

Syllabus Theory

B.Sc. V Semester (Zoology) Syllabus

Marks 70+30=100

Subject : Environmental Biology & Animal Behavior

Course Code- ZO(N)-301

Credit: 3

Block I: Environmental Biology

Unit 1: Ecological concept : Basic concept of ecology, definition, types of ecology, significance, concepts of habitat and ecological niche.

Unit 2: Environment : Abiotic and biotic factors. Abiotic factors (Light intensity, temperature, humidity, topography, edaphic factors). Producer, consumer and decomposer. Primary and secondary productivity.

Unit 3: Ecosystems : Major ecosystems (Freshwater, marine, forest and desert). Concept, component and their function, energy flows, food chain, food web, trophic structures, ecological pyramids. Introduction of law of limiting factors.

Unit 4: Biosphere : Hydrosphere, Lithosphere and Atmosphere.

Unit 5: Biogeochemical cycles : Biogeochemical cycles (nitrogen, carbon, and hydrogen and oxygen cycles).

Block II: Biodiversity Conservation and Management

Unit 6: The concept of Biodiversity, Conservation and Management

Biodiversity - Definition - genetic, species and ecosystem diversity. Importance of biodiversity. Hotspots, threats to biodiversity - conservation of biodiversity. Principles of wildlife management, Protected Areas & Wildlife habitat in India: wildlife sanctuaries, National Parks and Biosphere reserves in India, endangered and threatened species of animals in India. Wildlife Protection Acts 1972 and Biodiversity Act (2001).

Unit 7: Protected Area Network in Uttarakhand : Protected area network initiative in Uttarakhand : Wildlife Sanctuaries, National Park, Biosphere Reserves. Major endangered fauna representing to PA's of Uttarakhand State.

Unit 8: Environmental Pollution and Management : Air, water, noise and soil pollution. Biodegradable and non degradable pollutants, Biomagnifications and Bioremediations.

Unit 9: Policies and Regulation : Disaster Management - Floods, Earth quake, Cyclone and Land slides. Biomagnifications and Bioremediation.

Block III: Animal Behavior

Unit 10: Concepts and patterns of behavior

Types of behavior, behavioral equipments (senses, organs), Individual behavior pattern and homing behavior. parental care in Amphibia.

Unit 11: Social organization

Social life in termites, dance language of the honey bees, Biological clocks, Migration in birds and fishes.

Suggested Readings:

Ecology & Environmental Management

1. Cunningham and Cunningham: Environmental Science (2003, McGraw Hill)
2. Odum: Fundamental of Ecology (1971, Saunders)
3. Raven, Berg and Jhonson: Environment (1993, Saunders)
4. Ricklefs: Ecology (1990, Freeman)
5. Sharma: Ecology and Environment (2003, Rastogi)
6. Turk and Turk: Environmental Science (1998, Saunders)

7. Rajmannar. 2004. Environmental Studies. EVR College Publication, Trichy, India.
8. Kalavathy. S. (ED). 2004. Environmental Studies, Bishop Heber College Publication, Trichy.
9. Drickamer & Vessey : Animal Behaviour – concepts, processes and methods (2nd ed. 1986, Wadsworth,)
10. Freeland: Problems in Practical Advanced Level Biology (1985, Hodder & Stoughton,)
11. Goodenough et al.: Perspectives on Animal Behaviour (1993, Wiley)
12. Grier: Biology of Animal Behaviour (1984, Mosby)
13. Lorenz: The Foundation of Ethology (1981, Springer)
14. Manning & Dawkins: An Introduction to Animal Behaviour (5th ed. 1998, Cambridge).

Syllabus Lab

B.Sc. V Semester (Zoology)

Mark = 50

Subject : Environmental Biology & Animal Behavior : Lab

Course Code- ZO(N) 301L

Credit: 1

Course Objectives:

1. To understand the ecological process through the water sample analysis

Syllabus: . Study water quality and pollution. Study of wild animals and effect of pollutants on animals. Specimens, picture and slide study of economically important animals. Study of Rare and Endangered faunal species of the Uttarakhand State through charts and photograph

Block I: Environmental Biology

Unit 1: Ecology Experiments (Water quality and pollutants)

Unit 2: Ecology Experiments (soil sample)

Unit 3: Study of Rare and Endangered faunal species of the Uttarakhand State through charts and photograph

Unit 4: Environmental Biology (Study of wild animals, pollutants)

UNIT WISE CONTENT ZO(N) 301L

A complete record of laboratory work will be maintained by every student. The practical work will be consists of following:

1: Environmental Biology

1. Estimation of pH of water/ soil sample.
2. Determination of dissolved oxygen and carbon dioxide in water sample.
3. Study of adaptations in animals inhabiting different ecological environments.
4. Study of wild animals with the help of models/charts/photographs
5. Study of Rare and Endangered faunal species of the Uttarakhand State through charts and photograph