

DINABANDHU ANDREWS COLLEGE

AFFILIATED TO THE UNIVERSITY OF CALCUTTA

Department of Microbiology

UNDERGRADUATE SECTION

Model Reference: University of Calcutta, Syllabus for Microbiology Advanced (CBCS)

[with effect from July 2018 (2018-19)] (Notification No. CSR/12/18)

The Programme Outcomes (PO) of B.Sc. Honours Microbiology Curriculum:

Programme Outcomes Nos	Programme Outcomes (PO)
PO A	To instil into the students a comprehensive approach, to prepare their mind confronting any situation in life, not only study the subject, and to give a firm interdisciplinary approach.
PO B	To acquire solid foundational knowledge and comprehension of microbiological principles in order to facilitate diversification in the field of applied microbiology, including industrial, biochemical and biomedical, environment, biotechnology, genetics, agriculture, and food etc.
PO C	To evolve proficiency in the laboratory and a strong desire solving problems from scientific perspective
PO D	To thrive extraordinary communication skills, both in written and spoken language while pursuing higher education, research, and for industrial exposure for developing a great power of verbalization.
PO E	To develop a collaborative attitude at work, learn how to maintain integrity at work, and grow a team spirit.
PO F	To demonstrate the necessary practical skills for managing microorganisms for study and use in and out of the laboratory, including the use of reliable microbiological methods.
PO G	To become proficient in the handling of biological data and statistical analysis of the data, as well as in applying knowledge and abilities related to microbiology to analyse problems.
PO H	To become informed with the most recent, cutting-edge tools, complex equipment, and contemporary microbiology techniques, as well as the range of applications for which they are appropriate.
PO I	To build research strategies and skills to fill in the gaps of knowledge in the domains of microbiology and related interdisciplinary or multidisciplinary fields.
PO J	To establish career and professional objectives as academicians, industry professionals, and environmental activists based on a comprehensive understanding of the circumstances and an appropriate career planning process in higher education.

PO K	To cultivate a scientific temper and inspire young minds to think creatively as a result of participating in various awareness campaigns, interactive workshops, and scientific talks.
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Program Specific Outcomes Nos	Programme Specific Outcomes (PSO)
PSO 1	Describe the basic ideas, underlying theories, procedures, and techniques used in the various fields of microbiology.
PSO 2	Determine the microorganisms' identity and categorise them according to their physical traits and how they interact with their surroundings.
PSO 3	Illustrate an elaborate understanding of the various types of microorganisms, structure, composition, their roles in the biosphere, bioinformatics, and biostatistics.
PSO 4	Apply the technologies, tools and scientific procedures for laboratory and traditional studies safely and make a valid conclusion on the basis of the result getting from the field of microbiology and its related areas.
PSO 5	Explain the function of microbes in agriculture, food and dairy technology, human health, and the mechanism by which bacteria inherit genetic information and create novel genetic combinations using recombinant DNA.
PSO 6	Acquire knowledge about intellectual property rights, biosafety precautions, and potential job opportunities in microbiology.
PSO 7	Utilize their understanding of the many structural and enzymatic characteristics of microorganisms and fermentation procedures to create environmentally sustainable goods or procedures.

Mapping of PO & PSO for Microbiology (Honours) Syllabus (CBCS) of University of Calcutta

Programme Specific Outcomes (PSO) Nos	Programme Outcomes (PO)										
	A	B	C	D	E	F	G	H	I	J	K
PSO 1	✓	✓		✓	✓		✓		✓	✓	✓
PSO 2	✓	✓		✓	✓	✓				✓	✓
PSO 3	✓	✓		✓	✓	✓	✓		✓		✓
PSO 4		✓	✓		✓	✓	✓	✓	✓		✓
PSO 5		✓	✓	✓	✓	✓		✓			✓
PSO 6		✓		✓					✓	✓	✓
PSO 7		✓	✓		✓	✓	✓	✓		✓	✓

Programme Outcome mapping for Partial Semester wise CBCS Courses in Microbiology (Honours) under University of Calcutta

TABLE I

COURSE DURATION	COURSE DETAIL	PROGRAMME OUTCOME (PO)										
		A	B	C	D	E	F	G	H	I	J	K
Sem1 6 months	CC1 Introduction to Microbiology and Microbial Diversity (Theory+Practical)	✓		✓		✓	✓					
	CC2 Bacteriology (Theory + Practical)		✓	✓		✓	✓	✓	✓			
SemII 6 months	CC3 Biochemistry	✓		✓		✓			✓	✓		✓

	(Theory + Practical)											
	CC4 Cell Biology (Theory + Practical)		✓	✓		✓	✓		✓	✓		✓

TABLE II

COURSE DURATION	COURSE DETAIL	PROGRAMME OUTCOME (PO)										
		A	B	C	D	E	F	G	H	I	J	K
SemIII 6 months	CC5 Virology (Theory + Practical)		✓	✓		✓	✓		✓	✓	✓	✓
	CC6 Microbial Physiology and Metabolism (Theory + Practical)		✓	✓		✓	✓		✓	✓	✓	✓
	CC7 Molecular Biology (Theory + Practical)	✓		✓		✓	✓		✓	✓	✓	✓
	SECA1 Microbial Quality Control in Food and Pharmaceutical Industries		✓						✓	✓	✓	✓
	SECA2 Biofertilizers and Biopesticides		✓								✓	✓
SemIV 6 months	CC-8: Microbial Genetics		✓	✓	✓		✓		✓		✓	

	(Theory + Practical)											
	CC-9: Environmental Microbiology (Theory + Practical)	✓	✓	✓		✓	✓	✓			✓	✓
	CC-10: Recombinant DNA Technology (Theory + Practical)		✓	✓				✓	✓	✓	✓	✓
	SEC-B 1. Food Fermentation Techniques		✓							✓	✓	
	SEC-B 2 Microbiological Analysis Of Air And Water		✓				✓			✓	✓	

TABLE III

COURSE DURATION	COURSE DETAIL	PROGRAMME OUTCOME (PO)										
		A	B	C	D	E	F	G	H	I	J	K
SemV 6 months	CC-11: Food And Dairy Microbiology (Theory + Practical)		✓	✓			✓		✓		✓	✓
	CC-12: Industrial Microbiology (Theory + Practical)	✓	✓	✓			✓		✓			
	DSE-A 1 Microbial Biotechnology (Theory + Practical)	✓	✓	✓		✓	✓			✓	✓	✓
	DSE-A 2 Advances In Microbiology (Theory + Practical)	✓	✓	✓			✓	✓	✓			✓
	DSE-B 1 Inheritance Biology (Theory + Practical)	✓	✓	✓				✓		✓	✓	

[illegible]