

LESSON PLAN

NAME OF EXTENSION LECTURER *Dr. Seema*

CLASS B.Sc. (Life Science)

SUBJECT: ZOOLOGY

SEMESTER 3rd

PAPER (SEC) Microtomy

UNIT	MONTH	SUBJECT MATTER / SYLLABUS
	JULY/ AUGUST	Microtomy:- Introduction, definition, History and Applications in Biological sciences; Types of microtomes- Rotary microtome, Sledge Microtome and Cryomicrotome
	SEPTEMBER	Collection and transportation of sample/specimens for histological examination; Basic concepts of fixation- Various types of fixatives used in microtomy; Process of fixation; Embedding-Block formation
	OCTOBER	Section Cutting: Paraffin section cutting ; Stretching- Spreading the sections and attachment to the glass slides; Staining – Principle and procedure; Preparation of Stains and solvents.
	NOVEMBER	General Staining Procedures for Paraffin Embedded tissue; Nuclear Stains and Cytoplasmic stains- Haematoxylin and Eosin staining, Mercury Bromophenol. Blue staining; Toulidine Blue; Commonly used mountants in microtomy.

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CLASS B.Sc. (Life Science)

SUBJECT: ZOOLOGY (MIC)

SEMESTER 3rd

PAPER : DNA FINGERPRINTING

UNIT	MONTH	SUBJECT MATTER / SYLLABUS
1	JULY/ AUGUST	DNA Profiling: Introduction, History of DNA Typing, humangenetics–heredity, alleles, mutations, molecular biology of DNA and RNA, DNA types.
2	SEPTEMBER	DNA Polymorphism: VNTR, STR, SNP, MtDNA, DNAMarkers, sequence polymorphism. DNA typing systems- RFLP analysis, PCR amplifications.
3	OCTOBER	DNA profiling methods: Sample collection and preservation for DNA profiling, DNA Extraction, Analysis of SNP, STR, Y-STR. Mitochondrial DNA, evaluation of results, database, quality control, certification and accreditation.
4	NOVEMBER	Forensic applications of DNA Profiling: Applications in disputed paternity cases, child swapping, missing person's identity–civil immigrations, veterinary, wildlife and agriculture cases, legal perspectives legal standards for admissibility of DNA profiling. New and future technologies: DNA chips, Rapid DNA analyser, imitations of DNA profiling.

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CLASS B.Sc. (Life Science)

SUBJECT ZOOLOGY

SEMESTER 5th

PAPER (Zoo 5.1) ECOLOGY & EVOLUTION

UNIT	MONTH	SUBJECT MATTER / SYLLABUS
1	22 JULY/ AUGUST	Basic concepts of ecology: Definition, significance. Concepts of habitat and ecological niche. Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; biotic factors.
2	SEPTEMBER	Ecosystem: Concept, components, properties and functions; Ecological energetic and energy flow-food chain, food web, trophic structure; ecological pyramids concept of productivity. Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles. Population: Growth and regulation
3	OCTOBER	Origin of life. Concept and evidences of organic evolution. Theories of organic evolution. Concept of microevolution and concept of species
4	NOVEMBER	Concept of macro-and mega-evolution. Phylogeny of horse. Evolution of man.

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NAME OF EXTENSION LECTURER *Dr. Seema*

CLASS B.Sc. (Medical)

SUBJECT: ZOOLOGY

SEMESTER 5th

PAPER (Zoo 5.1) FISH AND FISHERIES

UNIT	MONTH	SUBJECT MATTER / SYLLABUS
1	JULY/ AUGUST	Introduction to world fisheries: Production, utilization and demand. Fresh Water fishes of India: River system, reservoir, pond, tank fisheries; captive and culture fisheries, cold water fisheries.
2	SEPTEMBER	Fishing crafts and gears. Fin fishes, Crustaceans, Molluscs and their culture.
3	OCTOBER	Seed production: Natural seed resources – its assessment, collection, Hatchery production. Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients).
4	NOVEMBER	Field Culture: Ponds-running water, recycled water, cage, culture; poly culture. Culture technology: Biotechnology, gene manipulation and cryopreservation of gametes.

Seema
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Avinash
HOD