



# A.D.M. COLLEGE FOR WOMEN

(Autonomous)

*Affiliated to Bharathidasan University*

(Nationally Accredited with "A" Grade by NAAC – 4<sup>th</sup> Cycle)

NAGAPATTINAM 611 001.

## LOCAL/NATIONAL/REGIONAL/GLOBAL RELEVANCE

### PG DEPARTMENT OF ZOOLOGY

Programme: B.Sc Zoology

Year: 2022-2023

Course Code	Title of the Course	Local/Regional/ National /Global	Rationale	Course Outcomes	PSOs Addressed	Cognitive Level
ZUA	Biology of Invertebrates	National & Regional	Understand the systematic and functional morphology of various groups of invertebrates.	<ul style="list-style-type: none"> <li>CO 1: Describe the distinguishing characteristics of the major taxa. Explain the basic aspects of classification details of invertebrates. Understand biodiversity, habitat, adaptation, organization and taxonomic status of invertebrates.</li> </ul>	PSO-1,2,3,4,5	Un, Re, An, Ap, Ev

				<ul style="list-style-type: none"> <li>• CO 2: Recall certain morphological attributes and physiological processes that are distinct and significant to each Phyla</li> </ul>	PSO-1,2,3,4,5	Un, Ac, Ap, Ev, Cr
				<ul style="list-style-type: none"> <li>• CO 3: Understand the systemic and functional morphology of various groups of invertebrates. Explain the basic aspects of structural and functional details of Invertebrates.</li> </ul>	PSO- 2,3	Re, An
				<ul style="list-style-type: none"> <li>• CO 4: To compare and understand the general and specific characteristics within each Phyla.</li> </ul>	PSO-1,4	Re, An

				<ul style="list-style-type: none"> <li>CO 5: Interpret the affinities, evolutionary relationships and adaptation of the major taxa and to explain their economic importance with respect to Non Chordates.</li> </ul>	PSO1,2,3,4,5	Re, Ap, An, Ev, Cr
ZUB	Biology of Chordates	National & Regional	Study the salient features, affinities and adaptations of chordates.	<ul style="list-style-type: none"> <li>CO 1: Identify the general and specific characteristics of the different classes and the organization of the representative types.</li> </ul>	PSO- 1, 2, 3	Ac, Un, An
				<ul style="list-style-type: none"> <li>CO 2: Recognize and describe the major groups of chordates.</li> </ul>	PSO-1, 2	Ac, Un

				<ul style="list-style-type: none"> <li>CO 3: Understand the diversity of Chordates and its outline systematic. Discuss their affinities and adaptations to different modes of life</li> </ul>	PSO-1, 2 , 3	Ac, Un, An
				<ul style="list-style-type: none"> <li>CO 4: Understand the unique features, taxonomy and functional morphology of different classes of chordates.</li> </ul>	PSO-1, 2, 3, 5	Ac, Un, An, Cr
				<ul style="list-style-type: none"> <li>CO 5: To infer the affinities, evolutionary relationships and adaptation of the major taxa and to explain their economic importance with respect to Chordates</li> </ul>	PSO-1, 2, 5	Ac, Un, Cr

ZUD	Cell and Molecular Biology	National & Regional	Know the cell structure at molecular level in prokaryote and Eukaryote	<ul style="list-style-type: none"> <li>CO 1: To impart knowledge about the prokaryotic and eukaryotic cell, biosynthesis of cellular membranes and organelles and the unified role it plays for the ultimate sustainability of the organisms.</li> </ul>	PSO-1, 2, 3,4	Ac, Un, An, Ap
				<ul style="list-style-type: none"> <li>CO 2: Rigorous foundation in the principles of molecular and cellular biology give insights into the mechanisms involved in the synthesis and function of macro molecules such as DNA, RNA, and proteins.</li> </ul>	PSO-1, 2, 3,4	Ac, Un, An, Ap

				<p>CO 3: Ability to make connections between the molecular mechanisms, holistic understanding of biological organization and function from the molecules to cells, tissues, organs and entire organism.</p>	<p>PSO-1, 2, 3,</p>	<p>Re, Un, Ap</p>
				<ul style="list-style-type: none"> <li>• CO 4: Studying Cells at molecular level trains the students to think logically, critically and quantitatively.</li> </ul>	<p>PSO-1, 2,4</p>	<p>Ac, Un, An,</p>
				<ul style="list-style-type: none"> <li>• CO 5: Learn to interpret statements made in the scientific literature, as well as in non-science areas, based on evidence, not anecdote.</li> </ul>	<p>PSO- 5</p>	<p>Cr</p>

ZUE	Developmental Biology	National & Regional	Understand the factors involving in regulation of development process. Understand the role of immunity in human.	<ul style="list-style-type: none"> <li>CO 1: Develop critical understanding how a single-celled fertilized egg becomes an embryo and then a fully formed adult.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>CO 2: Understand how development affects organization of phenotypes and their variation.</li> </ul>	PSO-1,2, 3, 4	Ac, Un, Ap, An,
				<ul style="list-style-type: none"> <li>CO 3: Aware of the reproductive cycle, hormones, Birth control and critically assess relevant scientific literature in reproductive biology and present their argument in oral and written work.</li> </ul>	PSO- 1,2,3, 4,5	Ac, Re, Un, Ap, Cr

				<ul style="list-style-type: none"> <li>• CO 4: Explain the concept of Immunology, Mechanism of immunity, Immunity regulating cells.</li> </ul>	PSO-1, 2, 4	Ac, Un, An
				<ul style="list-style-type: none"> <li>• CO 5: Understand the Basic structure, classes and function of Antibodies, Antigen-Antibody interaction..</li> </ul>	PSO-1, 2	Ac, Un,
UZG	Genetics and Microbiology	National & Regional	Understand the basics of Genetics and importance of sex determination and genetic disorders.	<ul style="list-style-type: none"> <li>• CO 1: Able to explain the role of the mendelian's inheritance and multiple alleles in day to day life activities.</li> </ul>	PSO-1,2	Ac, Un,
				<ul style="list-style-type: none"> <li>• CO 2: Understand the cause and effect of alterations in chromosome number in sex determination</li> </ul>	PSO-1,2,3	Ac, Un, Ap



				<ul style="list-style-type: none"> <li>CO 3: Understanding the applications of genetics for the welfare of health and treatment of disease, and the impact of selective advantage and natural selection on human genetic disorders.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>CO 4: Acquired technical skills will help the students for collecting and processing biological specimens for analysis.</li> </ul>	PSO-1, 2,3	Re, Un, Ap
				<ul style="list-style-type: none"> <li>CO 5: Students enable their critical and analytical thinking in the detection of diseases and to distinguish normal and abnormal microscopic pathogens.</li> </ul>	PSO-1,2,3	Re, Un, Ap,

UZH	Environmental Biology, Biodiversity conservation and Evolution	National & Regional	Study the physical, chemical and biological parameters and their impact on environment.	<ul style="list-style-type: none"> <li>• CO1: Understand the basic concept of Ecosystem and the factors.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO2: Know the population and community ecology.</li> </ul>	PSO-1,2	Ac, Un,
				<ul style="list-style-type: none"> <li>• CO 3: Aware of sources of pollution, ecological effect and control measures.</li> </ul>	PSO-1,2,4	Re, Un, An
				<ul style="list-style-type: none"> <li>• CO 4: Understand types, values and conservation of biodiversity.</li> </ul>	PSO- 1, 2	Ac, Un,
				<ul style="list-style-type: none"> <li>• CO 5: Compare and contrast the various theories on formation of new species and identify the factors that play a role in the process of evolution and understand the genetic basis of evolutionary change</li> </ul>	PSO-2, 3	Un, Ap

UZI	Biotechnology	National & Regional	Understand the importance and application of Biotechnology in various field	<ul style="list-style-type: none"> <li>• CO 1: To impart comprehensive understanding of the principles and practices of biotechnology</li> </ul>	PSO-1, 2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 2: Application of genetic engineering in prevention and diagnosis of diseases and discuss the different applications of biotechnology.</li> </ul>	PSO-2, 3	Un, Ap
				<ul style="list-style-type: none"> <li>• CO 3: Understanding the principles and practices of biotechnology give insights into the fermentation technology.</li> </ul>	PSO-2, 3	Un, Ap

				<ul style="list-style-type: none"> <li>• CO 4: Understanding the application of genetic engineering in agriculture for production of bio fertilizer.</li> </ul>	PSO-2, 3	Un, Ap
				<ul style="list-style-type: none"> <li>• CO 5: Know the application of biotechnology in the field of enzyme technology.</li> </ul>	PSO-1,4	Re, An
UZJ	Animal physiology	National & Regional	Study the structure and physiology of different organs in animal and human body	<ul style="list-style-type: none"> <li>• CO 1: Know the role of nutrition in human and its source, types and importance. To understand the mechanism of human respiration.</li> </ul>	PSO-1, 2	Ac, Un

				<ul style="list-style-type: none"> <li>• CO 2: To understand the blood circulation and excretion of human.</li> </ul>	PSO-1,2,	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 3: Recognize the complimentary relationship of structure and function of nerves and describe the interactions between different organ systems to maintain homeostasis</li> </ul>	PSO-3	Ap
				<ul style="list-style-type: none"> <li>• CO 4: Able to explain the receptors and biological rhythms in response to internal and external environmental changes.</li> </ul>	PSO- 1,4	Re, An

				<ul style="list-style-type: none"> <li>• CO 5: Know the role of hormones in reproduction of mammals.</li> </ul>	PSO-1,2,4	Ac, Un, An
UZK	Biophysics, Biochemistry and Biostatistics	National & Regional	Study basic concept of biophysics, Biochemistry and Biostatistics to analyze the biological data	<ul style="list-style-type: none"> <li>• CO 1: Develop a thorough grounding in fundamental analytical approaches for quantitative study of living systems and life processes.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 2: To determine the physical phenomena which influence living organisms and some of their basic applications in science and society.</li> </ul>	PSO-2, 3, 4	Un, Ap, An

				<ul style="list-style-type: none"> <li>• CO3: Understand the structure and function of macromolecules</li> </ul>	PSO-2, 3	Un, Ap
				<ul style="list-style-type: none"> <li>• CO4: Identify the metabolic pathways of macromolecules.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 5: Know to analyze the biological data and document preparation.</li> </ul>	PSO-1, 3, 4	Re, Ap, Ev



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### LOCAL/NATIONAL/REGIONAL/GLOBAL RELEVANCE

### PG DEPARTMENT OF ZOOLOGY

Programme: M.Sc, Zoology

Year:2022-2023

Course Code	Title of the Course	Local/Regional/ National /Global	Rationale	Course Outcomes	PSOs Addressed	Cognitive Level
PZA	Animal Phylogeny and Biodiversity	National & Regional	To provide thorough understanding in the morphology, mode of life of Invertebrates and vertebrate animals.	<ul style="list-style-type: none"> <li>CO 1: Understand and study of the Origin and phylogeny of Invertebrates and Chordates</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>CO 2: Understand the organization, Homology and</li> </ul>	PSO-2	Un



				Analogy, Diversity of Invertebrate and chordates.		
				<ul style="list-style-type: none"> <li>• CO3: Job offering: Nature conservation officer in Forest Department.</li> </ul>	PSO-2,5	Un, Cr
				<ul style="list-style-type: none"> <li>• CO4: Zoo keeper in Museum, Sanctuaries.</li> </ul>	PSO-2,5	Un, Cr
				<ul style="list-style-type: none"> <li>• CO5: Research Scientist in ICFRE Institutes, Van Vigyan Kendra, SACON.</li> </ul>	PSO-2, 5	Un, Cr
PZB	Cell and Molecular Biology	National & Regional	To know the structure and importance of genetic material and gene expression and regulation of prokaryotes and eukaryotes	<ul style="list-style-type: none"> <li>• CO 1: Understand the cell structure in molecular level.</li> </ul>	PSO-1,2	Re, Un
				<ul style="list-style-type: none"> <li>• CO2: Understand basic idea of cell cycle and regulation to apply in research.</li> </ul>	PSO-1,2,3	Ac, Un, Ap
				<ul style="list-style-type: none"> <li>• CO3: Job offers:</li> </ul>	PSO-2,5	Un, Cr

				<p>Research Scientist in Cancer Research center, Adayar.</p>		
				<ul style="list-style-type: none"> <li>• CO4: Research Scientist in Tata Memorial Centre for Advanved Treatment in Cancer, Parel Mumbai.</li> </ul>	PSO-2,5	Un, Cr
				<ul style="list-style-type: none"> <li>• CO5: Technical officer in Centre for cellular and Molecular Biology(CCMB), TIFR at Hyderabad.</li> </ul>	PSO-2,5	Un, Cr
PZC	Genetics	National, regional, Local & Global	Provide an opportunity to learn the importance of inheritance in Man	<ul style="list-style-type: none"> <li>• CO 1: Student will test and deepen their mastery of genetics by applying this knowledge in a variety of problem solving situations.</li> </ul>	PSO-1, 4	Ac, An

				<ul style="list-style-type: none"> <li>• CO 2: Student learn the basic principles if inheritance at molecular level.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO3: Job offer: Technician in Karyotyping in Medical Research Centre.</li> </ul>	PSO-2,5	Un, Cr
				<ul style="list-style-type: none"> <li>• CO 4: Research scientist in ICMR institutes</li> </ul>	PSO-2, 3,5	Un, An, Cr
				<ul style="list-style-type: none"> <li>• CO 5: Research Assistant in Institute of Forest Genetics and Tree Breeding, Coimbatore.</li> </ul>	PSO-2,3,4	U, Ap, Ev
PZD	Microbiology and Immunology	National, regional, Local & Global	To familiarize the learner with the applied aspects of microbiology and	<ul style="list-style-type: none"> <li>• CO 1: Understand an overview of the microbial world, its structure and function.</li> </ul>	PSO-1	Re

			know the immunodeficiency diseases and its diagnostic techniques	<ul style="list-style-type: none"> <li>• CO 2: Students have intensive and in-depth learning in culture techniques and familiarize the learner with the applied aspects of microbiology.</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 3: Student will be able to identify the cellular and molecular basis of immune responsiveness.</li> </ul>	PSO-4	Ev
				<ul style="list-style-type: none"> <li>• CO 4: Learners understand immunology is the branch of biomedical.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 5: Job offer: Epidemiologist, Pathology Assistant, Teacher, Veterinarian</li> </ul>	PSO-3,5	Ap, Cr

				Associate, Medical and clinical Laboratory Technologists.		
PZF	Developmental Biology	National, regional, Local & Global	To expose the learner to the new developments in embryology and its relevance to Man	<ul style="list-style-type: none"> <li>• CO 1: Understand the concepts and process in developmental biology.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 2: Understand the genetic mechanisms and the unfolding of the same during development.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 3: Expose the learner to the new developments in embryology and its relevance to Man.</li> </ul>	PSO-2, 4	Un,Ev
				<ul style="list-style-type: none"> <li>• CO 4: Understand egg cleavage and the mechanism of embryogenesis, organ development</li> </ul>	PSO-1,2	Ac, Un

				<ul style="list-style-type: none"> <li>CO 5: Job offer: IVF laboratory, Embryologists in O&amp;G department in Medical College and Research Centre, Research Assistant in Veterinari College and Research centre. Animal care taker.</li> </ul>	PSO-2,5	Un, Cr
PZG	Biochemistry, Biophysics and Bio techniques	National, regional, Local & Global	To expose the learner to the new developments in embryology and its relevance to Man	<ul style="list-style-type: none"> <li>CO 1: Understand the chemical nature of life and life process</li> </ul>	PSO-1	Ac
				<ul style="list-style-type: none"> <li>CO 2: Understand the structure of bio-molecules and its function in life</li> </ul>	PSO-1, 2	Ac, Un
				<ul style="list-style-type: none"> <li>CO 3: Learn the biophysical properties and functioning of life processes</li> </ul>	PSO-1, 2	Ac, Un

				<ul style="list-style-type: none"> <li>CO 4: Learn the advanced tools and techniques available for studying biochemical and biophysical nature of life</li> </ul>	PSO-2, 3, 4	Un, Ap, Ev
				<ul style="list-style-type: none"> <li>CO 5: Job offer: Instrumentation and Lab technician, Research Assistant in Clinical Laboratory, Technician/Research Assistant in TIFR, CCMB, ICFRE, ICMRE, ICAR, AIMS Research Institute.</li> </ul>	PSO-5	Cr
PZH	Applied Biotechnology	National, regional, Local & Global	To familiarize the students with public policy, bio safety, and intellectual property rights issues to understand the modern biotechnology practices.	<ul style="list-style-type: none"> <li>CO 1: Understand advance technique and its application in the field of biotechnology</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>CO 2: Understand the modern</li> </ul>	PSO-2, 3	Un, Ap

				<p>biotechnology practices and approaches with an emphasis in technology application, medical, industrial, environmental and agricultural areas</p>		
				<ul style="list-style-type: none"> <li>• CO 3: Familiarize the students with public policy, biosafety, and intellectual property rights issues</li> </ul>	PSO-1,4	Re, Ev
				<ul style="list-style-type: none"> <li>• CO4:Skill in the advanced technology</li> </ul>	PSO-4	An
				<ul style="list-style-type: none"> <li>• CO 5: Job offer: BCG vaccine Laboratory Chennai. Pasteur Institute Ooty, Clinical laboratory, Medical</li> </ul>	PSO-5	Cr



				Research Centre, IVF laboratory, Research Assistant/ JRF/SRF/ in the Research Institute of ICAR, ICMRE, VCRC, TIFR, CCMB, Fisheries University and Research centre		
PZJ	Animal Physiology	National, regional, Local & Global	To understand the basics in physiology in different organs of animal and human body.	<ul style="list-style-type: none"> <li>• CO 1: Have enhanced knowledge of mammalian physiology</li> </ul>	PSO-1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 2: Understand the function of physiological systems such as respiratory, circulatory and metabolic system.</li> </ul>	PSO- 1,2	Ac, Un
				<ul style="list-style-type: none"> <li>• CO 3: Understand the physiological response to that environment</li> </ul>	PSO-2	Un

				<ul style="list-style-type: none"> <li>• CO 4: Able to analyze and report on experiments in zphysiology.</li> </ul>	PSO- 4	An
				<ul style="list-style-type: none"> <li>• CO 5: Understand the endocrine organs structure and functions</li> </ul>	PSO-2	Un
PZK	Bioinformatics and Computer Applications in Biology	National, regional, Local & Global	To know the Bioinformatics tools in biological data and data analysis & comparison during research studies	<ul style="list-style-type: none"> <li>• CO 1: Understand the Biological databases and its scope.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 2: Learn sequence alignment to construct phylogenetic tree using of bio informatics tools</li> </ul>	PSO-2,3	Un, Ap
				<ul style="list-style-type: none"> <li>• CO 3: Skill to predict protein structure using RASMOl package</li> </ul>	PSO-3,4	Ap, An

				<ul style="list-style-type: none"> <li>• CO 4: Understand the concept of computer programming which make it necessary to integrate informatics when solving biological problems</li> </ul>	PSO-2,4	Un, An
				<ul style="list-style-type: none"> <li>• CO 5: Understand it has become an important focus for industry, particularly in the post-genomic era.</li> </ul>	PSO-2, 3	Un, Ap
PZM	Environmental Biology and Evolution	National, regional, Local & Global	Learn the advanced technique of remote sensing , satellite image analysis and evolutionary process at the molecular level.	<ul style="list-style-type: none"> <li>• CO 1: Understand the Biological databases and its scope.</li> </ul>	PSO-2	Un
				<ul style="list-style-type: none"> <li>• CO 2: Learn sequence alignment to construct phylogenetic tree using of bio informatics tools</li> </ul>	PSO-2,3	Un, Ap

				<ul style="list-style-type: none"> <li>• CO 3: Skill to predict protein structure using RAS Mol package</li> </ul>	PSO-3,4	Ap, An
				<ul style="list-style-type: none"> <li>• CO 4: Understand the concept of computer programming which make it necessary to integrate informatics when solving biological problems</li> </ul>	PSO-2,4	Un, An