

COURSE OBJECTIVES AND COURSE OUTCOMES

T. Y. B. Sc. SEMESTER - V

MICROBIOLOGY PAPER - I

SUBJECT: MICROBIAL GENETICS (USMB501)

Sr. No.	Course Objectives	Course Outcomes
1)	To compare prokaryotic and eukaryotic replication including enzymes and proteins involved	Knowing the sequence of events , mechanisms, enzymes and proteins involved in replication of prokaryotes and eukaryotes
2)	To inspect the basis of Central Dogma & Genetic code	Understanding the central dogma of molecular biology and the universality and exceptions of the Genetic code
3)	To outline Gene expression & synthesis of proteins	Understanding the basic concepts of gene expression, types of RNA and differences in protein synthesis in prokaryotes and eukaryotes
4)	To identify the molecular basis and types of mutation, their cause and effect	Learning the concepts of mutation, its types, mutagens, causes of mutation and their effects on DNA and phenotypic properties
5)	To investigate different mechanisms of DNA repair	Understanding of the damage to DNA due to mutagenesis and various mechanisms of DNA repair
6)	To examine the mechanisms of gene transfer in bacteria and provide an introduction into the mechanisms of genetic recombination	Understanding the various mechanisms of gene transfer in bacteria (transformation, conjugation and transduction) and genetic recombination

COURSE OBJECTIVES AND COURSE OUTCOMES

T. Y. B. Sc. SEMESTER - VI

MICROBIOLOGY PAPER - I

**SUBJECT: RECOMBINANT DNA TECHNOLOGY, BIOINFORMATICS
& VIROLOGY (USMB601)**

Sr. No.	Course Objectives	Course Outcomes
1)	To identify the basic steps in gene cloning, vectors, model organisms, methods of transformation and screening and identification of recombinant cells	Learning the methods to construct recombinant DNA molecules, and know the tools required like vectors, restriction enzymes etc.
2)	To inspect the basic techniques in Recombinant DNA technology along with their applications	Understanding the basic techniques routinely used in recombinant DNA technology and a few applications of r DNA technology
3)	To analyse the tenets of Bioinformatics which will empower the learner with insilico analytical techniques	Learning about aims, tasks & applications of bioinformatics, databases, tools and their significance; importance of transcriptome, metabolomics, pharmacogenomics, applying sequence alignment techniques and constructing phylogenetic tree
4)	To explain the structure, classification and general modes of replication of viruses as part of basic virology	Learning about general structure, life cycle and classification of viruses
5)	To illustrate genetic switch in phage and the genetic basis of regulation and operon control through the involvement of regulatory proteins	Understanding of gene expression in prokaryotes, operon as a unit of gene regulation and regulation of gene expression in prokaryotes and bacteriophages (Lambda phage)
6)	To discuss basic structure, life cycle of different viruses and cultivation of viruses and an introductory study on Prions, Virioids and viruses causing cancer	Understanding the basic structure and life cycle of different viruses and their cultivation. The student will get basic knowledge on Prions, Virioids and viruses causing cancer