



## Department of Microbiology

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

### About the Department

Louis Pasteur once said, “*Never Underestimate the Power of the Microbes*”. Microbiology is one of the most dynamic areas of biological sciences, as microbes are evolutionary and ecological pioneers and have immense socio-economic importance in our day to day life. These miniscule organisms play an indispensable and vital role in our day to day life and act as model systems for 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 pandemic of COVID 19 is once again a stark reminder of the fact that it is very important to study 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 course curriculum provides a balanced introduction to both basic and applied 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 and their influence and application in our daily lives and how their potential can be harnessed for the betterment of the human life.

The faculty members of the Department are also actively involved in research through various innovation, in-house and extramural projects. The students of the department get a flavor of research at undergraduate level by getting involved in various projects, workshops, hands-on training etc.

The Department of Microbiology of our college has well equipped and furnished laboratories to provide hands-on-training to our undergraduate students. The laboratories are equipped with state-of-the-art equipment's such as Biological Safety Cabinets, Monocular and Binocular Microscopes, Trinocular Microscope, Spectrophotometers, Thermal Cycler (PCR), UV-double beam Spectrophotometer, Autoclaves, Incubators, Centrifuges, Shaker incubators, Electrophoresis set up, High precision electronic balances, pH analyzers, Cooling centrifuge, Cooling cabinet, Reverse Osmosis water purifier (large scale), Gel Documentation System, Ice-matic Machine, Hybridization oven, Mini Spinner, Dry heating block, Auto pipettes etc. to carry out various microbiological, biochemical and biotechnological experiments. The department is also a member of the Star College Scheme of DBT, Government of India, and has been receiving grants since 2010 from the scheme. The Department was awarded “Star Status” in June 2017.

## Department of Microbiology, BCAS, Dwarka

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Under the aegis of the departmental society, 'Sukshmjeev' and Star College Scheme, various academic and co-curricular activities in the form of annual departmental fest, conferences, seminars and symposia etc. are organized through which students augment their knowledge in all aspects of microbiology and related fields. This initiative provides a platform for interaction amongst students, faculty members and various academicians/industrialists invited from time to time from renowned institutions/industries across the country and from abroad as well. This year a seminar on "Advancements in Molecular Microbiology in the Revolutionary 'Omics' Era" was organized as a part of the annual festival of the Department, Micro Quest. Dr. Syed Shams Yazdani and Dr. Vikram Saini, from ICGEB and AIIMS respectively, delivered lectures in this seminar. Dr. Saurabh Saran from CSIR-IIIM, Jammu and Dr. Qasim Beg from Boston University, USA visited the department and interacted with students to discuss higher education opportunities and career options after graduation

Our inter-college microbiology fest "Microquest" is organized every year and attracts several participants from other colleges and universities. In this festival, various co-curricular competitive events are organized like collage making, poster competition, streak art, quizzes, treasure hunt etc. Students of the department are also encouraged to participate in sports and extra-curricular events organized in the college from time to time. We release our departmental magazine "Life Under Lens" every year which includes various scientific articles, doodles, memes, poems etc. compiled by our students and faculty.

To give students an idea about the working environment in industry or research institutes, visits to various industries and eminent institutions are conducted. Over the years, students from the department have visited Mother Dairy, Patparganj; NDRI, Karnal; Yakult Plant, Kundli; Superior Industries, Faridabad; Technology Based Incubator (TBI), UDSC; IIT, Delhi; NII, Delhi; Regional Centre for Biotechnology, Faridabad etc.

We also have a strong alumni network through which our current students can interact with their seniors through email, WhatsApp, skype etc. and get guided for their future career endeavors. 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.



**Students working in the Microbiology Laboratory**

### Admission Eligibility Criteria

- ❖ 55% or more marks in the aggregate of Physics, Chemistry, Biology/Biotechnology (PCB/PCBt) (Practical& Theory together)
- ❖ Passing in one compulsory language i.e. English with 50% marks.

### Faculty Details

S.No	Name of Faculty	Qualifications	Specialization
1)	Dr. N Vijay Kumar	Ph.D.	Molecular Biology
2)	Dr. Purnima Anand (Teacher-In-Charge)	Ph.D.	Environmental Microbiology
3)	Dr. Ruchi G. Marwah	Ph.D.	Industrial Microbiology
4)	Dr. Pawas Goswami	Ph.D.	Dairy Microbiology

### Semester-wise distribution of Courses under CBCS (Revised)

SEMESTER I		SEMESTER II	
<b>C1</b>	Introduction to Microbiology and Microbial Diversity	<b>C3</b>	Biochemistry
<b>C2</b>	Bacteriology	<b>C4</b>	Cell Biology
<b>AECC1</b>	English/MIL Communication or EVS	<b>AECC2</b>	EVS or English/MIL Communication
<b>GE1</b>	Generic Elective	<b>GE2</b>	Generic Elective
SEMESTER III		SEMESTER IV	
<b>C5</b>	Microbial Physiology and Metabolism	<b>C8</b>	Microbial Genetics and Genomics
<b>C6</b>	Environmental Microbiology	<b>C9</b>	Virology
<b>C7</b>	Molecular Biology	<b>C10</b>	Food and Dairy Microbiology
<b>SEC1</b>	Skill-Enhancement Elective Course	<b>SEC2</b>	Skill-Enhancement Elective Course
<b>GE3</b>	Generic Elective	<b>GE4</b>	Generic Elective
SEMESTER V		SEMESTER VI	
<b>C11</b>	Industrial Microbiology	<b>C13</b>	Medical Microbiology
<b>C12</b>	Immunology	<b>C14</b>	Recombinant DNA Technology
<b>DSE1</b>	Discipline Specific Elective	<b>DSE3</b>	Discipline Specific Elective
<b>DSE2</b>	Discipline Specific Elective	<b>DSE4</b>	Discipline Specific Elective

### Abbreviations Used for Course

<b>C</b>	Core Course
<b>AECC</b>	Ability Enhancement compulsory Course
<b>GE</b>	Generic Elective course
<b>SEC</b>	Skill Enhancement Elective Course

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## Department of Microbiology, BCAS, Dwarka

DSE	Discipline Specific Elective course				
<p><b>SEC:</b> Skill-Enhancement Elective Courses <i>(any one paper per semester in semesters 3rd and 4th)</i></p>	<ol style="list-style-type: none"> <li>1. Microbial Quality Control in Food and Pharmaceutical Industries</li> <li>2. Microbial Diagnosis in Health Clinics</li> <li>3. Biofertilizers and Biopesticides</li> <li>4. Food Fermentation Techniques</li> <li>5. Management of Human Microbial Diseases</li> <li>6. Microbiological Analysis of Air and Water</li> <li>7. Fundamentals of Bioinformatics</li> <li>8. Biostatistics</li> </ol>				
<p><b>DSE:</b> Discipline Specific Elective <i>(any two paper per semester in semesters 5th and 6th)</i></p>	<p><b>Group 1 (V Semester) (DSE 1, 2)</b></p> <ol style="list-style-type: none"> <li>1. Bioinformatics</li> <li>2. Instrumentation and Biotechniques</li> <li>3. Principles of Genetics</li> <li>4. Biomathematics and Biostatistics</li> </ol> <p><b>Group II (VI Semester) (DSE 3, 4)</b></p> <ol style="list-style-type: none"> <li>5. Microbial Biotechnology</li> <li>6. Advances in Microbiology</li> <li>7. Plant Pathology</li> <li>8. Bio-safety and Intellectual Property Rights</li> <li>9. project work</li> </ol>				
<p><b>GE :</b> Generic Electives <i>(any one paper per semester in semesters 1st to 4th.)</i></p>	<p><b>I SEM</b> GE101 : Introduction and Scope of Microbiology</p> <p><b>II SEM</b> GE201: Bacteriology and Virology</p> <p><b>III SEM</b> GE 301:Microbila Metabolism GE302: Microbial Genetics and Molecular Biology GE303: Applications of Microbes in Biotechnology</p> <p><b>IV SEM</b> GE401: Industrial and Food Microbiology GE402: Microbes in Environment GE403: Medical Microbiology and Immunology GE404: Genetic Engineering and Biotechnology</p>				
<b>Category wise seat distribution</b>					
Total Seats	UR	SC	ST	OBC	EWS
40	16	6	3	11	4

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