COURSE OUTCOMES

B.Sc. - ZOOLOGY

F. Y. B.Sc.	
SEM-I	
PAPER 1 Wonders of Animal World, Biodiversity and its Conservation Course Code:**USZO101**	
CO1	Curiosity will be ignited in the mind of learners, to know more about the fascinating world of animals which would enhance their interest andlove for the subject of Zoology
CO2	Learners would appreciate treasure of Biodiversity, its importance and hence would contribute their best for its conservation.
CO3	Minds of learners would be impulse to think differently and would be encouraged ipso facto to their original crude ideas from the field of biological sciences.
PAPER 2 **Instrumentation And Animal Biotechnology** **CourseCode: USZO102**	
CO1	Learners would work safely in the laboratory and avoid occurrence of accidents (mishaps) which will boost their scholastic performance and economy in use of materials/chemicals during practical sessions.
CO2	Learners would understand recent advances in the subject and their applications for the betterment of mankind; and that the young minds would be tuned to think out of the box
CO3	Students will be skilled to select and operate suitable instruments for the studies of different components of Zoology of this course and also of higher classes including research.
SEM-II	
PAPER 1 **Ecology and Wildlife Management** **Course Code: USZO201**	
CO1	This unit would allow learners to study about nature of animal population, specific factors affecting its growth and its impact on the population of other life form.
CO2	Learners will grasp the concept of interdependence and interaction of physical, chemical and biological factors in the environment and will lead to better understanding about implications of loss of fauna specifically on human being, erupting spur of desire for conservation of all flora and fauna.
CO3	Learners would be inspired to choose career options in the field of wild life conservation, research, photography and ecotourism.
PAPER 2 **Nutrition, Public Health And Hygiene** **CourseCode: USZO 202**	

CO1	Healthy dietary habits would be inculcated in the life style of learners in order to prevent risk of developing health hazards in younger generation due to faulty eating habits.
CO2	Promoting optimum conservation of water, encouragement for maintaining adequate personal hygiene, optimum use of electronic gadgets, avoiding addiction, thus facilitating achievement of the goal of healthy young India in true sense.
CO3	Learners will be able to promptly recognize stress related problems at initial stages and would be able to adopt relevant solutions which would lead to psychologically strong mind set promoting positive attitude important for academics and would be able to acquire knowledge of cause,symptoms and precautions of infectious diseases.
	S.Y. B.Sc.
	SEM-III
PAPER 1 Fundamentals of Genetics, Chromosomes and Heredity, Nucleic acids Course Code: USZO301	
CO1	Learner would comprehend and apply the principles of inheritance to study heredity. Learner will understand the concept of multiple alleles, linkageand crossing over.
CO2	Learner will comprehend the structure of chromosomes and its types. Learner will understand the mechanisms of sex determination. Learner would be able to correlate the disorders linked to a particular sex chromosome.
CO3	Learner will understand the importance of nucleic acids as genetic material. Learner would comprehend and appreciate the regulation of gene expressions.
PAPER 2 Nutrition and Excretion, Respiration and Circulation, Control and Coordination of Life Processes, Locomotion and Reproduction Course Code: USZO302	
CO1	Learner would understand the increasing complexity of nutritional, excretory and osmoregulatory physiology in evolutionary hierarchy. Learner would be able to correlate the habit and habitat with nutritional, excretory and osmoregulatory structures.
CO2	Learner would understand the increasing complexity of respiratory and circulatory physiology in evolutionary hierarchy. ¬ Learner will be able to correlate the habit and habitat of animals with respiratory and circulatory organs
PAPER 3 Ethology, Parasitology, Economic Zoology Course Code: USZOE1303	
CO1	Learner would gain insight into different types of animal behaviour and their role in biological adaptations. Learner would be sensitized to the feelings which are instrumental in social behaviour
CO2	Learner would understand the general epidemiological aspects of parasites that affect humans and take simple preventive measures for the same.
CO3	Learner would comprehend the life cycle of specific parasites, the symptoms of the disease and its treatment
CO4	Learner would gain knowledge on animals useful to mankind and the means to make the most of it. Learner would learn the modern

	techniques in animal husbandry. Learner would pursue entrepreneurship as a career
SEM-IV	
PAPER 1 Origin and Evolution of Life, Population Genetics and Evolution, Scientific Attitude, Methodology, Scientific Writing and Ethics in Scientific Research Course Code: USZO401	
CO1	Learner will gain insights into the origin of life. Learner will analyse and critically view the different theories of evolution. Learner would understand the forces that cause evolutionary changes in natural populations.
CO2	Learner would understand the forces that cause evolutionary changes in natural populations. Learner would comprehend the mechanisms of speciation . Learner will be able to distinguish between microevolution, macroevolution and megaevolution
CO3	To develop an understanding of genetic variability within a population and learn as to how the change in the gene pool leads to evolution of species
CO4	The learner would develop qualities such as critical thinking and analysis ¬ The learner will imbibe the skills of scientific communication and he/she will understand the ethical aspects of research
CO5	
PAPER 2 Cell biology , Endomembrane system, Biomolecules Course Code: USZO402	
CO1	Learner would acquire insight into the composition of the transport mechanisms adopted by the cell and its organelles for its maintenance and composition of cell
CO2	Learner would appreciate the intricacy of endomembrane system. ¬ Learner would understand the interlinking of endomembrane system for functioning of cell
CO3	The learner will realize the importance of biomolecules and their clinical significance.
PAPER 3 Comparative Embryology, Aspects of Human Reproduction, Pollution and its effect on organisms USZO501: Course Code: USZOE1403	
CO1	Learner will be able to understand and compare the different types of eggs and sperms . Learner will be able to understand and compare the different pre- embryonic stages
CO2	Learners will able to understand human reproductive physiology . Learners will become familiar with advances in ART and related ethical issues.
CO3	The learners will be sensitized about the adverse effects of pollution and measures to control it.
T.Y.B.Sc	
SEM-V	
PAPER 1 Taxonomy - Invertebrates and Type Study Course Code: USZO501	
CO1	Learners will apprehend the basis of classification and modern classification up to class of the lower invertebrate animals.

CO2	The learners will be familiarized with classification up to phylumNematoda along with their examples.
CO3	Learners will get an idea of higher groups of invertebrate animal life, their classification and their peculiar aspects.
CO4	Learners will get an idea of general characteristics and details ofinvertebrate animal systems.
PAPER 2	**Haematology and Immunology** **Course Code: USZO502**
CO1	The learner shall comprehend basic haematology. The learner will be ableto identify various components of haemostatic systems.
CO2	The learner will be familiar with the terminology used and diagnostic tests performed in a pathological laboratory.
CO3	The learner shall be acquainted with diagnostic approaches in haematological disorders.
CO4	The learner will be better equipped for further pathological course or working in a diagnostic laboratory.
CO5	The learner shall comprehend the types of immunity and the components of immune system. The learner will realize the significant role of immune system in giving resistance against diseases.
CO6	The learner shall understand immune-pathology and the principles and applications of vaccines. The learner will develop basic understanding of immunology of organ transplantation.
PAPER 3	**Histology, Toxicology, Pathology and Biostatistics** **Course Code: USZO503**
CO1	Learner would appreciate the well planned organization of tissues and cellsin the organ systems.
CO2	The course will prepare learner to develop broad understanding of the different areas of toxicology.
CO3	It will also develop critical thinking and assist students in preparation for employment in pharmaceutical industry and related areas.
CO4	Learner will be familiar with various medical terminology pertaining to pathological condition of the body caused due to diseases.
CO5	The learner will be able to collect, organize and analyse data using parametric and nonparametric tests.
CO6	They will also be able to set up a hypothesis and verify the same usinglimits of significance.
PAPER 4	**Anatomy and Developmental Biology** **Course Code: USZO504**
CO1	Learner will be able to understand the importance of various types of epidermal and dermal derivatives along with their functions.
CO2	Learner will be able to understand the structure, types and functions of human skeleton.
CO3	Learner will be able to understand the types of long limb muscles, its arrangement and their role in body movements.
CO4	Learner will be able to understand the processes involved in embryonic development and practical applications of studying the chick embryology
SEM-VI	
PAPER 1	**Taxonomy - Chordates and Type Study** **Course Code: USZO601**

CO1	Learners will get an idea of origin of Chordates, its taxonomy up to class with reference to phylogeny and their special features.
CO2	Learners will understand the characteristic features and examples of class of Reptilia, Aves and Mammalia.
CO3	Learners will get an idea of vertebrate animal life after studying one representative animal - shark.
PAPER 2	**Physiology and Tissue Culture** **Course Code: USZO602**
CO1	The learner shall understand fundamentals of enzyme structure, action and kinetics.
CO2	The learner shall appreciate the enzyme assay procedures and the therapeutic applications of enzyme.
CO3	The learner shall comprehend the adaptive responses of animals to environmental changes for their survival.
CO4	The learner shall understand the types and secretions of endocrine glands and their functions.
CO5	The learner shall understand the significance of tissue culture as a tool in specialized areas of research. The learner will appreciate its applications in various industries
PAPER 3	**Genetics and Bioinformatics** **Course Code: USZO603**
CO1	Learner shall get an insight into the intricacies of chemical and molecular processes that affect genetic material.
CO2	The course shall prepare learner to recognize the significance of molecular biology as a basis for the study of other areas of biology and biochemistry.
CO3	Learner shall also understand related areas in relatively new fields of genetic engineering and biotechnology.
CO4	The learner shall get acquainted with the vast array of techniques used to manipulate genes which can be applied in numerous fields like medicine, research, etc. for human benefit.
CO5	The learner shall become aware of the impact of changes occurring at gene level on human health and its diagnosis.
CO6	Learner shall become aware of the computational point of view of studying the genomes
PAPER 4	**Environmental Biology and Zoopharmacognosy** **Course Code: USZO604**
CO1	Learner will understand the different factors affecting environment, its impact and environment management laws.
CO2	Learner will be able to understand various methods for wildlife conservation. Learner will be able to apply knowledge to overcome theissues related to wildlife conservation and management.
CO3	Learner will understand the paradigms of discovery and commercialization of biological resources and knowledge gained from self-medication observed in animals.
CO4	The learners will become acquainted with how and why different animal species are distributed around the globe

Applied Component (Marine Science) SEM - V	
Paper 5	**Oceanography & Capture Fisheries** **Course code : USACMSC501**
CO1	• Learner will get an idea of geological distribution of sea and its relation to biodiversity.

	• Learner will understand different zones of sea (marine habitat) and their impact on biodiversity.
CO2	• Learner will understand different physical factors of ocean and their role in bringing out climatic changes. • Learner will get to know physical factors of ocean during different climate and their effect on marine organisms.
CO3	• Learner will get an idea of normal chemical constituents of sea water and their importance to marine ecosystem. • Learner will understand normal values of different chemical nutrients of sea water and their importance for the flora and fauna.
CO4	• Learner will know about different oceanographic instruments,their design, and mode of working and analysis of result using them. • Learner will come to know about important modern instruments used in the field of oceanography and different chemical, physical and biological parameters studied by using them.
CO5	• Learner will gain knowledge about declining marine fish landings, different rules and regulations for sustainable fishery. • Learner will educate about declining marine fish landings, different rules and regulations for sustainable fishery.
CO6	• Learner will explore to research vessels, deep sea fishing vessels and the advancement in oceanographic research. • Learner will understand recent trends in oceanographic research which will motivate them to become budding scientist of tomorrow.
CO7	• Learner will introduce to boat building, its maintenance and operation of fishing gears. • Learner will gain knowledge of boat building, its maintenance and operational methods of gears to optimize fish catch.
CO8	• Learner will comprehend and develop better acumen so as to, take wise and necessary decisions while participating in environment related projects or framing policies/assessing environmental damages/carrying out entrepreneurial activities beneficial to environment. • Learner shall primarily learn to tackle real life situations with common sense.

Applied Component (Marine Science)	**SEM - VI**
Paper 5	**Production and Management** **Course code: USACMSC601**
CO1	• Learner will acquire in-depth knowledge about marine aquaculture of commercially important fishes and prawn. • Learner will take the first step to become entrepreneur in the field of culture fishery with basic knowledge of marine aquaculture.
CO2	• Learner will gain an overview of value added products from marine organisms. • Learner will be acquainted with variety of marine value added products, their nutritional values and economic significance.

CO3	• Learner will understand different methods of preservation and processing of marine products for maintaining its nutritional quality. • Learner will acquire knowledge of specific methods of preservation and processing for different fish products for enhancing their shelf life and commercial value.
CO4	• Learner will acquire knowledge about fish diseases, causative agents, prevention techniques and treatment. • Learner will gain expertise to identify causative agents, symptoms and treatment for different fish diseases.
CO5	• Learner will explore to the new avenues in the field of oceanography • The learner will become aware of new trends of oceanography which would make them expert in exploiting these opportunities to become successful entrepreneur.
CO6	• Learner will aware of different funding schemes for fishery and basics of financial management. • Learner will be equipped with knowledge on various schemes available for obtaining finance from different government and semi government agencies and financial management.
CO7	• Learner will gain information on fishery marketing in local, national and international level. • Learner will gain knowledge on working of fishery markets and exports.
CO8	• Learner will select any one of the units prescribed in the syllabus with more details and in depth leading to specialization in the capsule of units. • Learner will incorporate the topics of special need of the area which are otherwise not covered in the syllabus. • Learner will find scope to creativity and wisdom of a teacher who wants to deal with the latest developments in the subject.