

SCHOOL OF LIFE SCIENCES
JAWAHARLAL NEHRU UNIVERSITY

M.Sc – I Semester Practical Teaching Programme (2022-2023)

Course Name	Course In-charge/Faculty	Experiments
Biochemistry-I	Dr. Vikas Yadav (1-5/6 hours) Prof. S. Gourinath (6-8/6 hours) Dr. Sneha Lata Panwar (9-13/8 hours) (11 days/20 hours)	<ol style="list-style-type: none"> 1. Biochemical Calculation. 2. Concept of isoelectric point and protein solubility and preparation of casein from milk. 3. Estimation of protein by: Lowry Method Bradford Method 4. Ultraviolet absorbance of aromatic amino acid. 5. Estimation of inorganic phosphate in casein by Fiske & Subbarow method. 6. Purification of egg white lysozyme and its characterization by SDS PAGE. 7. Crystallization of Lysozyme. 8. Kinetics of Lysozyme activity. 9. Extraction of Phospholipids from egg yolk. 10. Estimation of lipids by Fiske & Subbarow method. 11. Separation of various phospholipids by thin layer chromatography. 12. Estimation of cholesterol. 13. Analysis of lipids by GC-MS.
Genetics	Dr. Nirala Ramchiary (7 days/12 hours)	<ol style="list-style-type: none"> 1. Construction of genetic map in biparental mapping population (Plants) <ol style="list-style-type: none"> a. DNA extraction of mapping population (approx. 96 individuals) derived from two contrasting parents b. PCR analysis of mapping population DNAs with molecular marker(s) c. Marker band scoring after resolving in agarose gel d. Construction of genetic map using MapMaker/Joinmap or any other mapping programmes publicly available e. Presentation of genetic maps and interpretation 2. Quantitative Trait Loci mapping in Biparental cross (Plants) <ol style="list-style-type: none"> a) Scoring of quantitative traits in segregating mapping population b) Mapping of Quantitative trait loci using different programmes. c) Presentation of QTLs in linkage maps and interpretation
Cancer Biology	Prof. R. P. Singh (4 days/6 hours)	<ol style="list-style-type: none"> 1. Demonstration of carcinoma slides of different organs of human. 2. Live and Dead cell counting by Trypan blue 3. Demonstration of Immunohistochemistry (IHC) slides.
Microbiology	Prof. Arun S. Kharat (6 days/10 hours)	<ol style="list-style-type: none"> 1. Microbial media; Minimal/Rich/Differential and selective.

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		<ol style="list-style-type: none"> 2. Test of sterility. 3. Isolation of bacteria. 4. Monochrome, Endospore staining and different staining techniques. 5. Lactose fermentation test. 6. Antibiotic susceptibility test. 7. Spontaneous and Adaptive mutation. 8. IMViC test. <ol style="list-style-type: none"> a. Bacterial growth curve.
Animal Histology	Dr. Amal Mondal (3 days/4 hours)	<ol style="list-style-type: none"> 1. Microscopic study of different types of tissues and this cytoarchitecture. 2. Tissue process for histological preparations. 3. Section cutting; Microtomy (Rotary) 4. Staining: Haematoxyline/Eosin of starched preparations for different organs. 5. Preparation of permanent slides.
Plant physiology and developmental biology	Prof. Ashis Nandi and Prof. Anand Sarkar (7 days/12 hours)	<ol style="list-style-type: none"> 1. Shoot meristem of monocot and dicotyledonous plants; anatomy of shoot 2. Root meristem of monocot and dicotyledonous plants; anatomy of root 3. Dorsoventral polarity of leaf 4. Visualization of auxin distribution in shoot, root and leaves 5. Analysis of shoot/root mutants 6. Analysis of auxin pathway mutant
Plant tissue culture	Prof S Chakravarty (5 days/8 hours)	<ol style="list-style-type: none"> 1. Regeneration and transformation of tobacco using <i>Agrobacterium tumefaciens</i>.

(Dr. Sneh Lata Panwar)

Coordinator