Semester	AUG 2022
Open to semester	5,7,11,13,21
Course code	**BI3184/BI6194**
Course title	**Ecology - I**
Credits	4 /4
Course Coordinator & participating faculty (if any)	Deepak Barua
Nature of Course	Lectures
Pre-requisites	None
Objectives (goals, type of students for whom useful, outcome etc)	This course will cover the basic theoretical framework of ecology, and deal with some of the topics that were introduced in Bio 201 (Ecology and Evolution) in greater detail
Course contents (details of topics /sections with no. of lectures for each)	Introduction (4 lectures) Definition of Ecology; Hierarchical levels of biological organization; Philosophy of the Science of Ecology; Complexity in Nature; History of Ecological thought; Significance of Ecology; Evolution by Natural Selection I. Ecology of Individual Organisms (8 lectures) Physiological ecology: conditions vs. resources, niche, tolerance range, optima, acclimation, limiting factors, energy balance, photosynthesis, respiration, storage, growth, reproduction, abiotic factors: temperature, moisture, light, soil, fire, nutrients II. Population Ecology (10 lectures) Population growth and regulation: What is a population, birth rate, death rate, life tables, survivorship curves, population growth functions, carrying capacity, population pyramids; Evolution of life histories: r and K selection, iteroparous vs. semelparous reproduction, Ageing and senescence, tradeoffs; Species interactions: competition, mututalism, herbivory, predation, optimal foraging, parasitism, trophic cascades III. Community Ecology (8 lectures) Community structure: emergent properties, dominance, diversity, spatial structure, assembly rules; Community change: disturbance, succession, climax, phenology, seasonal

	patterns IV. Ecosystem Ecology (8 lectures) Productivity and energy flow: primary production, secondary production, consumers, decomposition, energy flow, biomass vs. production, ecological efficiency, detritus vs. grazing;?Biodiversity, conservation and climate change: Indices of diversity, causes and consequences of diversity, effects of climate change
Evaluation /assessment	End-Sem Examination-40% Mid-Sem Examination-40% Others-20%
Suggested readings (with full list of authors, publisher, year, edn etc.)	a. Begon, M., Townsend, CR, and Harper, JL. (2005) Ecology - From Individuals to Ecosystems. 4th Ed. Blackwell Publishing. b. Ricklefs RE and Miller GL (2000). Ecology. 4th Ed. Freeman and Co. c. Gurevitch J, Schener SM, and Fox GA (2006). The Ecology of Plants. 2nd Ed. Sinaeur and Associates.