



ST. THOMAS COLLEGE (AUTONOMOUS)
THRISSUR, KERALA - 680 001

College with Potential for Excellence
NIRF INDIA Ranking 2021 : 64th

www.stthomas.ac.in

PROGRAMME OUTCOMES
PROGRAMME SPECIFIC OUTCOMES
COURSE OUTCOMES

M.Sc Zoology

Outcomes

At the end of Post Graduate Program at St. Thomas College (Autonomous), a student will have obtained:

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| PO1 | Attained profound Expertise in Discipline |
| PO2 | Acquired Ability to function in multidisciplinary domains |
| PO3 | Attained ability to exercise Research Intelligence in investigations and Innovations |
| PO4 | Learnt Ethical Principles and be committed to Professional Ethics |
| PO5 | Incorporated Self-directed and Life-long Learning |
| PO6 | Obtained Ability to maneuver in diverse contexts with Global Perspective |
| PO7 | Attained Maturity to respond to one's calling |

Program Specific Outcomes

At the end of M.Sc. Zoology at St. Thomas College (Autonomous), Thrissur, a student will have developed:

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| PSO1 | Apply the advanced principles and techniques of Biochemistry, Cytogenetics, Biophysics, Biostatistics, Physiology, Molecular Biology, Immunology, Developmental Biology, Endocrinology, Biotechnology, Microbiology |
| PSO2 | Evaluate the mechanisms of ecology, ethology, systematics and evolution in the natural world |
| PSO3 | Apply the principles of entomology for the betterment of natural and human world |
| PSO4 | Analyze biological and non biological samples using experimental techniques |
| PSO5 | Create new knowledge using ethical biological research for the betterment of natural and human world |

Course Outcomes

M.Sc. Zoology

ZOL1C01- Biochemistry And Cytogenetics

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the chemical nature of life at molecular level. |
| CO2 | Comprehend the mechanism of enzyme action |
| CO3 | Apply the bioenergetics principles in life process |
| CO4 | Compare the metabolism of biomolecules in human life process. |
| CO5 | Understand the membrane structure and signal transduction in cells. |
| CO6 | Understand the cellular organization and role of cell organelles |
| CO7 | Comprehend the structural and functional organization of Nucleus. |
| CO8 | Analyze the process of apoptosis, genes involved, and its importance |

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ZOL1C02- Biophysics And Biostatistics

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the applications of Colloidal System, Diffusion and Osmosis and Hydrogen ion Concentration (PH) in Biological Studies |
| CO2 | Understand bioinstrumentation techniques and their applications |
| CO3 | Recognize Separation Techniques and applications |
| CO4 | Understand the applications of Radiation Biology and Nanotechnology |
| CO5 | Comprehend the biological aspects of acoustics and gravity |
| CO6 | Understand data handling, descriptive statistics and probability distribution |
| CO7 | Use statistical inference tests on biological data |
| CO8 | Identify basic ecological data analysis (alpha and beta diversity) |

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ZOL1C03- Ecology And Ethology

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the basic concepts of ecology and ecosystem |
| CO2 | Describe the characteristics of population; growth and regulation of human population |
| CO3 | Explain the characteristics of community (species diversity, ecological succession and species interactions) |
| CO4 | Compare the major terrestrial biomes and biogeographical zones of India |
| CO5 | Discuss important ecological initiatives and major conservation practices |
| CO6 | Understand the concepts of ethology |
| CO7 | Elucidate the evolutionary aspects and adaptiveness of behaviour |
| CO8 | Illustrate the hormonal regulation of behaviour |

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ZOL2C04- Physiology

At the end of this course, a student will have developed ability to:

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| CO1 | Recognize the process of nutrition |
| CO2 | Explain the excretory and osmoregulatory mechanisms |
| CO3 | Identify the mechanisms of respiration |
| CO4 | Illustrate the structure and functioning of human brain |
| CO5 | Understand the neurophysiology of sense organs |
| CO6 | Understand the neurophysiology of sense organs |
| CO7 | Comprehend the structure and function of human heart |
| CO8 | Understand the physiology of muscle action |

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ZOL2C05- MOLECULAR BIOLOGY

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the universal principles of genetic code and its variations, |
| CO2 | Recognize the processes of DNA replication and the safeguard systems related to DNA |
| CO3 | Comprehend the processes of transcription and translation in prokaryotes and eukaryotes, |
| CO4 | Identify the control of gene expression at transcription and translation level |
| CO5 | Recognize the phenomenon and effects of Interrupted genes and Transposable genetic elements |
| CO6 | Understand the molecular mechanisms involved in recombination of DNA |
| CO7 | Evaluate the basic principles of microbial genetics |
| CO8 | Understand the molecular basis of Cancer |

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ZOL2C06- Systematics And Evolution

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the concepts of systematics and modern trends in taxonomy |
| CO2 | Identify the types of species and species concepts |
| CO3 | Understand collection and identification methods (taxonomic keys) |
| CO4 | Understand the different aspects of Zoological Nomenclature |
| CO5 | Identify the types of taxonomic publications and the impediments in taxonomic research. |
| CO6 | Recognize evolutionary mechanisms and natural selection |
| CO7 | Illustrate evolutionary trends |
| CO8 | Comprehend molecular basis of evolution |

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ZOL3C07- Immunology

At the end of this course, a student will have developed ability to:

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| CO1 | Know the definition, scope, brief history and common terms of immunology and hematopoiesis |
| CO2 | Understand the different aspects of antigens, antigenicity and immunogenicity |
| CO3 | Recognize the structure, functions and types of antibodies, the immunoglobulin gene and applications of the same in monoclonal hybridoma technology |
| CO4 | Comprehend antigen- antibody interactions and different immunotechniques |
| CO5 | Enumerate the different steps and processes in the generation of B-cell and T-cell responses |
| CO6 | Appreciate the structure and functioning of the cytokine and complement system |
| CO7 | Discern the role of Major Histocompatibility Complex (MHC) in immunological processes |
| CO8 | Understand the clinical applications of immunology such as hypersensitivities; transplantations, immunodeficiency diseases and vaccinations and use this knowledge for betterment of health |

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ZOL3C08- Developmental Biology & Endocrinology

At the end of this course, a student will have developed ability to:

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| CO1 | Know the definition, scope and common terms of developmental biology. |
| CO2 | Understand the different aspects embryogenesis and organogenesis |
| CO3 | Recognize the cellular, molecular and genetic basis of development |
| CO4 | Understand the phenomenon of metamorphosis, regeneration and ageing |
| CO5 | Appreciate the developmental mechanisms of evolution and environmental regulation of animal development |
| CO6 | Recognize the basic terms, structure, anatomy, physiological effect of endocrine glands and their hormones |
| CO7 | Discern the general mechanisms of hormonal action |
| CO8 | Understand the role of hormones in male and female reproductive physiology |

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ZOL3E09- Morphology And Taxonomy

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the origin and Evolution of insects |
| CO2 | Understand the insect classification, Apterygote orders |
| CO3 | Understand the Exopterygote orders |
| CO4 | Understand the Endopterygote orders |
| CO5 | Analyze the External Morphology of Insects |
| CO6 | Understand the ecology and behavior of Aquatic insects |
| CO7 | Understand the ecology of Gall forming and Leaf mining insects |
| CO8 | Understand the co evolution and Social organization in insects |

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ZOL4C10- Biotechnology & Microbiology

At the end of this course, a student will have developed ability to:

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| CO1 | Understand modern biotechnology tools and applications |
| CO2 | Understand applications of biotechnology in health care |
| CO3 | Comprehend biotechnological applications in agriculture and environment. |
| CO4 | Enumerate the principles and applications of Nanobiotechnology, IPR, Biosafety and Bioethics |
| CO5 | Appreciate the general characters and classification of microbes |
| CO6 | Understand microbial nutrition and growth |
| CO7 | Know microbial diseases |
| CO8 | Understand the tools, techniques and applications in microbiology |

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ZOL4E11- Entomology – II - Anatomy And Physiology

At the end of this course, a student will have developed ability to:

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| CO1 | Recognize histology, hormonal control and function of integument in insects |
| CO2 | Understand the structure, anatomy and functioning of the digestive system in insects; nutritional requirements and unique features of digestion in insects |
| CO3 | Understand the structure, types and functioning of the ventilatory and circulatory systems in insects |
| CO4 | Enumerate the different types of excretory system, the types and physiology of excretion and dietary problems in insects |
| CO5 | Appreciate the anatomy, physiology and functioning of brain and sense organs in insects |
| CO6 | Understand the structure and components of muscular system and different adaptations for locomotion (aquatic and terrestrial- wing and leg) |
| CO7 | Understand the histomorphology, role of endocrine and exocrine glands and mechanism of hormone action |
| CO8 | Understand the different aspects of reproductive system, embryogenesis and morphogenesis |

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ZOL4E12- Entomology – III - Agricultural, Medical & Forensic Entomology

At the end of this course, a student will have developed ability to:

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| CO1 | Understand the classification of insects pests, types of damage caused by to plants and other basic concepts on the subject |
| CO2 | Recognize the pests to major local crops, their life cycle control measures and types of damage |
| CO3 | Understand the different principles of Insect pest management |
| CO4 | Understand the different chemical control methods of insect pests |
| CO5 | Understand the different methods of Biological control and Integrated Pest Management |
| CO6 | Recognize the effect of insecticides on environment |
| CO7 | Recognize insect vectors of human diseases and their biology |
| CO8 | Understand the basics of forensic Entomology |

