

C1A: Ecology

Course instructors: G. Ravikanth (Coordinator), Ankila Hiremath, Melinda Weaver, T. Ganesh

Class schedule: Wednesdays and Fridays (1100-1150)

Number of credits: 2 credits

Prerequisites: None

Topics

Basic ecological principles; Populations, communities and ecosystems; Interactions between organisms and between organisms & the environment; Patterns in species and communities; Ecosystem functioning; Application of ecological concepts to conservation & sustainable resource use

Textbooks

- The Economy of Nature-Robert Ricklefs. (6 ed.) 2010.,
- Ecology: Individuals to Ecosystems: Begon, Townsend and Harper (4 ed.) 2006.,
- Conservation Biology: A Primer for South Asia. Bawa, K.S. Richard Primack and Meera Oommen. 2010.

Grading Pattern: Class participation (10%), attendance (10%), Assignments (30%), Final examination (50%)

Course schedule

Date	DoW	Time	Lecture	Instructor
9-Aug-2017	Wed	1100-1150	Introduction to Ecology: Its history, evolution from natural history and relevance in a human dominated world. Introduction to the idea of scales/and levels of organization.	Ravikanth
11-Aug-2017	Fri	1100-1150	The physical environment (soil, water, temperature)	Ravikanth
16-Aug-2017	Wed	1100-1150	Adaptations to the physical environment, drought and salt tolerance, C3/C4 species	Ravikanth
18-Aug-2017	Fri	1100-1150	Photosynthesis and climate	Ravikanth
23-Aug-2017	Wed	1100-1150	Application: Elevated CO ₂ and plant response	Ravikanth
25-Aug-2017	Fri	<i>Ganesh Chaturthi (GH)</i>		
30-Aug-2017	Wed	1100-1150	Natural Selection and Evolution	Ravikanth
1-Sep-2017	Fri	1100-1150	Speciation, sexual selection and evolution, taxonomy and systematics	Ravikanth

6-Sep-2017	Wed	1100-1150	Biodiversity - measures, patterns at continental & global scales	Aravind
8-Sep-2017	Fri	1100-1150	Introduction to population ecology: What is a population? Population estimation	T. Ganesh
13-Sep-2017	Wed	1100-1150	Population processes. Life tables, Survivorship curves and simple models of population growth.	T. Ganesh
15-Sep-2017	Fri	1100-1150	Density dependency, r and K selected species	T. Ganesh
20-Sep-2017	Wed	1100-1150	Population dynamics: predator-prey interactions and other models	T. Ganesh
22-Sep-2017	Fri	1100-1150	Dispersal, fragmentation, meta populations and movement ecology.	T. Ganesh
27-Sep-2017	Wed	1100-1150	Applied population ecology: managing populations, HW conflict.	T. Ganesh
29-Sep-2017	Fri	<i>Maha Navami/Ayudha Pooja (GH)</i>		
4-Oct-2017	Wed	1100-1150	An introduction to population genetics. Population genetics and its conservation implications (e.g., inbreeding depression and genetic drift; minimum viable population size).	Ravikanth
6-Oct-2017	Fri	1100-1150	Introduction to community ecology: What is an ecological community, competition, ecotones.	T. Ganesh
11-Oct-2017	Wed	1100-1150	Food webs, bottom-up and top-down control	T. Ganesh
13-Oct-2017	Fri	1100-1150	Role of competition in shaping communities: real vs imaginary.	T. Ganesh
18-Oct-2017	Wed	1100-1150	Species interactions and ecosystem services	
20-Oct-2017	Fri	<i>Bali Padyami (GH)</i>		
25-Oct-2017	Wed	1100-1150	Disturbance Ecology: Succession, restoration	T. Ganesh
27-Oct-2017	Fri	1100-1150	Landscape fragmentation and species conservation: protected area	T. Ganesh
1-Nov-2017	Wed	<i>Rajyotsava (GH)</i>		
3-Nov-2017	Fri	1100-1150	Introduction to the ecosystem concept. History/development of the concept. Major controls on ecosystems – climate and soils	Ankila Hiremath
8-Nov-2017	Wed	1100-1150	Carbon in ecosystems. Net and gross productivity. Controls on productivity, allocation, decomposition. Global distribution of carbon.	Ankila Hiremath
10-Nov-2017	Fri	1100-1150	Nutrient cycling through ecosystems. Species effects on ecosystem processes. Human alteration of nutrient cycles.	Ankila Hiremath
15-Nov-2017	Wed	1100-1150	Biomes & climate – the global distribution of biomes	Ankila Hiremath
17-Nov-2017	Fri	1100-1150	Ecosystems of India - humid tropical forests	Ankila Hiremath
22-Nov-2017	Wed	1100-1150	Ecosystems of India - tropical montane forests and sholas	Ankila Hiremath
24-Nov-2017	Fri	1100-1150	Ecosystems of India – tropical dry forests and savannas	Ankila Hiremath
29-Nov-2017	Wed	1100-1150	Ecosystems of India - temperate coniferous, broadleaved forests, alpine meadows	Ankila Hiremath
1-Dec-2017	Fri	1100-1150	Managing and sustaining ecosystems. Resilience and alternative stable states. Social ecological systems.	Ankila Hiremath
6-Dec-2017	Wed	1100-1150	Final exam	Ravikanth