

**A.V.V.M. SRI PUSHPAM COLLEGE (AUTONOMOUS),  
POONDI-613 503, THANJAVUR**



**1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific outcomes (PSOs) and Course Outcomes (COs) of the Programmes offered by the Institution**

## **COURSE OUTCOMES**

## M.Sc., ZOOLOGY (2017 - 2018)

Semester	Category	Paper Code	Title of the Paper	Outcome
<b>I</b>	Core	17P1ZOC1	Biology of Invertebrates and Chordates	<ul style="list-style-type: none"> <li>• To understand the morphology and functional anatomy of both invertebrates and chordates in a comparative aspects.</li> <li>• To know the biological aspects of minor phyla in detailed way.</li> <li>• To study the types of fossils and their phylogenic relationship with higher group of animals.</li> <li>• To study the external features inner anatomical features in a comparative manner with Chordate animals.</li> <li>• To study the evolution of chordate species.</li> </ul>
	Core	17P1ZOC2	Cell and Molecular Biology and Biophysics	<ul style="list-style-type: none"> <li>• To understand, the working mechanisms of the different Cytological instruments and their applications in cell study.</li> <li>• To study the cellular interaction, cell signaling mechanisms</li> <li>• To study the ultra structure of different cell organelles in a detailed way.</li> <li>• To study the molecular aspects of Nucleus, Nucleolus, Chromosomes of prokaryotes and Eukaryotes and to study the process of cell division and protein synthesis.</li> <li>• To study the Biophysics with reference to the Law of Thermodynamics, U V radiation.</li> <li>• To understand the Osmo-ionic diffusion of molecules in to the cells.</li> <li>• To understand the Tyndall effect and their application in Radiobiology.</li> </ul>

	<b>Core</b>	<b>17P1ZOC3</b>	<b>Microbiology</b>	<ul style="list-style-type: none"> <li>• To know the scope of Microbiology,</li> <li>• To learn the techniques on the isolation of Microbes.</li> <li>• To study the Food contamination by Bacteria.</li> <li>• To study the role of microbes in Industry.</li> <li>• To study the role of microbes in Environment.</li> <li>• To analyse the Pathogens and their treatment in human diseases</li> </ul>
	<b>Core</b>	<b>17P1ZOCPI</b>	<b>Practical I (Invertebrate and Chordate, Cell and Molecular Biology and Microbiology)</b>	<ul style="list-style-type: none"> <li>• To know the internal organs of the Invertebrata and chordate animals.</li> <li>• To know the cells of Buccal smear, Blood smear and cell divisions.</li> <li>• To study the preparation of microbial culture medium and isolation of microbes.</li> </ul>
	<b>Major Elective-I</b>	<b>17P1ZOEL1A 17P1ZOEL1B</b>	<b>General and Human Genetics Genomics and Proteomics</b>	<ul style="list-style-type: none"> <li>• To learn the General Principles and application of genetics in Human.</li> <li>• To understand, the genetic inheritance of blood groups, chromosomal and extra chromosomes in animals and man.</li> <li>• A thorough study on genes and their mutational effect at molecular level. To study the human genetics with reference to their behavior genetic engineering and genetic counseling.</li> </ul> <p>(or)</p> <ul style="list-style-type: none"> <li>• To learn the Genome mapping, assembly and comparison</li> <li>• To understand, Sequence based approaches and Microarray based approaches</li> <li>• A thorough study on Proteomics.</li> <li>• To understand, Protein-protein interactions and Applications of proteomics.</li> </ul>

<b>II</b>	<b>Core</b>	<b>17P2ZOC4</b>	<b>Developmental Biology and Bio-Techniques</b>	<ul style="list-style-type: none"> <li>• To know organization and nature of aquatic and terrestrial animals in relation to egg activation during fertilization – cleavage and gastrulation.</li> <li>• To study the Embryonic organizers, nature of genetic information during cell differentiation</li> <li>• To understand the important hormones in relation to growth and metamorphosis in amphibian and other important animals.</li> <li>• To know the Biotechniques for the preparation of permanent slides Homogenize, Chromatography, Electrophoresis, etc.</li> </ul>
	<b>Core</b>	<b>17P2ZOC5</b>	<b>Environmental Biology and Conservation</b>	<ul style="list-style-type: none"> <li>• To know the ecosystems of terrestrial and water in a comparative manner.</li> <li>• To study the various Biotic community and Biodiversity. To know the survey of natural resources and conservation and management.</li> <li>• To study the Air pollution, various pollutants – effects of ozone – green house effect and Noise pollution.</li> <li>• To know the water resources and its management. To study various water pollution and prevention and control of water pollution.</li> <li>• To study the radiation ecology – space ecology – Exobiology – hazards of space travel.</li> </ul>
	<b>Core</b>	<b>17P2ZOC6</b>	<b>Biotechnology</b>	<ul style="list-style-type: none"> <li>• To study the concept and scope of Biotechnology and techniques in Biotechnology.</li> <li>• To understand the recombination DNA technology.</li> <li>• To aware the programs of cell culture, preparations hormones and vaccines, engineered Hb, transgenic animals and Human genome project.</li> </ul>

				<ul style="list-style-type: none"> <li>To study the Bio process Technology and their application.</li> </ul>
<b>Core</b>	<b>17P2ZOC7</b>	<b>Endocrinology</b>		<ul style="list-style-type: none"> <li>To make the students to learn the objectives and scope of comparative Endocrinology.</li> <li>To know the anatomy, morphology and histology of endocrine tissues of vertebrates, crustacean and insect endocrine organs and their functions.</li> </ul>
<b>Core PL</b>	<b>17P2ZOCP2</b>	<b>Practical II ( Developmental Biology, Bio-Techniques, Biotechnology &amp; Environmental Biology)</b>		<ul style="list-style-type: none"> <li>Study and mounting of chick embryos - study of Amphioxus and Frog.</li> <li><b>MICRO TECHNIQUES:</b> To know the slide preparation of Tissues, Organs and whole mount of invertebrate larvae.</li> <li>To learn the Techniques in Biotechnology</li> <li>To study about the dissolved O<sub>2</sub>, pH, CO<sub>2</sub>, Salinity in water samples, identification of plankton and animal relationship with suitable examples.</li> </ul>
<b>Major Elective</b>	<b>17P2ZOEL2A</b> <b>17P2ZOEL2B</b>	<b>Cell and Tissue culture</b> <b>Wild Life Management</b>		<ul style="list-style-type: none"> <li>To know the plant cell, aseptic Techniques, callus induction.</li> <li>To know about Micro propagation.</li> <li>To know cell culture Manipulation.</li> <li>To know the principles of cell and Tissue Culture.</li> <li>To know Tissue Culture Techniques.</li> </ul> <p>(or)</p> <ul style="list-style-type: none"> <li>Know the wild life - Tourism foreign exchange. Important wildlife sanctuaries of the world.</li> <li>To know the wild life in India such as wild life resources and sanctuaries.</li> <li>To know the behavior of grazers (Elephants) carnivores (Lion) and primates (Orange, chimps and Gorillas).</li> <li>To study the behavior and migration of Birds - various</li> </ul>

				<p>Bird sanctuaries Bird watching, Fishing etc.</p> <ul style="list-style-type: none"> <li>• To know the wild life activities-By filming, Videography and documentation and wild life protection acts and laws-wild life conservation.</li> </ul>
<b>III</b>	Core	17P3ZOC8	Immunology	<ul style="list-style-type: none"> <li>• To study the History of Immunology.</li> <li>• To study the important of Immunology.</li> <li>• To study the cell mediated antigen and antibody reaction.</li> <li>• To study the different types of antigens.</li> <li>• To learn the techniques in organ transplantation</li> <li>• To know the common, Auto Immune diseases.</li> </ul>
	Core	17P3ZOC9	Animal Physiology and Bio-Chemistry	<ul style="list-style-type: none"> <li>• To study the physiology of Nutrition, Respiration, and circulation.</li> <li>• To learn the physiology of Excretion, Muscular coordination.</li> <li>• To know the physiology of nervous coordination, Sensors exhibition</li> <li>• To know the biochemistry of water and minerals.</li> <li>• To study the Enzymes and their kinetics and the role of Nucleic acid.</li> </ul>
	Core	17P3ZOC10	Clinical Biochemistry	<ul style="list-style-type: none"> <li>• To study the lab setup and safety measures</li> <li>• To learn about the metabolic disorders</li> <li>• To study about the disorders of kidney and liver</li> <li>• To know about the hormonal imbalances.</li> </ul>
	Core	17P3ZOC11	Nanotechnology	<ul style="list-style-type: none"> <li>• To know about the Nanotechnology.</li> <li>• To learn about the nanoparticles and targeted drug delivery.</li> <li>• To learn the improved diagnostic products and techniques.</li> </ul>

				<ul style="list-style-type: none"> <li>• To study about the applications of nanomaterials.</li> </ul>
	<b>Core</b>	<b>17P3ZOCP3</b>	<b>Practical-III ( Animal Physiology, Biochemistry, Immunology and Clinical Biochemistry)</b>	<ul style="list-style-type: none"> <li>• To learn the physiology of proteins, carbohydrates lipids.</li> <li>• To study the concentrate of the sugar, Glycogen, aminoacids, Salt in selective species.</li> </ul>
	<b>EDC</b>	<b>17P3ZOEDC</b>	<b>EDC - Clinical Lab Technology</b>	<ul style="list-style-type: none"> <li>• Pare the way for basic idea of various aseptic technique.</li> <li>• Understanding the significance of waste disposal.</li> <li>• Knowledge on Blood grouping and Blood sugar &amp; urine sugar level.</li> <li>• Gaining knowledge on culture of Bacteria, fungi and expertise on histological slide preparation.</li> <li>• Operation technique of Diagnostic apparatus.</li> <li>• Understanding for various immune techniques.</li> </ul>
	<b>Core</b>	<b>17P4ZOC12</b>	<b>General and Applied Entomology</b>	<ul style="list-style-type: none"> <li>• To Study the taxonomy of Insects.</li> <li>• To study the Morphology of Insects.</li> <li>• To know the Anatomy and Physiology of Insects.</li> <li>• To know the insect Ecology and their welfare aspects.</li> <li>• To study the Biology and Bionomics of insects and Integrated Pest management.</li> </ul>
	<b>Core</b>	<b>17P4ZOC13</b>	<b>Research Methodology</b>	<ul style="list-style-type: none"> <li>• The course aims to train students in the statistical analysis and presentation of the data with the interpretation based on the already existing literature.</li> <li>• To write report / thesis / dissertation and or for publications in appropriate research journals.</li> <li>• The aim of the paper thus is to lay a strong foundation for the student for thesis writing, editing, analysis and interpretation of the generated data with hands on experience with model sums.</li> </ul>
	<b>Core</b>	<b>17P4ZOCP4</b>	<b>Practical-IV (General and Applied Entomology and</b>	<ul style="list-style-type: none"> <li>• To study the preparation of microbial culture medium and isolation of microbes.</li> <li>• To study Internal systems of the insects.</li> <li>• To study the Techniques of mounting of mouth parts</li> </ul>

<b>IV</b>			<b>Research Methodology</b>	<p>and wings.</p> <ul style="list-style-type: none"> <li>To study the biology and Bionomics of insect</li> <li>To study the methods involved in writing a research paper.</li> </ul>
	<b>Major Elective</b>	<b>17P4ZOEL3A 17P4ZOEL3B</b>	<b>Estuarine Biology &amp; Aquaculture Fisheries Science</b>	<ul style="list-style-type: none"> <li>Introduction of Estuaries and its salient feature</li> <li>To study the Biology of the Estuarine biotic community.</li> <li>To Understand the present status of Aquaculture in India.</li> <li>To Study the Engineering and culture aspects of Aquaculture system.</li> <li>To know the induced breeding and pathology of culturable species.</li> </ul> <p>(or)</p> <ul style="list-style-type: none"> <li>The aim of the paper is to understand the morphology, classification and identification of fishes and the fisheries and fishery resources of India. Moreover information about the biology of the fishes goes a long way in managing the fishery resources and their sustainable utilization. As fishes constitute perishable commodity, preservation and processing are also quite essential.</li> </ul>
	<b>CN</b>	<b>17P4ZOCN</b>	<b>Comprehension</b>	<ul style="list-style-type: none"> <li>To better for the preparations of Competitive Exams in advance.</li> </ul>
	<b>Project</b>	<b>17P4ZOPR</b>	<b>Project</b>	<ul style="list-style-type: none"> <li>Undertake problem identification, formulation and solution.</li> <li>Demonstrate the knowledge, skills and attitudes.</li> </ul>