



CURRICULUM
for
UNDERGRADUATE DEGREE PROGRAM

IN
MICROBIOLOGY

Scheme of Teaching and Evaluation 2024

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2024-25)

In accordance with NEP 2020



Department of Microbiology
GRAPHIC ERA (DEEMED TO BE UNIVERSITY)

566/6, Bell Road, Clement Town,
Dehradun, Uttarakhand 248002 INDIA

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Graphic Era (Deemed to be University) B.Sc. (Hons.) Microbiology Scheme of Teaching and Evaluation 2025 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) as per NEP 2020 (Effective from the academic year 2025-26)											
Semester I											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM101	Bacteriology & Mycology	DSC	3	3	-	-	3	25	25	50	100
BSCM102	Concepts in Microbiology/ From University Pool	MSC	3	3	-	-	3	25	25	50	100
	From University Pool	MDC	3	3	-	-	3	25	25	50	100
BSCM103	Basics of Computer Application	SEC	3	3	-	-	3	25	25	50	100
BSCM104	Probiotics and Human Health	VAC-I	2	2	-	-	2	25	25	50	100
DM001	Disaster Management	VAC-II	2	2	-	-	2	25	25	50	100
BSCM105	Professional Communication	AEC	2	2	-	-	2	25	25	50	100
LABS											
BSCML101	Bacteriology & Mycology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML102	Concepts in Microbiology Lab/ From University Pool	MSC	1	-	-	2	2	25	25	50	100
Total			20								900

THF101	Healthy Living and Fitness	*MNG
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* **MNG** is non-credit course that will be evaluated as satisfactory/non-satisfactory after successful completion of the course.



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Semester II											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM201	Inorganic & Physical Chemistry	DSC	3	3	-	-	3	25	25	50	100
BSCM202	Microbial Ecology/ From University Pool	MSC	3	3	-	-	3	25	25	50	100
BSCM206	From University Pool/Swayam	MDC	3	3	-	-	3	25	25	50	100
BSCM203	Cell Culture Techniques	SEC	3	3	-	-	3	25	25	50	100
TEV201	Environmental Science / Swayam	VAC-I	2	2	-	-	2	25	25	50	100
UHV201	Universal Human Values (UHV-II)/Swayam	VAC-II	2	2	-	-	2	25	25	50	100
BSCM204	Career Skills	AEC	2	2	-	-	2	25	25	50	100
LABS											
BSCML201	Inorganic & Physical Chemistry Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML202	Microbial Ecology Lab/ From University Pool	MSC	1	-	-	2	2	25	25	50	100
Total			20								900

Note: It is mandatory for the candidate opting for EXIT option to undergo Field Visit/ Vocational Course of 4 credits in addition to credits mentioned in I and II semesters to obtain UG Certificate in Microbiology.

	Constitution of India	*MNG
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Semester III											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM301	Organic & Analytical Chemistry	DSC	3	3	-	-	3	25	25	50	100
BSCM302	Cell Biology	DSC	3	3	-	-	3	25	25	50	100
BSCM303	Extremophiles & Adaptations/ From University Pool	MSC	3	3	-	-	3	25	25	50	100
BSCM305	From University Pool/Swayam	MDC	3	3	-	-	3	25	25	50	100
BSCM304	Quality Control in Microbiology	SEC	3	3	-	-	3	25	25	50	100
	Leadership and Public Speaking/Literature in Translation/Modern English Language/From University Pool/ Swayam	AEC	2	2	-	-	2	25	25	50	100
LABS											
BSCML301	Organic & Analytical Chemistry Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML302	Cell Biology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML303	Extremophiles & Adaptations Lab/ From University Pool	DSC	1	-	-	2	2	25	25	50	100
Total			20								900

	IKS (Indian Knowledge System)	*MNG
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Semester IV											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM401	Biochemistry	DSC	3	3	-	-	3	25	25	50	100
BSCM402	Molecular Biology	DSC	3	3	-	-	3	25	25	50	100
BSCM403	Microbial Genetics	DSC	3	3	-	-	3	25	25	50	100
BSCM404	Agro-Environment Microbiology/ From University Pool	MSC	4	3	1	-	4	25	25	50	100
BSCM405	Academic Writing/ From University Pool /Swayam	AEC	2	2	-	-	2	25	25	50	100
LABS											
BSCML401	Biochemistry Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML402	Molecular Biology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML403	Microbial Genetics Lab	DSC	1	-	-	2	2	25	25	50	100
BSCM406	Internship	INT	2	-	-	-	-	-	-	100	100
Total			20								900

Note: It is mandatory for the candidate opting for EXIT option to undergo Field Visit/ Vocational Course of 4 credits in addition to credits mentioned in III and IV semesters to obtain UG Diploma in Microbiology.



<p style="text-align: center;">Graphic Era (Deemed to be University) B.Sc. (Hons.) Microbiology Scheme of Teaching and Evaluation 2025 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) as per NEP 2020 (Effective from the academic year 2025-26)</p>											
Semester V											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM501	Microbial Physiology	DSC	3	3	-	-	3	25	25	50	100
BSCM502	Virology	DSC	3	3	-	-	3	25	25	50	100
BSCM503	Immunology	DSC	3	3	-	-	3	25	25	50	100
BSCM504	Bioanalytical Techniques	DSC	3	3	-	-	3	25	25	50	100
BSCM505	Microbes in Green Energy & Sustainable Development/ From University Pool	MSC	4	3	1	-	4	25	25	50	100
LABS											
BSCML501	Microbial Physiology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML502	Virology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML503	Immunology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML504	Bioanalytical Techniques Lab	DSC	1	-	-	1	2	25	25	50	100
Total			20								900



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Semester VI											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM601	Recombinant DNA Technology	DSC	3	3	-	-	3	25	25	50	100
BSCM602	IPR, Biosafety & Bioethics	DSC	4	3	1	-	4	25	25	50	100
BSCM603	Bioinformatics	DSC	3	3	-	-	3	25	25	50	100
BSCM604	Biostatistics and Biomathematics	DSC	4	3	1	-	3	25	25	50	100
BSCM605	Biocomposting & Bioremediation/From University Pool	MSC	4	3	1	-	4	25	25	50	100
LABS											
BSCML601	Recombinant DNA Technology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML603	Bioinformatics Lab	DSC	1	-	-	1	2	25	25	50	100
Total			20								700



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Semester VII											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM701	Environmental Microbiology	DSC	3	3	-	-	3	25	25	50	100
BSCM702	Medical Microbiology	DSC	3	3	-	-	3	25	25	50	100
BSCM703	Research Methodology	DSC	4	3	1	-	4	25	25	50	100
BSCM704	Waste Water Treatment/ From University Pool	MSC	4	3	1	-	4	25	25	50	100
BSCM705	Industrial Waste Management / From University Pool	MSC	4	3	1	-	4	25	25	50	100
LABS											
BSCML701	Environmental Microbiology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML702	Medical Microbiology Lab	DSC	1	-	-	2	2	25	25	50	100
Total			20								700

Note: Eligibility for UG (Hons) with Research: Students who secure 75% marks and above in the first six semesters.



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Semester VIII (Without Research)											
COURSE MODULE				TEACHING PERIODS				WEIGHTAGE: EVALUATION			
COURSE			Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component									
BSCM801	Food & Dairy Microbiology	DSC	3	3	-	-	3	25	25	50	100
BSCM802	Industrial Microbiology	DSC	3	3	-	-	3	25	25	50	100
BSCM803	Microbial Genomics	DSC	4	3	1	-	4	25	25	50	100
BSCM804	Microbiological Analysis of Air & Water	DSC	4	3	1	-	4	25	25	50	100
BSCM805	Aquatic Environment Microbiology	DSC	4	3	1	-	4	25	25	50	100
LABS											
BSCML801	Food & Dairy Microbiology Lab	DSC	1	-	-	2	2	25	25	50	100
BSCML802	Industrial Microbiology Lab	DSC	1	-	-	2	2	25	25	50	100
Total			20								700

Note: Honours students not undertaking research will do 3 courses for 12 credits in lieu of a research project / Dissertation.