



S.A.S. GOVERNMENT DEGREE COLLEGE
NARAYANAPURAM, WEST GODAVARI DISTRICT-534411
(AFFILIATED TO ADIKAVI NANNAYA UNIVERSITY, RAJAMAHENDRAVARAM)



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DEPARTMENT OF ZOOLOGY

B.SC

COs,PSOsandPOsMapping

2020-21

Structure of ZOOLOGY Syllabus

(Under CBCS for 4-year B.Sc. Hons. Programme)

(With domain subject covered during the first 4 Semesters with 5 Courses)

YEAR	SEM	PAPER	TITLE	MARKS(100)		CREDITS
				MID SEMESTER	END SEMESTER	
I	I	I	Animal Diversity–I Biology of Non-Chordates	25	75	04
			Practical-I	25	75	01
	II	II	Animal Diversity–II Biology of Chordates	25	75	04
			Practical-II	25	75	01
II	III	III	Cell biology, Genetics, Molecular Biology & Evolution	25	75	04
			Practical-III	25	75	01
	IV	IV	Physiology, Cellular Metabolism & Embryology	25	75	04
			Practical-IV	25	75	01
		V	Immunology & Animal Biotechnology	25	75	04
			Practical-V	25	75	01

Programme Educational Objectives (PEOs):

PEO1 Higher Education:

Empower students to pursue higher studies in various fields of Biology and Chemistry.

PEO2 Career: Enable students to pursue careers in Chemical, Biological and related fields as demonstrated by professional success at positions within industry, government, or academia.

PEO3 Social responsibility: Enable students to exhibit professionalism, ethical attitude, communication skills and team work in their profession.

Program Outcomes (POs):

The Learning Outcomes of the programme could be in consonance with the Bloom's Taxonomy, which includes–

1. Remember (Lower order)
2. Understand (Lower Order)
3. Apply (Lower Order)
4. Analyze (Higher Order)
5. Evaluate & Problem Solving (Higher Order)
6. Create (Higher Order)

PO1 Critical thinking: Able to understand and utilize the principles of scientific enquiry, think analytically, clearly and evaluate critically while solving problems and making decisions during biological study.

PO2 Effective communication: Able to formally communicate scientific ideas and investigations of the biology discipline to others using both oral and written communication skills.

PO3 Social interaction: Able to develop individual behaviour and influence society and social structure.

PO4 Effective citizenship: Able to work with a sense of responsibility towards social awareness and follow the ethical standards in the society.

PO5 Ethics: Ability to demonstrate and discuss ethical conduct in scientific

activities. **PO6 Environment and Sustainability :** Able to understand the impact of biological science in societal and environmental contexts and demonstrate the knowledge for sustainable development.

PO7 Self-directed and life-long learning: Able to recognize the need of life-long learning and engage in research and self-education.

ZOOLOGY–SEMESTER I
PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF
NONCHORDATES HOURS

Course Outcomes: By the completion of the course the graduates should be able to–

- CO1** Describe general taxonomic rules on animal classification
- CO2** Classify Protozoa to Coelenterata with taxonomic keys
- CO3** Classify Phylum Platyhelminthes to Annelida phylum using examples from parasitic adaptation and vermin composting
- CO4**
Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscs
- CO5** Describe Echinodermata to Hemichordata with suitable examples and larval stages in relation to the phylogeny

ZOOLOGY–SEMESTER II
PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF
CHORDATES HOURS

Course Outcomes:

By the completion of the course the graduates should be able to–

- CO1** Describe general taxonomic rules on animal classification of chordates
- CO2** Classify Protochordata to Mammalia with taxonomic keys
- CO3** Understand Mammals with specific structural adaptations
- CO4** Understand the significance of dentition and evolutionary significance
- CO5**
Understand the origin and evolutionary relationship of different phyla from Prochordata to Mammalia.

ZOOLOGY–SEMESTER III
PAPER – III: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY
AND EVOLUTION

Course Outcomes:

The overall course outcome is that the student shall develop deeper understanding of what life is and how it functions at cellular level. This course will provide students with deep knowledge in Cell Biology, Animal Biotechnology and Evolution and by the completion of the course the graduate shall be able to–

- CO1** To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.
- CO2** Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.
- CO3** To understand the history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals
- CO4** Acquiring in-depth knowledge on various aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders
- CO5** Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.
- CO6** Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society

ZOOLOGY–SEMESTER IV
PAPER – IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM
ANDEMBRYOLOGY

Course Outcomes:

This course will provide students with a deep knowledge in Physiology, Cellular metabolism and Molecular Biology and by the completion of the course the graduate shall be able to–

CO1 Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.

CO2 Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.

CO3 Describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms

CO4 Develop broad understanding of the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules

CO5 Describe the key events in early embryonic development starting from the formation of gametes up to gastrulation and formation of primary germ layers.

ZOOLOGY–SEMESTER IV
COURSE–5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

Course Outcomes:

This course will provide students with a deep knowledge in immunology, genetics, embryology and ecology and by the completion of the course the graduates shall be able to–

CO1

To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity.

CO2

To describe immunological response as to how it is triggered (antigens) and regulated (antibodies)

CO3

Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.

CO4

Get familiar with the tools and techniques of animal biotechnology.

Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	1		3		5	
CO 2		2		4	5	
CO 3	1					
CO 4		2		4	5	6
CO 5	1					
CO 6		2		4	5	