

Programme Code		UGMCB				
Programme name		BSc. Microbiology Honours				
Sl no	Course code	Title of the course	Experiential learning	Participative learning	Problem solving methodology	Remarks
1	UGMCBCC01	Introduction to Microbiology and Microbial Diversity	✓	✓		Senior students share their experience to junior students, which help them to develop good laboratory practices and the concept of biosafety. Students actively participate to demonstrate functioning and use of the important instruments used in the microbiology laboratory.
2	UGMCBCC02	Bacteriology	✓	✓		Bacteriology is the branch and specialty of Microbiology that studies the morphology, ecology, genetics and biochemistry of bacteria. Active participation of students in the seminars and related events helps them to study bacteria in health and in disease, inside and outside the animal or Human body.
3	UGMCBCC03	Biochemistry	✓	✓	✓	The qualitative and quantitative assays of different biomolecules in laboratory are executed by students in individuals and also in groups. There are ample scope for the students to solve mathematical along with practical problem in biochemical events.
4	UGMCBCC04	Virology	✓	✓	✓	This course deals with the biology of viruses and viral diseases, including the distribution, biochemistry, physiology, molecular biology, ecology, evolution of Viruses and clinical aspects of viral pathogenesis. Students are trained in such manner that helps them to indulge in future researches and extend their contribution to Basic Science and public health as well.
5	UGMCBCC05	Microbial Physiology and Metabolism	✓	✓	✓	This field of microbiology gives the students an insight view of the physiology of microbes, which could be experienced through applying different parameters in the laboratory and students could achieve it through participatory learning in workshops or related events where theoretical as well as practical knowledge are required. It also helps students to solve different problems related to microbial physiology in the laboratory.

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6	UGMCBCC06	Cell Biology		✓	✓	The course structure of cell biology had been designed for student's perspectives in their personal nourishment to future experimental necessities. There is a large scope for students for problem solving methodologies, they also participate to accumulate the idea in practical fields to coalesce the theoretical knowledges.
7	UGMCBCC07	Molecular Biology	✓	✓	✓	Isolation, separation and quantification of nucleic acids and protein using electrophoresis unit are performed by the students. The practical troubleshooting are also learnt by the students. They are also encouraged to participate in events like seminars, workshop etc.
8	UGMCBCC08	Microbial Genetics	✓	✓	✓	Students learn about different procedure of bacterial genetic exchange procedure experimentally. They also participate in plasmid isolation and separate plasmid samples to different conformations in problem solving session.
9	UGMCBCC09	Environmental Microbiology	✓		✓	In the practical field, students can easily manipulate an idea or experimental design for this unit. Thus this study helps them with environmental problem-solving methodologies, which is much more important for today's sustainable development and the formation of a better future planet.
10	UGMCBCC10	Food and Dairy Microbiology	✓	✓	✓	Students could experience the types and quality of foods consumed in daily life and also participate in the making of some fermented foods and isolation food spoilage microbes from foods in the laboratory. This unit also helps students to solve different problematic situations in food-related issues in life, like how to preserve foods and so on.
11	UGMCBCC11	Industrial Microbiology	✓	✓		Students receive practical experiences on fermentation and assay of industrially important biological products. They also participate in industrial visits to visualize industrial fermenter, and other downstream processing.

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12	UGMCBCC12	Immunology	✓	✓	✓	Different assays of antigen-antibody interaction are experimentally performed by the students. They participate in blood-grouping test session and determine total and differential leukocyte count when given a blood sample in problem solving session.
13	UGMCBCC13	Medical Microbiology	✓	✓	✓	With the help of photographs of disease symptoms students get the experience of identifying the possible disease. They also actively participate in antibiotic sensitivity assays. They are given bacterial strain to report the biochemical, morphological characteristics as a part of its identification during problem solving session.
14	UGMCBCC14	Recombinant DNA Technology	✓	✓		Students participate in detail demonstration of genetic engineering methodologies and experimentally learn how a recombinant DNA construct could be produced
15	UGMCBDSE01	Inheritance Biology	✓		✓	Inheritance is the transmission of traits or information from one generation of individuals or cells to the next. This course is so designed that the students will gain significant insights in the molecular and genetical basis of heredity. Several hands-on practical experiments and solving related problems help them to have a better understanding of the subject.
16	UGMCBDSE02	Microbial Biotechnology	✓	✓	✓	Students could experience the enormous potentiality of microbes in the biotechnology field. They also participate in the production of some microbe-derived products in the laboratory. Also, they can handle the patents, copyrights, trademarks related issues applying theoretical knowledge.


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17	UGMCBDSE03	Project Work	✓	✓	✓	Students should complete an independent project work with proper guidance, demonstrate knowledge of current research and skill of using current tools and techniques specific to the field of study. They should identify, analyze, and solve problems creatively through sustained critical investigation and should also demonstrate an ability to present and defend their project to a panel of teachers.
18	UGMCBDSE04	Instrumentation and Biotechniques			✓	The course is designed to give idea among the students about different state of the art instruments, modern techniques and work out problems related to the research of microbial world.
19	UGMCBDSE05	Advances in Microbiology		✓	✓	Metagenomics is the modern path of experiments, students gathered the idea of metagenomics from this unit which is helpful for the analysis of critical biological problems like pathogenesis.

20	UGMCBSEC01	Value Education & Indian Culture	✓	✓		Students experience the power of thoughts and the Science of Peace, participate to develop awareness about daily routine, self-evaluation & Integral Personality Development.
21	UGMCBSEC02	Online course		✓	✓	Students actively participate in this online course where they learn new techniques and solve problems given to them.

22	UGMCBGE01	Bacteriology and Virology	✓	✓		Senior students share their experience to junior students, which help them to develop good laboratory practices and skills to isolate and maintain bacterial culture and plant viruses. Students actively participate to demonstrate the morphological structures of viruses and their important characters.
23	UGMCBGE02	Microbes in Environment		✓	✓	Students participate during learning of microbial environment, not only via this unit; even this idea directly imposed in other units too. In the practical field, students can easily manipulate an idea or experimental design for this unit. Thus this study helps them with environmental problem-solving methodologies, which is much more important for today's sustainable development and the formation of a better future planet.

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24	UGMCBGE03	Industrial & Food Microbiology	✓	✓	✓	Students could experience the types and quality of foods consumed in daily life and also participate in the making of some fermented foods and isolation food spoilage microbes from foods in the laboratory. This unit also helps students to solve different problematic situations in food-related issues in life, like how to preserve foods and so on. Students receive practical experiences on fermentation and assay of industrially important biological products. They also participate in industrial visits to visualize industrial fermenter and other downstream processing.
25	UGMCBGE04	Genetic Engineering and Biotechnology	✓	✓		Students participate in detail demonstration of genetic engineering methodologies and experimentally learn how a recombinant DNA construct could be produced and applied in various fields. Also, they can handle the patents, copyrights, trademarks related issues applying theoretical knowledge.
26	UGMCBGE05	Microbial Genetics and Molecular Biology	✓	✓	✓	Students learn about different procedure of bacterial genetic exchange procedure experimentally. The practical troubleshooting are also learnt by the students. They are also encouraged to participate in events like seminars, workshop etc in related fields.
27	UGMCBAECC01	English Communication	✓	✓		Students gain the experiences of effective listening, participate in group discussion, poster making etc.
28	UGMCBAECC02	Environmental Science			✓	Students are groomed to solve various issues associated with environment.

  
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