LS 507A Biodiversity and Evolution 2 Credits Name of the Faculty: Prof. Nirala Ramchiary*, Dr. Bhupendra Chaudhary

Sr.No.	Торіс	Faculty Name/ Contact Hours
1.	Introduction to biodiversity: germplasm, gene pool, and population biology	NR/2
2.	Types of biodiversity: genetic, species and ecosystem diversity	NR/2
3.	Centres of origin and biodiversity hotspots	NR/2
4.	Patterns of species distribution: biomes, gradients, island biogeography and species-area relationship, measuring biodiversity	NR/3
5.	Role of biodiversity in ecosystem function and stability	BC/2
6.	Biodiversity extinction, patterns and drivers of biodiversity decline: habitat loss and fragmentation, extractive uses, invasive species, endangered species	BC/3
7.	Biodiversity conservation and management, convention on biological diversity	BC/2
8.	Role of biodiversity in agriculture and industry	BC/2
9.	Concepts and theories of evolution	NR/2
10.	Homology and other evidence of evolution	BC/2
11.	Forces affecting evolution – mutation, insertion/deletion (indels), recombination and gene flow; variation and divergence of populations	NR/2
12.	Micro- and Macro-evolution, mechanism of species formation (sympatric and allopatric) and evolution	BC/3
13.	Molecular basis of species/strain identification	NR/3
14.	Molecular evolution of genes and proteins, evolution of genomes, phylogeny and systematics, molecular clock	BC/3
15.	Field visit to National park/Wildlife Sanctuary/Biodiversity hotspot/Biosphere Reserves of India during the semester to study biodiversity practically.	NR,BC

Further Reading:

- 1. Text Book of Biodiversity by K. Krishnamurthy, Publisher: Science Publishers, Inc Post office Box 669, Enfield, New Hampshire, 03784, USA
- 2. Biodiversity: An Introduction (Second Edition) by Kevin J. Gatson and John I Spicer, Publisher: Blackwell Science Ltd, Blackwell publishing Company
- 3. Principals of Population Genetics (Fourth edition) by Daniel L. Hartl and Andrew G. Clark, Publisher: Sinauer Associates, Inc.; 4th edition (December 31, 2006)
- 4. An Introduction to Evolutionary Ecology by Andrew Cockburn, Publisher: Wiley-Blackwell Publisher
- 5. Evolution: Principles and Processes by Brian K Hall, Publisher: Jones & Bartlett Learning
- 6. Molecular Evolution and Phylogenetics by Masatoshi Nei and Sudhir Kumar, Publisher: Oxford University Press, USA; 1 edition.