry	C-8**	Microbial Genetics and Genomics	C-13**	Medical Microbiology
C-4**	Cell Biology	C-9**	Virology	C-14**	Recombinant DNA Technology
AEC-2^	English Communication/ Environmental Science	C-10**	Food and Dairy Microbiology	DSE-3#	
GE-2*		SEC-2#		DSE-4#	
		GE-4*			

****Core Course; ^Ability Enhancement Compulsory Course; *Generic Elective–To be selected from papers offered by other Departments of the college; #Skill Enhancement Course and Discipline Specific Elective Course–To be selected from papers offered by the Department of Microbiology.**

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Skill Enhancement and Discipline Specific Elective Papers offered by the Department of Microbiology

Skill Enhancement Papers	Discipline Specific Elective Papers
SEC-1 Microbial Quality Control in Food and Pharmaceutical Industries	Semester V
SEC-2 Microbial Diagnosis in Health Clinics	DSE-1 Bioinformatics
SEC-3 Biofertilizers and Biopesticides	DSE-2 Instrumentation and Biotechniques
SEC-4 Food Fermentation Techniques	DSE-3 Principle of Genetics
SEC-5 Management of Human Microbial Diseases	DSE-4 Biomathematics and Biostatistics
SEC-6 Microbiological Analysis of Air and Water	Semester VI
SEC-7 Fundamentals of Bioinformatics	DSE-5 Microbial Biotechnology
SEC-8 Biostatistics	DSE-6 Advances in Microbiology
	DSE-7 Plant Pathology
	DSE-8 Biosafety and Intellectual Property Rights (IPR)
	DSE-9 Project Work

Generic Elective Papers offered by Department of Microbiology (*any one paper per semester in semesters 1st to 4th*)

SEM I

- GE101 : Introduction and Scope of Microbiology

SEM II

- GE201: Bacteriology and Virology

SEM III

- GE 301: Microbial Metabolism
- GE302: Microbial Genetics and Molecular Biology
- GE303: Applications of Microbes in Biotechnology

SEM IV

- GE401: Industrial and Food Microbiology
- GE402: Microbes in Environment

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- GE403: Medical Microbiology and Immunology
- GE404: Genetic Engineering and Biotechnology

	Category wise seat distribution				
Total Seats	UR	SC	ST	OBC	EWS
40	16	6	3	11	4

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