



ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+' Grade by NAAC(CGPA:3.68/4.00)
College with Potential for Excellence by UGC
DST-FIST Supported & STAR College Scheme by DBT

Faculty of Science

Bachelor of Science (B.Sc.) 2024-25

SUBJECT: ZOOLOGY

B.Sc.VI Semester

Paper-DSE I

ECOLOGY, BIODIVERSITY AND EVOLUTION

Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO 1	Have comprehensive understanding of the basic terms, principles, rules, values & concept of ecological science.	U
CO 2	Identify the different types of Ecosystem and relationship between the organisms and their environment.	An
CO 3	Identify the significance of Biodiversity with emphasis on various groups of animals.	E
CO 4	Get clear understanding on the major issues of Biodiversity.	U
CO 5	Get knowledge of the theories of origin and development of early life on earth.	U
CO 6	Identify how the Evolution takes place from single cell to man.	E

Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	3	40	60	100
Practical	1	40	60	100
Total	4			200

Evaluation Scheme

	Marks	
	Internal	External
Theory	3 Internal Exams of 20 Marks (During the Semester) (Best 2 will be taken)	1 External Exam (At the End of Semester)
Practical	1 Internal Exams (During the Semester)	1 External Exam (At the End of Semester)



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Content of the Course

Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 60 Hrs.

Maximum Marks: 60

Units	Topics	No. of Lectures
I	<p>1. Concept of Ecology</p> <p>1.1 Introduction and History of Ecology.</p> <p>1.2 Component and classification of Ecosystem.</p> <p>1.3 Function of Ecosystem-</p> <ul style="list-style-type: none">• Productivity of ecosystem.• Energy flow of the ecosystem - food chain, food web, ecological pyramid and trophic level.• Ecological footprint and Carbon footprint. <p>2. Bio-Geochemical cycle - Carbon, Oxygen, Nitrogen, Phosphorus cycle.</p> <p>2 Habitat Ecology</p> <p>2.1 Concept of Habitat and Ecological Niche.</p> <p>2.2 Fresh water habitat and its conservation.</p> <p>2.3 Marine water habitat and its conservation.</p> <p>2.4 Estuarine habitat and its conservation.</p> <p>2.5 Terrestrial habitat and its conservation.</p> <p>3. General idea of Ecological and Biological indicators.</p> <p>4. Ecological division of India</p> <p>Keywords: Ecosystem, Bio-geochemical cycle, Habitat ecology, Ecological division, Bio indicators</p>	16
II	<p>1. Population Concept</p> <p>1.1 Basic concept and characteristics of population.</p> <p>1.2 Factors affecting population.</p> <p>1.3 Population interaction - Mutualism, Predation, Competition.</p> <p>1.4 Species interaction - Herbivory, Carnivory, Symbiosis.</p> <p>2. Community Concept</p> <p>2.1 Characteristics of community.</p> <p>2.2 Stratification in terrestrial and aquatic habitat.</p> <p>3. Ecological Succession</p> <p>3.1 Types of succession.</p> <p>Keywords: Population concept, Community concept, Ecological succession.</p>	12

Runa *[Signature]* *[Signature]* *A. Saxena*

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III	<p>1. Biodiversity</p> <p>1.1 Meaning, values and ethics of Biodiversity.</p> <p>1.2 Importance of biodiversity.</p> <p>1.3 Types of biodiversity - genetic, species and ecological biodiversity.</p> <p>1.4 Causes of depletion of biodiversity.</p> <p>1.5 Hotspots of biodiversity in India.</p> <p>1.6 Conservation of biodiversity.</p> <p>-In Situ - protected areas.</p> <p>- Ex Situ - Germplasm bank, Gene bank, Seed bank, Zoo and Botanical garden.</p> <p>1.7 Biodiversity Protection Act – 2002</p> <p>2. Role of People for Conservation of Biodiversity</p> <p>3 Emerging trends in conservation of biodiversity.</p> <p>4 Medicinal Plants of Forest and its Uses.</p> <p>Mahua, Harad, Baheda, Amla, Oak.</p> <p>Keywords- biodiversity, conservation, hotspots.</p>	14
IV	<p>1. Evolution</p> <p>1.1 Definition and History of evolution.</p> <p>1.2 Origin of life - Theories of evolution.</p> <p>- Lamarckism</p> <p>- Darwinism</p> <p>- Neo-darwinism</p> <p>1.3 Modern synthetic theory of evolution.</p> <p>1.4 Evidence of organic evolution - anatomical, paleontological, embryological.</p> <p>2. Micro, macro and mega evolution</p> <p>3. Evolution of man.</p> <p>4. Elementary idea of Geological timescale.</p> <p>5. Adaptation – Definition and types of adaptation.</p> <p>6. Mimicry- Definition and kinds of mimicry.</p> <p>Keywords- Evolution, adaptation, mimicry, geological timescale.</p>	10

Runa

A. Saxena