



हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय

Central University of Himachal Pradesh

(Established under Central Universities Act 2009)

शैक्षणिक खण्ड, शाहपुर जिला कांगड़ा, हिमाचल प्रदेश - 176206

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

Website: www.cuhimachal.ac.in

SEMESTER - I

Course Code: ZOO 421

Course Name: Ecology, Environment and Biodiversity

Credit: 02

Objectives of the Course:

- 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 AND STRUCTURE OF ECOSYSTEM

Physical environment; biotic and abiotic factors, Ecosystem and its types, Ecosystem structure, function productivity and energy flow. Habitat, ecological niche, fundamental and realized niche; resource partitioning; character displacement. Ecological succession and its types

UNIT-II: POPULATION ECOLOGY

Characteristics of a population; population growth curves; population regulation; life history strategies (r and K selection), Species Interactions and its types

UNIT-III: BIODIVERSITY AND ITS CONSERVATION

Biological diversity: concepts and levels, role of biodiversity in ecosystem functions and stability, Categories of threat, Terrestrial biodiversity hot spots. Conservation of biodiversity: *In-situ* and *Ex-situ* conservation of biodiversity.

UNIT-IV: BIODIVERSITY MANAGEMENT



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Sustainable development, natural resource management in changing environment. Molecular ecology, genetic analysis of single and multiple population, phylogeography, molecular approach to behavioural ecology, conservation genetics.

UNIT-V: ENVIRONMENTAL POLLUTION

Air pollution, Water pollution, Soil pollution, Noise pollution, Ozone and climate change.

SUGGESTED BOOKS:

1. Charls J. Krebs. 1972. Ecology: The Experimental Analysis of Distribution and Abundance
2. Philipson, J. 1966. Ecological Energetic, Edward Arnold Ltd. London.
3. Odum, E.P. 1970: Ecology, Amerind Publ. Co. New Delhi.
4. Kormondy, E.T. 1971. Concept of Ecology. Prentice Hall of India, New Delhi.
5. Ricklefs, R.E. 1973. Ecology. Thomas Nelson and Sons Ltd.
6. Colinbaux, P.A. 1985 Introduction to ecology. John Wiley & Sons.
7. Wiegert, R.G. 1976. Ecological Energetic Dowden, Hutchinson & Ross. Inc. Pennsylvania.
8. Scuthwick, C.H. 1976. Ecology and the quality of our environment. D. Van Nestrand
9. Fahey, J.J., and Knapp, A.K. 2007. Principles and Standards for measuring primary production.
10. Oxford Univ. Press. UK.
11. Grant, W.E. and Swanmack, T.M. 2008. Ecological Modeling. Blackwell Publ. Hou
12. 1. Evolution, Barton, N. H., Briggs, D. E.G., Eisen, J. A., Goldstein, A. E., Patel, N. H., Cold Spring Harbor Laboratory Press, New York, USA
13. 2. Evolution, Hall, B. K. and Hallgrimsson, B., Jones and Bartlett Publisher, Sudbury, USA
14. 3. Evolution, Futuyma, D. J., Sinauer Associates, Inc., Sunderland, USA
15. 4. What Evolution Is, Mayr, E., (2001), Basic Books, New York, USA