CENTRAL UNIVERSITY OF PUNJAB, BATHINDA

M.Sc. Human Genetics

Session - 2020-22

Department of Human Genetics and Molecular Medicine

Transactional Modes: Lecture**;** Demonstration**;** Tutorial**;** Lecture cum demonstration; Problem solving; Self-learning; MCQ practice.

Course Code: **LHG.505**

L	T	P	Credits
1	0	0	1

Course Title: **Principles of Ecological Sciences**

Total Hours: **15**

Learning Outcomes:

On successful completion of the course the student will be able to:

- Improve their knowledgebase about basics of ecological science
- Improve student's aptitude for research and development on ecological succession and dynamics
- Contribute in conservation science

UNIT I Hours: **3**

Environmental components: Physical environment; biotic environment; biotic and abiotic interactions. Concept of habitat and niche; resource partitioning; character displacement. Major terrestrial biomes; theory of island biogeography; biogeographical zones of India.

UNIT II Hours: **4**

Biological components of environment: Characteristics of a population; life history strategies (r and K selection); concept of metapopulation – demes and dispersal, interdemic extinctions, age structured populations; Species Interactions: Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis; Community Ecology: Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones.

UNIT III Hours: **4**

Ecosystem and Ecological Succession: Ecosystem: structure and function; energy flow and mineral cycling (C,N,P); primary production and decomposition; structure and function of some Indian ecosystems: terrestrial and aquatic. Ecological Successions: Types; mechanisms; changes involved in succession; concept of climax.

UNIT IV Hours: **4**

Applied Ecology and Conservation Biology: Environmental pollution; biodiversity: status, monitoring and documentation; biodiversity management approaches; Principles of conservation and it's management; Indian case studies on conservation/management strategy: Project Tiger, Biosphere reserves.

Transactional Modes: Lecture**;** Demonstration**;** Tutorial**;** Lecture cum demonstration; Problem solving; Self-learning; MCQ practice.

Suggested Readings:

4. JS Singh, SP Singh, SR Gupta. 2006. Ecology, Environment and Resource conservation. Anamaya Publications, New Delhi, 688pp.
5. RC Das and BK Behera. 2008. Environmental Science Principle and Practice. Prentice Hall of India Pvt. Ltd, Delhi.
6. Andrew S. Pullin. Conservation Biology. 2002. Cambridge University Press, UK.
7. RT Wright. 2005. Environmental Science. 9th Ed. Pearson Education Inc.
8. ML Hunter Jr, JP Gibbs. 2006. Fundamentals of Conservation Biology. 3rd Ed. Wiley-Blackwell. 516pp.

Course Code: **LHG.544**

L	T	P	Credits
0	0	0	2

Course Title: **Seminar-II**

Total Hours: **30**

Learning Outcomes:

On successful completion of the course the student will be able to:

- Present scientific findings orally
- Illustrate scientific communication in written form
- Analyze scientific literature

Evaluation criteria for Seminar:

- The performance of the students will be continuously evaluated based on the choice of the topic, preparation of the topic, referring new research in the area and also discussing the future perspective = **50 marks**
- Final presentation and report writing = **50 marks**