SYLLABUS OF ZOOLOGY (MDC)

For 4-Year Undergraduate Programme Under NCCF, 2023

Cooch Behar Pancahanan Barma University

Panchanan Nagar, Vivekananda Street, Cooch Behar, West Bengal – 736 101

1st Semester

SUBJECT-ZOOLOGY

MDC 1: ANIMAL DIVERSITY

Course Objectives:

1. To form a general understanding of the diversity of the Animal Kingdom through the study of general characters of each Phylum/Class.

2. To form an understanding of the body plan, structural adaptations, life history, physiological processes, behaviour and evolutionary relationships in different animals through the study of special topics included in each Phylum/Class.

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MDC 1: ANIMAL DIVERSITY

DIFFICULTY LEVEL: 100   MODE OF INSTRUCTION: Lecture & Tutorial

THEORY
(CREDITS 3)

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Group A: Non-Chordates

Unit 1. Protista

General characters of Protozoa; Life cycle of *Plasmodium vivax.*

Unit 2. Porifera

General characters of Porifera; Canal System in Sycon.

Unit 3. Cnidaria

General characters of Cnidaria; Polymorphism in Hydrozoa.

Unit 4. Platyhelminthes

General characters of Platyhelminthes; Life cycle of *Taenia solium.*

Unit 5. Nematoda

General characters of Nematoda; Parasitic adaptations.

Unit 6. Annelida

General characters of Annelida; Metamerism in Annelida.

Unit 7. Arthropoda

General characters of Arthropoda; Social life in insects.

Unit 8. Mollusca

General characters of Mollusca; Respiration in *Pila globosa.*

Unit 9. Echinodermata

General characters of Echinodermata, Water Vascular system in star fish.

Group B: Chordates:

Unit 1. Protochordata

Salient features of Protochordata with examples.

Unit 2. Agnatha

General features of Agnatha with examples.

Unit 3. Pisces

General characters of Pisces, Migration in fishes.

Unit 4. Amphibia

General characters of Amphibia; Parental care in Amphibia.

Unit 5. Reptilia

General characters of Reptilia; Dos and don'ts after snake bite.

Unit 6. Aves:

General characters of Aves; Flight adaptations in birds.

Unit 7. Mammalia

General characters of Mammalia; Dentition in mammals.

SUGGESTED BOOKS
• Barnes, R.D. (1992). Invertebrate Zoology. Saunders College Pub. USA.
• Ruppert, Fox and Barnes (2006) Invertebrate Zoology. A functional Evolutionary Approach 7th Edition, Thomson Books/Cole
• Campbell & Reece (2005). Biology, Pearson Education, (Singapore) Pvt. Ltd.
• Kardong, K. V. (2002). Vertebrates Comparative Anatomy. Function and Evolution. Tata McGraw Hill Publishing Company. New Delhi.
• Raven, P. H. and Johnson, G. B. (2004). Biology, 6th edition, Tata McGraw Hill Publications. New Delhi.

3rd Semester

3$^{\text{rd}}$ Semester

MDC-2: WILDLIFE & BIODIVERSITY

Objectives:

By successful completion of the course, students will be able to:

● Elucidate animal-animal, animal-plant, animal-microbe interactions and their consequences to animals, humans, and the environment.

● Develop a deeper understanding of key concepts of biomes.

● Strengthen knowledge of conservation and census of wildlife.

● Describe the importance of endangered animals and their conservation management practices.

● Learn habitat management techniques.

● Understand the relationships between biodiversity and ecosystems.

THEORY (Credit 3)

Group-A (Wildlife)

Unit: 1 Concepts of Wildlife
Definition and scope of wildlife; Importance of wildlife.

Unit: 2 Biomes and Wildlife

Faunal make up of major biomes: Savannah, Tropical Rainforest, Desert biome.

Unit: 3 Wildlife Conservation

Necessity and objectives of wildlife conservation; Categories of endangered animals (After IUCN); Red Data Book and Green Data Book; Wildlife Protection Act, 1972; Project Tiger.

Unit: 4 Management of Wildlife

Wildlife Census: Objectives, direct and indirect census techniques; Wildlife tourism; Threats and management of mangrove ecosystem with special reference to Sundarbans.

Group-B (Biodiversity)

Unit: 1 Concepts of Biodiversity

Definition and levels of biodiversity; Measurement of biodiversity: species richness, species evenness, species abundance.

Unit: 2 Values of Biodiversity

Positive Values: recreational, aesthetic, educational, scientific, ecological, utilitarian, commercial, cultural and game value; Negative Values: Accidents, life stock and crop damage, disease reservoirs and man-animal conflict.

Unit: 3 Conservation of Biodiversity

In situ conservation: Biosphere reserves, national parks, wildlife sanctuaries, community reserves; *Ex-situ* conservation: Botanical and zoological gardens, gene banks, germplasm bank, aquarium and butterfly garden; Biodiversity Hotspots; India as a mega diversity country.

Unit: 4 Threats to Global Biodiversity

Causes of loss of biodiversity: Over-hunting, habitat loss, degradation and fragmentation of habitats, invasion of non-native species, pollution and climate change.

Unit: 5 Regional Conservation Approaches

Regional conservation approaches with special reference to Jaldapara National Park.

References:

A) Text books:

1. Kumar U., Asija M. J. (2005). Biodiversity Principles and Conservation (Second Edition). Student Edition, Jodhpur.

B) Reference books:

1. Arora, G. S. and Julka J. M. (1993). Status report on biodiversity conservation: Western Himalayas Ecosystem. IIPA, New Delhi.

2. Chouhan, A. S. and Singh, D. K. (1989). Changing patterns in the flora due to deforestation. Environmental Conservation and Westland Development in Meghalaya, Meghalaya Science Society, Shillong.

3. Daniels, R., Ranjit, J., Hegre, M., Joshi, N. V., and Gadgil M. (1991). Assigning Conservation Value: A Case Study from India. Conservation Biology 5(4):464475.