Department of Zoology

Class: F.Y.B.Sc Semester-I

Couse-I-USZO101(Wonders of Animal World, Biodiversity and its Conservation)

Learning outcome :1.Curiosity will be ignited in the mind of learners, to know more about the fascinating world of animals which would enhance their interest and love for the subject of Zoology.

2. Learners would appreciate treasure of Biodiversity, its importance and hence would contribute their best for its conservation.

3. Minds of learners would be impulsed to think differently and would be encouraged ipso facto to their original crude ideas from the field of biological sciences.

Course-II USZO102(Instrumentation and Animal Biotechnology)

Learning outcome:1. 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.

2. 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.

3. 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.

Class:FYBSc Semester-II

Couse-I-USZO201(Ecology and Wildlife Management)

Learning outcome :1 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.

2. 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.

3. Learners would be inspired to choose career options in the field of wild life conservation, research, photography and ecotourism.

Course-II USZO202(Nutrition Public health and Hygiene)

Learning outcome:.1. 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.

2.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.

3, 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.

Class;SYBSc Semester-III

Course-I USZO301(Fundamentals of Genetics, Chromosomes and Heredity, Nucleic acids)

Learning Outcome:1. Learner would comprehend and apply the principles of inheritance to study heredity,the concept of multiple alleles, linkage and crossing over.

2.Learner will understand the mechanisms of sex determination. They would be able to correlate the disorders linked to a particular sex chromosome.

3. Learner will understand the importance of nucleic acids as genetic material. They would comprehend and appreciate the regulation of gene .

Course-II USZO302(Nutrition and Excretion, Respiration and Circulation, Control and Coordination of Life Processes, Locomotion and Reproduction)

Learning Outcome:1. Learner would understand the increasing complexity of nutritional, excretory and osmoregulatory physiology in evolutionary hierarchy. They would be able to correlate the habit and habitat with nutritional, excretory and osmoregulatory structures.

2.Learner would understand the increasing complexity of respiratory and circulatory physiology in evolutionary hierarchy.

3.Learner would understand the process of control and coordination by nervous and endocrine regulation . They will understand and compare modes of locomotion and reproduction.

Course –III USZE1303(ELECTIVE 1(Ethology, Parasitology, Economic Zoology)

Learning Outcome:1Learner would gain insight into different types of animal behaviour and their role in biological adaptations.

2.Learner would understand the general epidemiological aspects of parasites that affect humans and take simple preventive measures for the same. They would comprehend the life cycle of specific parasites, the symptoms of the disease and its treatment.

3.Learner would gain knowledge on animals useful to mankind and the means to make the most of it. They would learn the modern techniques in animal husbandry and pursue entrepreneurship as a career.

Class;SYBSc Semester-IV

Course-I USZO401(Origin and Evolution of Life, Population Genetics and Evolution, Scientific Attitude, Methodology, Scientific Writing and Ethics in Scientific Research)

Learning Outcome:1. Learner will gain insights into the origin of life and the different theories of evolution.

2.Learner would understand the forces that cause evolutionary changes in natural populations and the mechanisms of speciation

3.Learner will be able to distinguish between microevolution, macroevolution and megaevolution.

4.The learner would develop qualities such as critical thinking and analysis and imbibe the skills of scientific communication .

Course-II USZO402(Cell Biology, Endomembrane System and Biomolecules)

Learning Outcome:1. 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.

2. Learner would appreciate the intricacy of endomembrane system. ¬ Learner would understand the interlinking of endomembrane system for functioning of cell.

3. The learner will realize the importance of biomolecules and their clinical significance.

Course –III USZOE1403ELECTIVE1 (Comparative Embryology, Aspects of Human Reproduction, Pollution and its effect on organisms)

Learning Outcome:1. Learner will be able to understand and compare the different types of eggs and sperms .Theys will be able to understand and compare the different pre- embryonic stages.

2. Learners will able to understand human reproductive physiology ¬ Learners will become familiar with advances in ART and related ethical issues

3. The learners will be sensitized about the adverse effects of pollution and measures to control it.

Class:T.Y.B.Sc. Semester-V

Course-USZZO501

Learning Outcome:1. Learners will develop conceptual clarity with regard to the anatomy of animals at different levels. They shall comprehend the evolutionary perspective of each level of organisation. Learners will know the importance of the significance and advantages of each level of organisation.

2. Learners will understand that scientific classification of animals is based on certain characteristics they have in common. Learners will be able to recall characteristics features and examples of each phylum. Learners will be familiar with protozoan and helminth parasites.

3.Learners will get an idea of higher groups of invertebrate animal life and their classification

4. Learners will get an idea of general characteristics and details of invertebrate animal systems.

Course-USZZO502

Learning Outcome:1. Learners would be able to realize the fundamental concepts in haematology

2.Learners will be familiar with different terminologies and diagnostic tests performed in a pathological laboratory. They will be better equipped for taking any further pathological course or working in a diagnostic laboratory

3. Learners would comprehend the types of immunity and the components of immune system. They would realize the significant role of immune system in giving resistance against diseases.

4. Learners would understand immune related pathologies. Learners would understand the principle and applications of vaccines. They would develop basic understanding of immunology of organ transplantation and cancer treatment.

Course-USZZO503

Learning Outcome:1. The course will prepare learners to recognize the significance of molecular biology as a basis for the study of other areas of biology and biochemistry. Moreover, it will also assist them in understanding related areas in relatively new fields of genetic engineering and biotechnology.

2. The learners will get acquainted with the vast array of techniques used to tamper genes which can be applied in numerous fields like medicine, research, etc. for human benefit.

3. The course will prepare learners to understand significance of cell culture as a tool in specialized areas of research and its applications in industries like biotechnology, in fields such as in vitro fertilization and replacement of animals in medical and toxicology experiments.

Course-USZZO504

Learning Outcome:1. Learners will be able to understand the importance of epidermal and dermal derivatives and their functions.

2. Learners will be able to understand the types & secretions of endocrine glands and their functions.

3. Learners will be able to understand the structure, types and functions of human skeleton.

4. Learners will be able to understand the processes involved in embryonic development and its application.

Class:T.Y.B.Sc. Semester-VI

Course-USZO601

Learning Outcome:1. Learners will get an idea of basic morphological and physiological details of minor phyla and protochordates. Study of phylogeny will help learners to understand the evolutionary relationships between organisms.

2. Learners will be able to identify classes of fish and amphibians by their anatomical features. Learners will be able to compare and contrast characters of fishes and amphibians. Learners will be able to describe evolutionary trends implied by their classification.

3. Learners will understand that scientific classification of animals is based on certain characteristics they have in common. Learners will be able to recall characteristic features and examples of each class of Reptilia, Aves and Mammalia.

4. Learners will get an idea of vertebrate animal life and its classification

Course-USZO602

Learning Outcome:1. Learners must be able to understand basics of enzyme structure and function. Learners must comprehend variations in enzyme activity and kinetics. Learners must appreciate the enzyme assay procedures and the therapeutic application of enzymes.

2. To introduce the learners to the concept of homeostasis. To familiarize the learners with thermoregulation, osmoregulation and feedback mechanism.

3. Learners would appreciate the well planned organization of tissues and cells in the organ systems.

4. Learners will gain knowledge of various infective agents and diseases caused by them. Learners will be familiar with various medical terminology pertaining to pathological condition of the body caused due to disease

Course-USZO603

Learning Outcome:1. The learners will become acquainted with how and why different animal species are distributed around the globe.

2. The course will prepare learners to develop broad understanding of the different areas and significance of toxicology. Moreover, it will also develop critical thinking and assist students in preparation for employment in pharmaceutical industry and related areas.

3. The learners will be able to collect, organize and analyze data using parametric and nonparametric tests. They will also be able to set up a hypothesis and verify the same using limits of significance.

4. The learners will become aware of the computational point of view of studying the genomes.

Course-USZO604

Learning Outcome:1. Learners will be able to understand the different factors affecting environment, its impact and laws governing environmental management.

2. Learners will be able to understand the wildlife habitat projects for animal protection.

3. Learners will be able to understand paradigms of discovery and commercialization of biological resources and knowledge gained by self medication by animals.

4. Learners will be able to understand the role of useful and harmful insects in human life.

T. Y. B. Sc. Credit Based Semester and Grading System Economic Entomology **(Applied Component)**Syllabus (to be implemented from the academic year 2017-2018) Semester V

Course USACEENT501 APPLIED ENTOMOLOGY

Learning Outcome:1. Learner would be able to classify insect up to their respective orders. They would understand basis of classification.

2. Learner would understand the basic body plan of insects and various physiological aspects in insect with their specialty of usefulness and harmfulness.

3. Learner would understand about anatomy of typical harmful insects.

4. Learner would understand the various ecological importance of insects. They would be able to construct butterfly gardens and understand need for conservation of insects.

5.Learner would be inspired to become entomology-entrepreneur and consult others to become the same. They would become capable to form consultation firm in the field of entomology.

Course USACEENT601 COMMERCIAL ENTOMOLOGY

Learners outcome:1.Learner would be introduced to the merits and demerits of IPM. They would be able to understand different methods of biological control of insect pest. They would creatively think on natural insecticides

2. Learner would understand specific use of sprayer and duster. They would understand the feasibility of natural insecticides over synthetic insecticides . Learner would be made aware about nature of damage caused by insect pest.

3. Learner would understand type of urban and domestic insect pest and their preventive measures.

4. Learner would understand the use of some insects in the investigation of crime (Forensic science).

5. Learner would be well introduced about various funding agencies and guidelines to apply for subsidized loan. They would understand the viability of the project on the basis of feasibility report. They would familiarize with basic concepts in accountancy and marketingstrategies.

Programme Specific outcomes:

1. After successful completion of program, students will be able to understandthe basic and modern concepts in the field of Zoology
2. They will be completely aware about the importance of ecologicaliy balanced nutrient cycles, each aspect of environment.
3. They will be developing an insight to the basic nutritional and health aspects of human life.
4. This would help to inculcate good laboratory practices in students and to train them about scientific handling of important instruments like various microscopes, microtome, spectrophotometer, Distillation, Nephelometer, Homogeniser, magnetic stirrer, pH meter etc.
5. They will benefit themselves and also the society through the application of various Biological techniques like gene therapy, transgenesis, in-vitro fertilization in animal husbandry and tissue culture etc.

6. They will gain thorough knowledge of cytology, metabolism, Zoonosis, Computational Biology, Toxicologyy, Basic Haematology, Applied Immunology, Molecular Biology and Zoopharmacognosy.
7. The program will also enable students to inculcate research interest and presentation and requirement of research through small projects.
8. They will be able to use statistical principles to validate the data obtained through survey.
9. They will be able to understand prerequisite conditions of both small and large scale business possible in Applied Zoology.
10. Applied Component programmewill motivate self-employment in Bio-industries like Apiculture, Sericulture, Lac-culture and IPM(Integrated Pest Management).

.