



DEPARTMENT OF LIFE SCIENCE & BIOINFORMATICS

Assam University :: Silchar

Date: 01.12.2022

Notification

This for the information of all concerned that the Department of Life Science and Bioinformatics is going to offer the following IDC course for Post-Graduation (1st Semester) course for the session 2022 – 23.

Name of the Course	Environmental & Conservation Biology
No. of Seats	60
Last Date of Application	12.12.2022
Mode of Application	Students interested to opt for the said IDC course must apply to the Head of the Department in the prescribed format as enclosed

Prof. Sarbani Giri
Head
Department of Life Science & Bioinformatics
AUS

Copy to:

- P.S. to VC for kind information to Honble' Vice Chancellor, AUS
- Director, Computer Centre with a request to upload the same in the university website
- All Heads of Departments, Assam University, Silchar
- Notice Board
- File for record



DEPARTMENT OF LIFE SCIENCE & BIOINFORMATICS

Assam University :: Silchar

APPLICATION FOR IDC COURSE (505) IN LIFE SCIENCE & BIOINFORMATICS

Environmental and Conservation Biology (505)

Name of the Student:

Department: Roll No.

Email Id: Phone:

Signature of the Candidate

Forwarded by Head of Department of

Office Seal

FOR OFFICE USE ONLY

Remarks

Head, Department of Life Science & Bioinformatics

Inter Departmental Course (IDC)

CORE/ ELECTIVE/AILF - ID C

LS 505: Environment and Conservation Biology

[Full Marks = 100; Total credit = 03]

Unit – I: (Organization & taxonomy)

1. Levels of structural organization: Unicellular, colonial and multicellular forms. Levels of organization of tissues, organs & systems. Comparative anatomy, adaptive radiation, adaptive modifications.
2. Principles & methods of taxonomy: Concepts of species and hierarchical taxa, biological nomenclature, classical & quantitative methods of taxonomy of plants, animals and microorganisms.
3. Outline classification of plants, animals & microorganisms: Important criteria used for classification in each taxon.
4. Evolutionary relationships among taxa.

Unit – II: (Environmental biology)

1. The Environment: Physical environment; biotic environment; biotic and abiotic interactions.
2. Habitat and Niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement.
3. Species Interactions: Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis.
4. Population Ecology: Characteristics, growth curves and regulation of a population; life history strategies (r and K selection); concept of metapopulation – demes and dispersal, interdemic, age structured populations.

Unit – III: (Ecology)

1. Biogeography: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India.
2. Natural history of Indian subcontinent: Major habitat types of the subcontinent, geographic origins and migrations of species. Common Indian mammals, birds. Seasonality and phenology of the subcontinent.
3. Concept of an ecosystem: Ecosystem and its structural components - Abiotic and Biotic components, Productivity and Energy flow, Lindemann's concept of Community dynamics, Ecological succession- Ecosystem stability, climax community
4. Levels of Organisations: Biosphere organization, Emergence theory, Liebig's Law of minimum; Liebig-Blackman concept of Limiting factors, Shelford's Law of Tolerance

Unit – IV: (Applied ecology)

1. Community Ecology: Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones.
2. Ecological Succession: Types; mechanisms; changes involved in succession; concept of climax.

3. Ecosystem Ecology: Ecosystem structure; ecosystem function; energy flow and mineral cycling (C,N,P); primary production and decomposition; structure and function of some Indian ecosystems: terrestrial (forest, grassland) and aquatic (fresh water, marine, eustarine).
4. Applied Ecology: Environmental pollution; global environmental change; biodiversity: status, monitoring and documentation; major drivers of biodiversity change and management approaches.

Unit – V: (Conservation Biology)

1. Conservation Biology: Principles of conservation, major approaches to management, Indian case studies on conservation/management strategy (Project Tiger, Biosphere reserves).
2. Organisms of conservation concern: Rare, endangered species. Conservation strategies. Organisms of health & agricultural importance (Common parasites and pathogens of humans, domestic animals and crops).
3. Concept of sustainability: Wetlands and Fisheries management and conservation with special emphasis on North-East India
4. Biodiversity Conventions and Acts: Application of Remote Sensing in biodiversity assessment.

LS 104: Suggested Readings:

1. Daubenmire, R. (1974). Plants and Environment, John Wiley and Sons
2. Kormondy, E.J. (1978). Concepts of Ecology, Prentice Hall of India
3. Odum, E.P. (1971). Fundamentals of Ecology, W.B. Saunders, Philadelphia
4. Whittaker, R.H. (1975). Communities and Ecosystems, McMillsn
5. Grime, J.P. (1979). Plant strategies and Ecosystem Processes, John Wiley and Sons
6. Mishra, R. (1968). Ecology Workbook, Oxford and IBH (New Delhi).
7. Smith, W.H. (1981). Air pollution and Forests, Springer Verlag (New York).
8. Weaver, J.E. and Clements, F.E. (1983). Plant Ecology, McGraw Hill (USA).
9. Freeman, B. (1989). Environmental Ecology, Academic Press (UK).