**Session 2024-25 Semester I (Odd)**

**Lesson Plan for THEORY of B. Sc. Life Sciences**

**Name of Program: UG Multidisciplinary Program in – B. Sc. LIFE SCIENCE**

**Name of Course: Discipline Specific Course/ Major Course (DSC) - ZOOLOGY**

**Nomenclature of Course: Animal Diversity - I**

**Course Code: 24ZOO401DS01**

**Credits (L+T+P) : 2 + 0 + 2 Marks: L – 35(E) + 15(I), P – 35(E) + 15(I)**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **July** | 4th week | Unit – I, Phylum- Protozoa  i) General characters and classification up to order level |
|  | 5th week | ii) Type study of Plasmodium; |
| **August** | 1st week | iii) Parasitic protozoans: Life history, mode of infection and  pathogenicity of Entamoeba, Trypanosoma |
|  | 2nd week | Phylum- Porifera:  i) General characters and classification up to order level |
|  | 3rd week | ii) Canal system and Spicules in sponges |
|  | 4th  week | Unit 2: Phylum - Coelenterata  i) General characters and classification up to order level  ii) Corals and coral reefs |
|  | 5th week | Unit 2: Phylum - Coelenterata:  i) General characters and classification up to order level  ii) Corals and coral reefs |
| **September** | 1st week | Helminths parasites: Brief account of life history, mode of infection and pathogenesity of Ancylostoma, Wuchereria  Class Test |
|  | 2nd week | Unit 3:  Phylum - Annelida:  i) General characters and classification up to order level |
|  | 3rd week | ii) Metamerism in Annelids |
|  | 4th week | Phylum – Arthropoda:  General characters and classification up to order level |
|  | 5th week | Type study – Periplaneta |
| **October** | 1st week | Unit 4:  Phylum - Mollusca:  i) General characters and classification up to order level  Class Test |
|  | 2nd week | ii) Torsion and detorsion in gastropoda |
|  | 3rd week | Phylum - Echinodermata:  i) General characters and classification up to order level |
|  | 4th week | ii) Type Study -Asterias (Sea Star) |
| **November** | 2nd week | Phylum – Hemichordata: General characters  Revision |
|  | 3rd week | Class tests |

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**Session 2024-25 Semester III (Odd)**

**Lesson Plan for UG Classes B.Sc.**

**Class: B. Sc. Medical Subject: ZOOLOGY**

**Paper Code: 3.1 & 3.2 Marks: 40**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **July** | 4th week | Principles of classification; Origin and Evolutionary tree;  Role of amnion in evolution; Salient features of chordates; |
|  | 5th week | Functional morphology of the types with examples emphasizing their biodiversity, economic importance and conservation measures where required. |
| **August** | 1st week | General characters and classification of phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. |
|  | 2nd week | **Protochordates:** Systematic position, distribution, ecology, morphology and affinities  Urochordata: *Herdmania* – type study  Cephalochordata; *Amphioxus –* type study |
|  | 3rd week | General characters and classification of phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. |
|  | 4th  week | **Cyclostomes:** Classification and ecological significance  Type study of *Petromyzon.* |
|  | 5th week | General characters and classification of phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required.  Class Tests |
| **September** | 1st week | **Pisces:** Scales & Fins, Parental care in fishes, fish migration. |
|  | 2nd week | Types study of Labeo |
|  | 3rd week | Introduction, Classification, Structure, function and general properties of carbohydrates and lipids. |
|  | 4th week | Introduction, Classification, Structure, function and general properties of proteins; |
|  | 5th week | Nomenclature, Classification and mechanisms of enzyme action |
| **October** | 1st week | Transport through biomembranes (Active and Passive), buffers |
|  | 2nd week | Nutritional components; Carbohydrates, fats, lipids, Vitamins and Minerals. Types of nutrition & feeding, |
|  | 3rd week | Digestion of dietary constituents, viz. lipids, proteins,  carbohydrates & nucleic acids; symbiotic digestion. Absorption of nutrients & assimilation; control of enzyme secretion. |
|  | 4th week | Types of muscles, ultra-structure of skeletal muscle. Bio-chemical and physical events during muscle contraction; single muscle twitch, tetanus, muscle fatigue muscle, tone, oxygen debt., Cori’s cycle, single unit smooth muscles, their physical and functional properties. |
| **November** | 2nd week | Structure and types, classification, bone growth and resorption, effect of ageing on skeletal system and bone disorders. |
|  | 3rd week | Revision and Tests |

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**Session 2024-25 Semester V (Odd)**

**Lesson Plan for UG Classes B.Sc. Medical**

**Class: B. Sc. Medical Subject: ZOOLOGY**

**Paper Code: 5.1 & 5.2 Marks: 40**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **August** | 1st week | **Introduction to world fisheries:** Production, utilization and demand. |
|  | 2nd week | **Fresh Water fishes of India:** River system, reservoir, pond, tank fisheries; captive and culture fisheries, cold water fisheries. |
|  | 3rd week | Fishing crafts and gears. Fin fishes, Crustaceans, Molluscs and their culture. |
|  | 4th  week | **Seed production:** Natural seed resources – its assessment, collection, Hatchery production. |
|  | 5th week | **Nutrition:** Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients). |
| **September** | 1st week | **Field Culture:** Ponds-running water, recycled water, cage, culture; poly culture. |
|  | 2nd week | **Culture technology:** Biotechnology, gene manipulation and cryopreservation of gametes. |
|  | 3rd week | **Basic concepts of ecology:** Definition, significance. |
|  | 4th week | Concepts of habitat and ecological niche. |
|  | 5th week | **Factors affecting environment:** Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; biotic factors.  Class Tests |
| **October** | 1st week | **Ecosystem:** Concept, components, properties and functions; Ecological energetics and energy flow-food chain, food web, trophic structure; ecological pyramids concept ofproductivity. |
|  | 2nd week | **Biogeochemical cycles:** Concept, reservoir pool, gaseous cycles and sedimentary cycles. |
|  | 3rd week | **Population:** Growth and regulation. |
|  | 4th week | **Origin of life :** Concept and evidences of organic evolution.  Revision and Class Tests |
| **November** | 2nd week | Theories of organic evolution. Concept of microevolution and concept of species |
|  | 3rd week | Concept of macro-and mega-evolution. Phylogeny of horse. Evolution of man.  Revision and Class Tests |

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**Session 2024-25 Semester I (Odd)**

**Lesson Plan for PRACTICAL of B. Sc. Life Sciences**

**Name of Program: UG Multidisciplinary Program in – B. Sc. LIFE SCIENCE**

**Name of Course: Discipline Specific Course/ Major Course (DSC) - ZOOLOGY**

**Nomenclature of Course: Animal Diversity - I**

**Course Code: 24ZOO401DS01**

**Credits (L+T+P) : 2 + 0 + 2 Marks: L – 35(E) + 15(I), P – 35(E) + 15(I)**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **July** | 4th week | Protozoa  Hemichordata: Classification up to orders with ecological note and economic importance |
|  | 5th week | Parazoa (Porifera):  Classification up to orders with ecological note and economic importance |
| **August** | 1st week | Playhelminthes:  Classification up to orders with ecological note and economic importance |
|  | 2nd week | Annelida:  Classification up to orders with ecological note and economic importance |
|  | 3rd week | Arthropoda:  Classification up to orders with ecological note and economic importance |
|  | 4th  week | Mollusca:  Classification up to orders with ecological note and economic importance |
|  | 5th week | Echinodermata:  Classification up to orders with ecological note and economic importance |
| **September** | 1st week | Hemichordata: Classification up to orders with ecological note and economic importance |
|  | 2nd week | L.S. and T.S. Sycon; gemmules, |
|  | 3rd week | spicules and spongin fibres of Sycon, |
|  | 4th week | canal system of sponges |
|  | 5th week | T.S. Hydra (testis and ovary region) |
| **October** | 1st week | T.S. Fasciola (different regions) |
|  | 2nd week | T.S. Ascaris (male and female) |
|  | 3rd week | T.S. Pheretima (pharyngeal and typhlosolar regions), |
|  | 4th week | Setae, septal nephridia |
| **November** | 2nd week | spermathecae of Pheretima |
|  | 3rd week | Revision |

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**Session 2024-25 Semester III (Odd)**

**Lesson Plan for UG Classes B.Sc. Medical PRACTICALS**

**Class: B. Sc. Medical Subject: ZOOLOGY**

**Paper Code: 301 Marks: 50**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **July** | 4th week | Classification upto orders, habit, habitats, external characters and economic importance (if any) of the following animals:-  Protochordata : *Molqula, Hetryllus, Pyrosoma, Doliolum, Olikopleura,* and *Amphioxus.* |
|  | 5th week | Cyclostomata : *Myxine, Petromyzon* and *Ammocoetus larva.* |
| **August** | 1st week | Chondrichthyes: *Zygaena, Pristis, Narcine* (electric ray), *Trygon, Rhinobatus, Raja* and *Chimaera.* |
|  | 2nd week | Osteichthyes : *Acipenser, Lepidosteus, Muraena, Mystus, Catla,* |
|  | 3rd week | *Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon,* |
|  | 4th  week | *Ostraczion, Tetradon, Echinus, Lophius,* |
|  | 5th week | *Solea* and *Polypterus.* Any of the Lung Fishes. |
| **September** | 1st week | Preparation of models of the different systems of the following animals:  Herdmania: General anatomy |
|  | 2nd week | *Labeo* (locally available fish): Digestive and reproductive systems: cranial nerves |
|  | 3rd week | Study of the skeleton of *Scoliodon, Labeo* |
|  | 4th week | Study of the following prepared slides: Tornaria larva, T.S. Amphioxus (through different regionds). Oikopleura, different types of scales. |
|  | 5th week | Oikopleura, different types of scales. |
| **October** | 1st week | Make permanent stained preparations of the following: *Salpa,* Spicules, and Cycloid scales |
|  | 2nd week | Zoological excursion and its report |
|  | 3rd week | PHYSIOLOGY PRACTICALS:  1. Qualitative tests for identification of simple sugars, disaccharides and polysaccharides.  2. Study of human salivary amylase activity: Effect of temperature, pH, Concentration. |
|  | 4th week | Project Report:  1. Migration in fishes  2. Ornamental fishes |
| **November** | 2nd week | Project Work |
|  | 3rd week | Revision |

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**Session 2024-25 Semester V (Odd)**

**Lesson Plan for UG Classes B.Sc. Medical, PRACTICAL**

**Class: B. Sc. Medical Subject: ZOOLOGY**

**Paper Code: 501 Marks: 50**

| **MONTH** | **WEEK** | **SYLLABUS** |
| --- | --- | --- |
| **August** | 1st week | Identification of *Catle, Labeo rohita, L. calbasu,* |
|  | 2nd week | *Cirrhius, mrigala Puntius sarana, Channa punctatus,* |
|  | 3rd week | *C. marulius. C. stariatus, Trichogaster fasciata,* |
|  | 4th  week | *Mystus seenghala, M. cavasius, M. tengra,* |
|  | 5th week | *Callichrous pabola, C. bimaculatus, Wallago attu* |
| **September** | 1st week | *Prawns, Crabs, Lobsters, Calms, Mussels & Oysters* |
|  | 2nd week | Chemical analysis of pond water and soil for pH |
|  | 3rd week | Chemical analysis of pond water and soil for dissolved oxygen. |
|  | 4th week | Chemical analysis of pond water and soil for free CO2 |
|  | 5th week | Chemical analysis of pond water and soil for nitrates and phosphates. |
| **October** | 1st week | Chemical analysis of pond water and soil for chlorides. |
|  | 2nd week | A study of the slides of fish parasites. |
|  | 3rd week | A study of the different types of nets, e.g., cast net, gill net, drift net and drags net. |
|  | 4th week | A visit to lake/reservoir/fish breeding centre. |
| **November** | 2nd week | Evolutionary evidences and/or its demonstration through models/video/CD etc and preparation of working models of the different systems of the following animals:  - Adaptive modifications in feet and beaks of birds  - Evolutionary evidences of man and horse. |
|  | 3rd week | Project work |

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