

A.S. D GOVT. DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF ZOOLOGY & AQUACULTURE TECHNOLOGY

2023-2024

ZOOLOGY Courses offered

Year	Semester	Paper	Title of the Course	Course type (T/L/P)
I	Semester-I	Course- I	Introduction to Classical Biology	T
		Course- II	Introduction to Applied Biology	T
	Semester-II	Course- III	Animal Diversity-I Biology of Non-Chordates	T
			Animal Diversity-I Biology of Non-Chordates Practical	P
		Course- IV	Cell and Molecular Biology	T
			Cell and Molecular Biology Practical	P
		Minor 1 Zoology	Animal Diversity-I Biology of Non-Chordates	T
			Animal Diversity-I Biology of Non-Chordates Practical	P
		Minor 1 Aquaculture	Taxonomy and Functional Anatomy of Fin Fish and Shellfish	T
			Taxonomy and Functional Anatomy of Fin Fish and Shellfish	P
II	Semester-III	Paper-III	Cell Biology, Genetics, Molecular Biology & Evolution	T
			Cell Biology, Genetics, Molecular Biology & Evolution Practical	P
	Semester-IV	Paper-IV	Physiology, Cellular Metabolism & Embryology	T
			Physiology, Cellular Metabolism & Embryology Practical	P
		Paper-V	Immunology & Animal Biotechnology	T
			Immunology & Animal Biotechnology Practical	P
			Paper-6A	Sustainable Aquaculture Management
Sustainable Aquaculture Management Practical	P			
Paper-7A	Post- Harvest Technology of Fish and Fisheries		T	
	Postharvest Technology of Fish and Fisheries		P	

III	Semester-V		Practical	
		Paper-6B	Live Stock Management-I (Biology of Dairy Animals)	T
			Live Stock Management-I (Biology of Dairy Animals) Practical	P
		Paper-7B	Live Stock Management -II (Dairy Production and Management)	T
Live Stock Management -II (Dairy Production and Management) Practical	P			

Department of Zoology Course Outcomes

Zoology Semester-I, Course 1 Introduction to Classical Biology

Course Outcomes: On the completion of the course the student should be able to –

- CO1:** Understand the principles of Nomenclature, classification, conservation of Biodiversity, causes, effects, and prevention of environmental pollution.
- CO2:** Understand the plant taxonomic, physiological, and reproductive processes and apply the knowledge of Economic Botany for entrepreneurship.
- CO3:** Understand the animal classification, physiology, embryonic development and apply the knowledge gained in Economic Zoology to grow into Entrepreneurs.
- CO4:** Differentiate prokaryotic and eukaryotic cells, understand the basic structure and functions of cell organelles, basic concepts of Molecular Biology and Origin of life.
- CO5:** Comprehend the principles of Chemistry and apply them in daily life and develop responsibility towards environment by applying the concepts of Green Chemistry.

Zoology Semester-I, Course II Introduction to Applied Biology

Course Outcomes: On the completion of the course the student should be able to –

- CO1:** Understand the history, ultrastructure, diversity, and importance of microorganisms.
- CO2:** Understand the structure and functions of macromolecules.
- CO3:** Acquire the knowledge on biotechnology principles and its applications in food and medicine.
- CO4:** Compare the techniques, tools and their uses in diagnosis and therapy.
- CO5:** Demonstrate the bioinformatics and statistical tools in comprehending the complex biological data.

Zoology Semester-II Course 3 Animal Diversity - Biology of Non- Chordates

Course Outcomes: On the completion of the course the student will be able to –

CO1: Understand the concept of animal kingdom, classification, and general characters of Protozoa

CO2: Classify Porifera and Coelenterata with taxonomic keys

CO3: Classify Phylum Platy & Nematelminthes using examples & parasitic adaptations

CO4: Compare the Phylum Annelida with Arthropoda using examples, understand the economic importance of vermicompost in organic farming & appreciate the beneficial role of insects.

CO5: Compare & contrast the phylum Mollusca, Echinodermata & Hemichordata with suitable examples in relation to the phylogeny

Zoology Semester-II Course 4: **Cell & Molecular Biology**

Course Outcomes:

By the completion of the course the student shall be able to –

CO1: Understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.

CO2: Analyze the structure and function of plasma membrane and different cell organelles of eukaryotic cell.

CO3: Understand the cell cycle, bioenergetics of the cell and give reasons for abnormal cell functioning.

CO4: Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.

CO5: Understand the gene expression phenomenon and biological importance of biomolecules.

Zoology Semester-II (Zoology Minor-1) **Animal Diversity - Biology of Non- Chordates**

Course Outcomes: On the completion of the course the student will be able to –

CO1: Understand the concept of animal kingdom, classification, and general characters of Protozoa

CO2: Classify Porifera and Coelenterata with taxonomic keys

CO3: Classify Phylum Platy & Nematelminthes using examples & parasitic adaptations

CO4: Compare the Phylum Annelida with Arthropoda using examples, understand the economic importance of vermicompost in organic farming & appreciate the beneficial role of insects.

CO5: Compare & contrast the phylum Mollusca, Echinodermata & Hemichordata with suitable examples in relation to the phylogeny

Semester- II (Aquaculture Minor 1)

Course No: 3 Taxonomy and Functional Anatomy of Fin Fish and Shellfish (Minor1)

Course Outcomes:

- CO1:** Acquire knowledge on the Classification of major groups of Finfish and Shell fish
- CO2:** Understand the general characters of Finfish and Shell fish
- CO3:** Understand and analyze the structure and functions of Digestive system
- CO4:** Understand the difference between the brain of fish and prawn
- CO5:** Compare and contrast the functional anatomy of fish and prawn

Zoology Syllabus – Semester III

Paper – III: Cell Biology, Genetics, Molecular Biology and Evolution

Course Outcomes:

- CO1:** understand the origin of cell and distinguish between prokaryotic and eukaryotic cell and the role of different cell organelles in maintenance of life activities
- CO2:** Analyze the history and basic concepts of heredity, variations, and gene interaction
- CO3:** Distinguish between polygenic, sex-linked, and multiple allelic modes of inheritance.
- CO4:** Acquire the basic concepts of molecular biology as to how characters are expressed with a coordinated functioning of replication, transcription, and translation in prokaryotes and Eukaryotes.
- CO5:** Appreciate the way of origin of life and understand the theories, forces of evolution and role of variations and mutations in evolution.

Zoology-Semester-IV, Paper-IV

Animal Physiology, Cellular Metabolism and Embryology

Course Outcomes:

- CO1:** understand the various aspects of physiological systems and their functioning in animals.
- CO2:** Acquire the concept of hormonal regulation of physiology, metabolism, and reproduction in animals along with the disorders associated deficiency of hormones.
- CO3:** Assess the intersection between the disciplines of Biology and Chemistry and understand the structure and classification of carbohydrates, proteins, lipids, and enzymes.
- CO4:** Understand the fundamental biochemical principles such as the function of Biomolecules, metabolic pathways, and the regulation of biochemical processes.
- CO5:** Understands the key events in the formation and development of embryo

Zoology- Paper-V Semester-IV

Immunology and Animal Biotechnology Syllabus

Course Outcomes: On the completion of the course the student shall be able to –

CO1: Understand, compare, and contrast the innate versus adaptive immune systems and humoral versus cell-mediated immune responses

CO2: Differentiate antigens in nature and antibodies mechanism of action

CO3: Understand the latest trends in Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.

CO4: Appreciate the technology related to transgenic animals' production.

CO5: Assess the importance of different techniques used in the Animal Biotechnology labs.

Zoology- Semester-V Paper-6A

Sustainable Aquaculture Management

Course Outcomes:

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

CO1: Evaluate the present status of aquaculture at the Global level and National level

CO2: Classify different types of ponds used in aquaculture

CO3: Demonstrate induced breeding of carps

CO4: Acquire critical knowledge on commercial importance of shrimps

CO5: Identify fin and shell fish diseases

Semester: V, Paper-7A (2023-2024)

Postharvest Technology of Fish And Fisheries

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

CO1: Acquire the skill of handling of fish for preservation

CO2: Understand the knowledge of methods of fish preservation.

CO3: Understand and apply the processing of fish and its By-products.

CO4: Analyse the importance of sanitation and quality control in processing units.

CO5: Assess the need of quality assurance and certification for aqua products.

Zoology Semester-V Paper-6B

Live Stock Management-I (Biology of Dairy Animals)

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

CO1: Select the suitable breeds of livestock for rearing

CO2: Relate the anatomy of udder with letdown of milk

CO3: Identify and manipulate the reproductive behavior of cattle

CO4: Inspect the economics of dairy farming

CO5: Appreciate the various breeding techniques employed in live stock

Zoology Semester-V Paper-7B
Live Stock Management -II (Dairy Production and Management)

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

CO1: Identify and suggest the suitable housing system for the dairy farming

CO2: Understand management practices for the dairy farming

CO3: Understand the skills of pasteurization & sterilization methods.

CO4: Apply the skill to produce dairy products in their daily life.

CO5: Acquire the skills of separation techniques of cream from milk