



# हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय

Central University of Himachal Pradesh

(Established under Central Universities Act 2009)

शैक्षणिक खण्ड, शाहपुर ज़िला काँगड़ा, हिमाचल प्रदेश - 176206

Academic Block, Shahpur, Distt. Kangra (HP) – 176206

Website: [www.cuhimachal.ac.in](http://www.cuhimachal.ac.in)

**SEMESTER - I**

## **INTERDISCIPLINARY COURSE**

**COURSE NAME: FOUNDATION COURSE IN ECOLOGY**

**Course Code: ZOO 426**

**Credit: 02**

### **Course Learning Objectives:**

- To acquaint the students with the habitat and interactions of diverse animal groups with their environment.
- To educate the students about the basic environmental phenomena like ecosystem, energy flow through the ecosystem and biogeochemical cycles.
- To enable the students to develop an appreciation for the biodiversity of invertebrate and vertebrates.

### **Course Learning Outcomes:**

- Students will be exposed to the fundamental aspects of ecology.
- They will get idea about the impact of anthropogenic activities on the environment.
- Students will get idea about the natural resources and their conservation.
- Apply the basic principles of ecology in wildlife conservation and management.

### **Course Contents:**

#### **UNIT I: CONCEPT OF ECOLOGY**

Definition, principle and scope of ecology, aquatic and terrestrial ecology, freshwater ecology, marine ecology, estuarine ecology, Community concept, types of community, succession process, competition and Coexistence, types of interactions: predation, parasitism, antibiosis, commensalism, cooperation and mutualism, population growth.

Ecosystem components: Producers, consumers and decomposer, Food chains, food web and ecological pyramids, Biotic and abiotic components, Ecological pyramids, Bioaccumulation and biomagnifications, mass, and energy transfer in successive trophic level.

#### **UNIT II: ENERGY AND ECOLOGICAL SUCCESSION**

Flow and energy fixation, Biogeochemical cycles: hydrological cycles, carbon cycle, oxygen cycle, nitrogen cycle -its importance and applications. Primary succession, secondary succession and ecological climax, impacts of development of ecosystem, population, community ecology, predator and prey relationship.



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## SEMESTER - I

### UNIT III: CONCEPT OF BIODIVERSITY

Biodiversity concept, Biodiversity-components, Biodiversity- Types, Biodiversity-importance, ecological importance, economic importance, key stone umbrella and flagship species, National status and Global status, hotspot; threatened species, IUCN Red list, endangered species, vulnerable species, rare species, extinct species and endemic species. Climate change, induced losses.

### UNIT IV: BIODIVERSITY CONSERVATION AND CONVENTION

Different approaches for Biodiversity conservation- In-situ conservation and ex-situ conservation. In-vitro Conservation. IPRs, national and international programs for biodiversity conservation. Wildlife values and eco-tourism, wildlife distribution in India, problem in wildlife protection, role of WWF, WCU, CITES, TRAFFIC.

### UNIT V: ENVIRONMENTAL LEGISLATION

Environmental legislation enforcement authorities: (i) Under the Water and Air Act-composition, powers, and functions, and (ii) Under the Environment (Protection) Act, 1986- powers Environmental dispute redress bodies: (i) National Green Tribunal – composition and jurisdiction, (ii) Trial court- jurisdiction under the environmental legislations, and (iii) Executive Magistrate' s powers The Forest (Conservation) Act 1980: Objectives and Mechanism. The Wild Life (Protection) Act 1972: Objectives, prohibition on hunting and trade. The Biodiversity Act 2002: object and National Biodiversity Authority. Convention on Climate Change: objectives, principles and commitment-India's response.

### SUGGESTED BOOKS:

- Charls J. Kreh. 1972. Ecology: The Experimental Analysis of Distribution and Abundance
- Philipson, J.1966.Ecological Energetic, Edward Arnold Ltd. London.
- Odum, E. P.1970: Ecology, Amerind Publ. Co. New Delhi.
- Kormondy, E. T. 1971. Concept of Ecology. Prentice Hal ofI ndia, New Delhi.
- Ricklefs, R. E. 1973. Ecology. Thomes Nelson and sons ltd.
- Colinbaux, P.A.1985Introductiontoecology.JohnWiley&Sons.
- Wiegert, R. G. 1976. Ecological Energetic Dowden, Hutchinson & Ross. Inc. Pennsylvania.
- Scuthwick, C. H. 1976.Ecology and the quality of our environment. D. Van Nestrand
- Fahey, J. J,and Knapp, A.K. 2007. Principles and Standards for measuring primary production.
- Oxford Univ.Press.UK.