Programme Outcomes, Programme Specific Outcomes
For M.hil.Programmes

Programme Name: M.Phil. in Microbiology

Name of the Department
University of North Bengal
West Bengal, INDIA

Programme Outcomes

- Significance and understanding of research problem, literature citation, bibliography etc.
- Enumerating the significance of experimental values in terms of statistical analysis
- Understanding and application of different software's in molecular biology and microbiological sampling
- Knowledge of updated techniques in the field of microbiology, biophysics, molecular biology etc.

Programme Specific Outcomes

- Defining research and project proposal
- Importance of statistical analysis of biological sampling
- Hands on experience of bioinformatics tools
- Making students familiar with the advance tools and techniques required for now a day's research in microbiology

Course Outcomes

Semester I		
Course Code	Course Name	Course Outcomes
MBMP01	Research Methodology and Design	• **Essential steps in defining research problems and experimental design** • **Format of manuscript, research article, references etc.** • **Handling and safe disposal of hazardous wastes**
MBMP 02	Quantitative methods	• **Understanding the different statistical measurements** • **Biosafety guideline and regulation** • **Software handling**
		Semester II
MBMP 03	Computer Application	• **Database searching like BLAST, FASTA, CLUSTAL W etc.** • **Structure function analysis, primer designing.** • **Molecular docking and drug design**
MBMP-E1 PAPER A	Instrumentation and Biotechniques	• **Understanding the principle and uses of microscope, spectroscopy and chromatography** • **Knowledge about electrophoretic separation of bio molecules, centrifugation and radioactive measurement**
MBMP-E1 PAPER B	Value Added Product from Agro - wastes	• **Generation of microbial biomass from wastes of cereal, oil crops, fruit wastes, vegetable waste, fermentation waste industry and whey** • **Students will identify and apply potential biomass feedstocks including energy crops**

		Semester III
MBMP 04	Advance Microbiology	• **Study of up to date techniques used for research in microbiology** • **Study of phylogenetic profiling, VNTR, SNTR, Proteomics, microarray etc.** • **Study of spectroscopy, chromatography, PCR, automation in diagnostics, nano- techniques, sequencing etc.**
MBMP E2 PAPER A	Bioethics & IPR	• **Learning the importance of ethics in life science studies** • **Concept on intellectual property rights trade mark, patents law, Indian patent act etc.** • **Understanding the role of Indian and international Legal system in maintenance of bioethics, Intellectual Property Rights, commercialization and licensing.**
MBMP E2 PAPER B	Biodegradation & Bioremediation	• **An insight into the role of microorganisms in controlling and alleviating pollution, bioremediation, bioaugmentation, oil spill control etc.** • **Becoming conscious of the alarmingly increasing levels of pollution and other Global Environmental Problems, like green house effect, UV radiation, acid rain etc.** • **An idea of all harmful xenobiotics and hazardous wastes that are present in the environment and their effect in animal and plant life.**
		Semester IV
MBMP 05	Dissertation	• **Exposure to lab based research and induction of critical thinking** • **Learning to design and set experiments as per the needs of their scientific investigation.** • **Learning to write details of their experiments along with their results and discussion and to defend their results in seminars and/or viva voce**