

LEARNING OUTCOMES

M.Sc. BOTANY THIRD SEMESTER

PAPER-I : SYSTEMATICS OF ANGIOSPERMS

Learning Outcome:

- Student will understand floral structure of Angiospermic Plants and how stamens and carpels are evolved.
- Students will get to know about scope, aim, principles of taxonomy and about concepts of taxa, genus etc. Students will also get knowledge about various taxonomic evidences, preparation of herbarium sheets and how to read floras.
- Learn about major systems of classification with merits and demerits.
- Study of the some dicotyledons families and their economic importance.
- Study of some monocotyledons families and their economic importance.

PAPER-II: MOLECULAR BIOLOGY AND PLANT BREEDING

Learning Outcome:

- Students will get to know in detail about DNA content, structure, forms and its replication and mutation. It will provide comprehensive understanding regarding c value paradox, cot curve, and DNA Repair Mechanisms .
- Understand about fine structure of gene, genetics of bacteria and virus, and gene expression in eukaryotes.
- Students will get to know about different form of RNA and their function. This also provides knowledge about RNA synthesis and processing.
- Understand the overall concepts of Transcription, Translation.
- Learn about breeding systems, techniques of Hybridization, apoptosis etc.

PAPER-III : PLANT PHYSIOLOGY, BIOCHEMISTRY,AND METABOLISM

Learning Outcome:

- After completion of the course the students will get familiar with fundamentals of enzymology .
- Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
- Understand the respiration in higher plants
- Understand the structure, biosynthesis and significance of Bio-molecules.
- Learn about different metabolites synthesized by plants, their transport and assimilation

PAPER-IV : PLANT ECOLOGY (CONSERVATION AND UTILIZATION OF PLANT RESOURCES)

Learning Outcome:

- On completion of this course, the students will be able to understand the biogeography, status and loss of biodiversity in India and world.
- Know the sustainable development and care of environment. Understand the connection between material wealth & resources exploitation.
- Understand the different strategies of biodiversity conservation.
- Learn about causes and effects of different types of Pollution, climate change and Global warming
- Understand the basic concepts, tools and applications of remote sensing with special emphasis on Indian remote sensing Program.

M.Sc. BOTANY FOURTH SEMESTER

PAPER-I: BIOTECHNOLOGY AND PLANT TISSUE CULTURE

Learning Outcome:

- On completion of this course, the students will be able to Know about Equipment's required in Tissue culture Lab, Media preparation techniques for different plants→ Sterilization techniques for media as well as for explants.
- Understand the concepts of Explant Culture, Anther culture, Pollen culture, Micropropagation, Somaclonal variation and Protoplast fusion techniques.
- Know the principal and applications of biotechnology in different fields.
- Understand different techniques of Recombinant DNA technology.
- Learn about proteomics and genomics.

PAPER-II METHODS IN BIOLOGY, APPLIED BIOLOGY, INSTRUMENTATION, BIOSTATISTICS AND COMPUTER

Learning Outcome:

- Students will be able to draw conclusions or make predictions based on data summaries or statistical analyses.
- Design research studies in collaboration with physicians, life scientists, or other professionals.
- Analyze clinical or survey data using statistical approaches such as longitudinal analysis, mixed effect
- logistic regression analyses, and model building techniques.
- Provide Biostatistician consultation to clients or colleague

PAPER-III (ELECTIVE-I)- INDUSTRIAL MICROBIOLOGY

Learning Outcome:

- Students will gain knowledge about different types of microorganisms and their significance as well as techniques used in microbiology.
- Students will also study the growth and control of microbes as well as different bacteriological techniques involved in food microbiology.
- Learn about different types of fermentation processes, equipments used and microbiological processes involved.
- Will provide knowledge of microbial quality control and quality schemes used in different industries.
- Understand the use of properties of microorganisms, principally bacteria, as bioindicators of contamination and to remedy problems of contamination and other environmental impacts.

PAPER-IV : (ELECTIVE-II) MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Learning Outcome:

- After successful completion of this course, students will be able to: Acquaint with concepts in prokaryotic, eukaryotic, and viral genetics,
- Learn the detailed concepts of central dogma of molecular biology (replication, transcription, and translation) , types of mutation, gene regulation and transposable element.
- Understand the applications and importance of biotechnology, genetic engineering and plant tissue culture in different fields.
- Understand the Laboratory Techniques viz. Microscopy, SEM→ & TEM, Ultracentrifugation, fractionation, Electrophoresis, PCR,
- Draw conclusions or make predictions based on data summaries or statistical analyses and Design research studies