

LESSON PLAN
(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Dr Phool Singh

Class- B.Sc. Life Sciences 1st Semester

Subject- Biodiversity-1:Non Chordata

Paper: 24ZOOM401DS01

WEEKS	SYLLABUS
Week 1	Phylum Protozoa: General characters & classification up to order level
Week 2	Phylum Protozoa: Type study of Plasmodium vivax Parasitic protozoans: Life history, mode of infection and pathogenicity of Entamoeba, Trypanosoma
Week 3	Phylum Porifera: General characters & classification up to order level
Week 4	Type study of Sycon : Canal system and Spicules in sponges
Week 5	Phylum – Coelentrata: General characters, classification up to order level
Week 6	Corals and coral reefs
Week 7	Phylum – Platyhelminthes and Aschelminthes: General characters, order level
Week 8	Type study - Fasciola hepatica Helminths parasites: Brief account of life history, mode of infection and pathogenicity of Ancylostoma, Wuchereria
Week 9	Phylum - Annelida: General characters and classification up to order level
Week 10	Metamerism in Annelids
Week 11	Phylum - Arthropoda: General characters and classification up to order level
Week 12	Type study – Periplaneta
Week 13	Phylum - Mollusca: General characters and classification up to order level
Week 14	Torsion and detorsion in gastropoda
Week 15	Phylum - Echinodermata: General characters and classification up to order level
Week 16	Type Study -Asteries (Sea Star)
Week 17 -18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Dr Phool Singh

Class- B.Sc. Life Sciences 3rd Semester

Subject- Genetics and Cell biology

Paper: 25ZOOM403DS01

WEEKS	SYLLABUS
Week 1	Plasma Membrane: Fluid mosaic model, transport across the membrane, mechanism of active and passive transport, endocytosis and exocytosis.
Week 2	Endoplasmic reticulum (ER): Types and its functions
Week 3	Golgi complex: Structure and role of golgi-complex in animal cell
Week 4	Ultrastructure and functions of Nucleus: nucleolus, nucleosome concept and role of histones, fine structure of chromosomes
Week 5	Euchromatin and heterochromatin, lamp-brush chromosomes and polytene chromosomes
Week 6	Ribosomes: Types, and role in protein synthesis.
Week 7	Lysosomes: Structure, enzyme and their role; polymorphism
Week 8	Mitochondria: Structure and role of mitochondria.
Week 9	Cytoskeleton: Microtubules, microfilaments, centriole and basal body, cilia and flagella
Week 10	Mitosis and Meiosis, elementary idea of cellular basis of Immunity.
Week 11	Elements of Heredity and variations, the varieties of gene interactions, Linkage and recombination
Week 12	Sex determination and its mechanism, Sex linked inheritance: Haemophilia and colour blindness in man, Extra chromosomal and cytoplasmic inheritance: i) Kappa particles in Paramecium. ii) Milk factor in mice Multiple allelism: Eye colour in Drosophila; A, B, O blood group in man
Week 13	Nature and function of genetic material : Structure and type of nucleic acids
Week 14	Gene mutations: spontaneous and induced (chemical and radiations) mutations
Week 15	chemical basis of mutations; transition, transversion, Chromosomal abnormalities involving autosomes and sex chromosomes
Week 16	Structural chromosomal aberrations (deletion, duplication, inversion and translocation) and Numerical aberrations (autopolyploidy, euploidy and polyploidy in animals) Inborn errors of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle cell anaemia)

Week 17 -18	Revision and Test
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LESSON PLAN
(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Dr Phool Singh

Class- B.Sc. Life Sciences 5th Semester

Subject-Ecology and Evolution

Paper:

Week	Class (B.Sc. Pass Course III year)
1 st Week	Introduction to ecology
2 nd Week	Definition, significance of ecology, Natural seed resources, introduction
3 rd Week	Concepts of habitat and ecological niche, Molluscs and their culture.
4 th Week	Introduction to environment and environmental factors, Crustaceans and their culture.
5 th Week	Factors affecting environment- Abiotic factors Concept, reservoir pool of biogeochemical cycles
6 th Week	Factors affecting environment- biotic factor, revision and Assignments, Ponds-running water, Biotechnology, gene manipulation
7 th Week	Introduction to Ecosystem, Introduction to world fisheries
8 th Week	Concept, components of ecosystem, Production, utilization and demand of fisheries, Recycled water, cage, culture; poly culture. Cryopreservation of gametes.
9 th Week	Properties and functions of ecosystem, Fresh Water fishes of India-Introduction
10 th Week	Ecological energetics and energy flow, Fishes in river system, reservoir, pond, Concept and evidences of organic evolution.
11 th Week	food chain, food web, Fishes in tank fisheries; captive and culture fisheries
12 th Week	Trophic structure, Ecological pyramids, Cold water fisheries
13 th Week	Concept of productivity
14 th Week	Gaseous cycles and sedimentary cycles
15 th Week	Population: Growth and regulation,

16 th Week	Revision and Test
17 th Week	Revision and Test
18 th Week	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Sonal Gupta

Class- B.Sc. Life Sciences 5th Semester

Subject- Aquaculture

Paper:

WEEKS	SYLLABUS
Week 1	Introduction to world fisheries
Week 2	Production, utilization and demand of fisheries
Week 3	Fresh Water fishes of India-Introduction
Week 4	Fishes in river system, reservoir, pond, Concept and evidences of organic evolution.
Week 5	Fishes in tank fisheries; captive and culture fisheries, Theories of organic evolution.
Week 6	Cold water fisheries, Concept of microevolution and concept of species
Week 7	Fishing crafts and gears, Concept of macro-and mega-evolution
Week 8	Fin fishes and their culture.
Week 9	Crustaceans and their culture
Week 10	Mollusca and their culture.
Week 11	Mollusca and their culture.
Week 12	Natural seed resources-introduction
Week 13	Collection, Hatchery production
Week 14	Sources of food (Natural, Artificial)
Week 15	Feed composition (Calorie and Chemical ingredients).
Week 16	Ponds-running water, Biotechnology, gene manipulation
Week 17	Recycled water, cage, culture; poly culture. Cryopreservation of gametes.
Week 18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Sonal Gupta

Class- B.Sc. Life Sciences 1st Semester

Subject- Skill Enhancement Course- Apiculture

Paper: 24ZOO401SE01

WEEKS	SYLLABUS
Week 1	Apiculture meaning, definition scope and history
Week 2	Status of Apiculture Industry in India, Classification and Life Cycle of Honey Bee.
Week 3	Identification of Indigenous and exotic Honey bee species
Week 4	Cultivable species of Honey Bee with reference to India
Week 5	Social organization of honey bees: the castes-queen, drone and workers,
Week 6	Nesting behaviour of Honey bees, Bee foraging, Seasonal management
Week 7	swarming in Honey bees, waggle dance, defense in honey bees
Week 8	Diseases and Enemies of Bees,
Week 9	Control and Preventive measures.
Week 10	Role of Bees in cross pollination in horticulture and agriculture
Week 11	Methods of Artificial Bee keeping
Week 12	Equipments used in Beekeeping Industry
Week 13	Methods of extraction of Honey and other products
Week 14	Products of Apiculture Industry and their Uses (Honey, Bee Wax, Royal Jelly
Week 15	Bee Keeping Industry: Present and future Prospects of apiculture as self employment venture.
Week 16	Economics of Apiculture:- expenditure, Net Income, and Additional benefits
Week 17	Revision and Test
Week 18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Sonal Gupta

Class- B.Sc. Life Sciences 3rd Semester

Subject- Skill Enhancement Course- Microtomy

Paper: 25ZOO401SE01

WEEKS	SYLLABUS
Week 1	Microtomy:- Introduction, definition, History
Week 2	Applications in Biological sciences;
Week 3	Types of microtomes- Rotary microtome, Sledge Microtome and Cryomicrotome
Week 4	Types of microtomes- Rotary microtome, Sledge Microtome and Cryomicrotome
Week 5	Collection and transportation of sample/specimens for histological examination;
Week 6	Basic concepts of fixation- Various types of fixatives used in microtomy;
Week 7	Process of fixation; Embedding-Block formation
Week 8	Section Cutting: Paraffin section cutting ; Streching- Spreading the sections and attachment to the glass slides;
Week 9	Staining – Principle and procedure;
Week 10	Preparation of Stains and solvents
Week 11	General Staining Procedures for Paraffin Embedded tissue;
Week 12	Nuclear Stains and Cytoplasmic stains- Haematoxylin and Eosin staining,
Week 13	Mercury Bromophenol , Blue staining; Toulidine Blue;
Week 14	Commonly used mountants in microtomy.
Week 15	Revision and Test
Week 16	Revision and Test
Week 17	Revision and Test
Week 18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Sonal Gupta

Class- B.Sc. Life Sciences/ Physical Sciences/ B.Com. 1st
Semester

Subject- Value added course- Environmental studies

Paper: 23EVSX01VA01

WEEKS	SYLLABUS
Week 1	Introduction to Environmental Studies: Multidisciplinary nature of environmental studies.
Week 2	Scope and importance; Concept of sustainability and sustainable development. Societal issues and environment, human population and environment
Week 3	Ecosystems: Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem , Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
Week 4	Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation. Timber extraction, mining, dams and their effects on forest and tribal people
Week 5	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
Week 6	Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
Week 7	Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles
Week 8	Biodiversity and its conservation: Introduction-Definition: genetic, species and ecosystem diversity. Biogeographical classification of India.
Week 9	Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values Biodiversity at global, National and local levels. Hotspots of biodiversity.
Week 10	Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity : In-situ and Ex situ conservation of biodiversity
Week 11	Environmental Pollution: Definition, Cause, effects and control measures of:- a. Air pollution

Week 12	Water pollution, Soil pollution. Marine pollution. Noise pollution, Thermal pollution, nuclear hazards
Week 13	Solid waste. Role of an individual in prevention of pollution
Week 14	Disaster management: floods, earthquake, cyclone and landslides
Week 15	Water Conservation and its strategies
Week 16	Climate change- green house gases, acid rain and global warming
Week 17	Revision and Test
Week 18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Dr Phool Singh

Class- B.Sc. Life Sciences/ Physical Sciences 1st Semester

Subject- Multidisciplinary course- Disaster Management

Paper: 24EVSX02MD01

WEEKS	SYLLABUS
Week 1	Introduction to disaster: Definition, difference between hazard and disaster
Week 2	understanding natural and manmade disasters, risk and vulnerability in disaster
Week 3	Disaster- Causes and phases of disaster, Rapid onset and slow onset disasters
Week 4	Nature and responses to geo-hazards, reasons of disaster- population growth, urban expansion, pollution, epidemics, accidents
Week 5	Disaster profile of India
Week 6	Natural and Anthropogenic disaster: Earthquake- causes, types and impacts;
Week 7	Floods-types and impacts; landslides : responsible factors, causes and effects;
Week 8	drought: different types of droughts- meteorological, agricultural, hydrological and effects
Week 9	cyclone and hurricanes; tsunamis: reasons and its impacts
Week 10	CBRN: Chemical disasters, biological disasters, Radiological disaster,
Week 11	Nuclear disasters, Sociological hazards- Crime, Terrorism War
Week 12	Disaster Preparedness and mitigation: Definition, Disaster management cycle of earthquake, floods, drought, landslides and cyclone
Week 13	prevention, preparation and mitigation
Week 14	Disaster Information,
Week 15	Disaster Response: Disaster Rehabilitation, Reconstruction and Recovery
Week 16	Role of National Disaster Management Authority (NDMA).
Week 17	Revision and Test
Week 18	Revision and Test

LESSON PLAN

(JULY,2025 TO NOVEMBER,2025)

Name of Teacher- Dr Phool Singh

Class- B.Sc. Life Sciences/ Physical Sciences 1st Semester

Subject- Multidisciplinary course- Waste Management

Paper: 25EVSX03MD01

WEEKS	SYLLABUS
Week 1	Significant global environmental issues: acid rain, climate change, biodiversity loss,
Week 2	ozone layer depletion,
Week 3	Deforestation, resource depletion and conservation,
Week 4	Sustainable development,
Week 5	International concerns and efforts for environmental protection: Role of United Nations, Stockholm Summit, Rio Summit.
Week 6	Regional Environmental Issues: Forest and Wildlife management, desertification, reclamation of degraded land;
Week 7	Human intervention on wetlands, siltation and eutrophication, reclamation of wetlands,
Week 8	Mining and Environment, Open cast mining, Oil exploration and transportation,
Week 9	Deforestation and their impact on environment
Week 10	Pollution: Air Pollution : Causes of air pollution, Some important pollutants of air (CO, SOX, NOX and HC and Particulates) – their sources and effects on living and non-living organisms
Week 11	Water Pollution: Sources of pollution of surface and ground water, Types of water pollutants.
Week 12	Solid Waste – Sources, characterization, disposal and management
Week 13	Soil Pollution sources of soil pollution, Pollution and residual toxicity from the application of insecticides,
Week 14	pesticides and fertilizers
Week 15	Soil erosion
Week 16	Revision and Test
Week 17	Revision and Test
Week 18	Revision and Test

