

FACULTY OF LIFE SCIENCES

SYLLABUS

FOR

Interdisciplinary Course

Zoology (PG)

(Under Credit Based Continuous Evaluation Grading System)

Examinations: 2016-17



GURU NANAK DEV UNIVERSITY
AMRITSAR

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ZOL 051: Concepts of Environmental Biology (Odd Semester)**Credit Hrs: 3-0-0****Unit – I**

Environmental pollution & Disasters

Pollution – Definition, types and control of pollution.

Eutrophication and Bioaccumulation of pollutants.

Water and Wastewater studies with reference to environment.

Natural and Man induced disasters – Floods, Earthquakes, landslides, deforestation and Tsunami.

Unit – II

Environmental Impact Assessment

Environmental hazards and risk assessment.

Environmental Planning and management – need and scope of EI A.

EIA processes.

Policies and laws with reference to environmental protection.

Agencies involved in protection and conservation of environment.

Unit – III

Recent Trends in Environmental Biology

Biofertilizers and food form micro-organisms

Solid waste management with vermicomposting

Bioremediation

Bioreactors in Environment monitoring.

Suggested Reading Material:

1. Brewer, R. (1994), The Science of Ecology. Saunders Publishers, New York.
2. Heywood, V.H. & Waston, R. T. (1995), Global Biodiversity Assessment, Cambridge House, Delhi.
3. Townsend, C., Harper, J. & Micheal, B (2001), Essentials of Ecology, Blackwell Science.
4. Singh, H.R. & Kumar, N. (2004) Ecology & Environmental Science, Vishal Publishing Co., Jalandhar.
5. Sharma, P.D. (2005), Ecology & Environment, Rastogi Publication, Meerut.
6. Odum, E.P. (1971), Fundamentals of Ecology. W.B. Saunders Company Co., USA.
7. Tambrell, J. (2002), Introduction to Toxicology, Taylor & Francis, London.
8. Smith, K. (1996), Environmental Hazards. Routledge, London.
9. Smith, R.L. (1972), The Ecology of Man: An Ecosystem Approach, Harper & Row Publisher, New York.
10. Chapman, J.L. and Reiss, M.J. (1995), Ecology: Principles and Applications, Cambridge University, Press, New Delhi.
11. Clesceri, L.S., Greenberg A.E. Eaton, A.D. (1998), 20th Edition Standard Methods for the Examination of Water and Wastewaters. American Public Health Association, U.S.A.
12. Nathanson, J. A. (1986), Basic Environmental Technology, Prentice Hall, New Jersey.

ZOL 052: Concepts of Zoology (Even Semester)**Credit 3-0-0****Unit-I****Evolution**

Origin of Life

Evolution of multicellularity

Theories and evidences of animal evolution

Taxonomy

Importance of classification

Nomenclature

Concept of species

Unit-II**Ecology**

Ecosystem Components

Niche

Homeostasis

Biotic and Abiotic factors affecting animals

Behaviour

Innate and learnt behaviour

Parental care

Migration

Unit-III**Embryology**

Gamete structure, Gametogenesis

Fertilization

Early development upto three germ layers

Applied Zoology

Economically important Invertebrates

Economically important Vertebrates

Suggested Reading Material:

1. Meglitsch, P. A. (1991), *Invertebrate Zoology* (3rd Edition), Oxford University Press.
2. Minkoff, E. C. (1983), *Evolutionary Biology*, Addison Wesley Pub. Co., London.
3. Kapoor, V. C. (2001), *Theory and Practice of Animal Taxonomy*, IPH Pub., New Delhi.
4. Mayer, E. and Aschhok (1991), *Principles of Systematics*, McGraw Hill Book Co., London.
5. Alcock, J. (1998), *Animal Behaviour, An Evolutionary Approach* Sinauer Assoc., Sunderland, Mass, USA.
6. Drickamer, L. C. and Vessey, S. H. (1986), *Animal Behaviour - Concepts, Processes and Methods*. (2nd ed.), Wordsworth Publ. Co., California.
7. Manning, A. and Dawkins, M. S. (1992 & 1998), *An Introduction to Animal Behaviour*, 4th ed. (Cambridge low price editions). Cambridge University Press, Cambridge.
8. Sharma, B.D. (1999), *Indian Wild Life Resources Ecology and Development*. Daya Publishing House, Delhi.
9. Balinsky, B. I. (1981), *An Introduction of Embryology*, Saunders, Philadelphia.
10. Berril, N. J. (1971), *Development Biology*, McGraw Hill, New Delhi.
11. Gilbert, S.F. (2003), *Developmental Biology*, Sinauer – Associates, Inc. USA.
12. Goel, S. C (1984), *Principles and Animal Developmental Biology*, Himalaya, Bombay.
13. Saunder, J. W. (1982), *Developmental Biology, Patterns, Principles, Problems*, MacMillan, New York.
14. Shukla, G. S. & Upadhaya, V. B. (1991-92), *Economic Zoology*, Rastogi Publications, Meerut.
15. Srivastava, P. A. (1977), *Economic Zoology*, Commercial Publication Bureau, Kanpur.