

KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with 'A+' Grade (4th Cycle)

College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF ZOOLOGY

COURSE OUTCOMES (CO)

B.SC. ZOOLOGY

**For the students admitted in
the
Academic Year 2020-2021**

Programme code:06	B.Sc., Zoology			
Course code: 20UZO101	Core Paper 1 –Invertebrata			
Batch 2020-2021	Semester 1	Hour/Week 7	Total hours 105	Credit 5

Course Objectives

1. To obtain the knowledge of the taxonomical and characteristics of non chordates
2. To understand the morphological and anatomical features of selected non chordates
3. To create awareness about the harmful parasites and their economic importance of non chordates

Course Outcomes

K1 - K4	CO1	Get knowledge about the systematic position of various organisms
	CO2	Understand the various structure and its function of the non Chordates
	CO3	Understand and apply the knowledge on the important parasites and their control measures
	CO4	Get the knowledge and analyze the economically important organisms

Programme code -06	B.Sc Zoology			
Course code 20UZO111	Allied A Paper -I Sericulture –I			
Batch 2020-2021	Semester 1	Hour/Week 5	Total hours 75	Credit 4

Course Objectives

1. To create a self employment opportunity among student
2. To equip the skills of rearing of silkworms
3. To create better breeding and grainage techniques

Course Outcomes

K1 - K4	CO1	Get knowledge about the mulberry and non mulberry silkworms.
	CO2	Understand the various silkworm rearing techniques
	CO3	Apply knowledge on control measures of silkworm diseases
	CO4	Analyze silkworm breeding and grainage techniques

Programme code : 06	For B.Sc., Botany, Chemistry and Biochemistry			
Course code 20UZO1A1	Allied A Paper I Invertebrata and Chordata			
Batch	Semester	Hour/Week	Total hours	Credit
2020-2021	1	5	75	4

Course Objectives

1. To learn about the taxonomy and characteristics of non chordate
2. To obtain the knowledge of morphology and anatomy of the animals
3. To understand the biological significance of non chordates and chordates

Course Outcomes

K1 - K4	CO1	Get knowledge about the classification of various organisms
	CO2	Study and understand the various parasites and protozoan diseases
	CO3	Apply the knowledge on the developmental stages of different animals.
	CO4	Analyze the morphology and anatomy on chordates and its migration, parental care.

Programme code:06	B.Sc.Zoology			
Course code: 20UZO202	Core Paper- 2- Chordata			
Batch 2020-2021	Semester II	Hour/Week 7	Total hours 105	Credit 5

Course Objectives

1. To obtain comprehensive knowledge on the taxonomy and characteristics of chordates
2. To understand the morphological and anatomical features of chordates
3. To study the general features ,distribution and economic importance of chordates

Course Outcomes

K1 -K4	CO1	Get knowledge about the classification of various organisms
	CO2	Understand the various physiological systems of Chordate
	CO3	Apply the knowledge in the field of economically important organisms
	CO4	Analyze gradual development of habit and habitats of various animals.

Programme code -06	B.Sc Zoology			
Course code 20UZO212	Allied A Paper 2. Sericulture-II			
Batch 2020-2021	Semester II	Hour/Week 5	Total hours 75	Credit 4

Course Objective

1. To study the mulberry cultivation and rearing of silkworm
2. To develop skills about the quality and processing of silk
3. To know the importance of reeling and byproducts of reeling for industrial development

Course Outcomes

K1 - K4	CO1	Get knowledge about the moriculture
	CO2	Understand the cultivation of mulberry plants, pests, diseases and control measures of mulberry
	CO3	Apply knowledge on processing of cocoons and different methods of silk reeling
	CO4	Analyze the importance of sericulture in entrepreneurship development.

Programme code:06	B.Sc., Zoology			
Course code: 20UZO2CL	Core Practical-I-Invertebrata and Chordata			
Batch 2020-2021	Semester I&II	Hour/Week 2	Total hours 60	Credit 2

Course Objective

1. To observe various non chordate specimens by using Microscope
2. To know the various systems(Digestive system, circulatory system and Reproductive system) of frog or rat by using virtual laboratory
3. To analyze the quality of excretory product of certain vertebrate
4. To inculcate the significance of various non chordates.

Course Outcomes

K3 – K5	CO1	Apply knowledge to study various anatomical system by using virtual laboratory
	CO2	Analyze the excretory products of certain vertebrates
	CO3	Evaluate the biological significance and structure and functions of various animals.

Programme code- 06	B.Sc Zoology			
Course code 20UZO2IL	Allied A Practical 1. Sericulture			
Batch 2020-2021	Semester I&II	Hour/Week 2	Total hours 60	Credit 2

Course Objectives

1. To inculcate the practical knowledge on moriculture and sericulture, mulberry propagation, pests and diseases and their control measures
2. To know the importance of silkworm rearing, pests and diseases of silkworms and their control measures
3. To analyze the quality of silk through experiments

Course Outcomes

K2 – K4	CO1	Apply knowledge on moriculture and sericulture
	CO2	Observe the biology, rearing, pests and diseases of silkworm and their control measures
	CO3	Evaluate the quality of silk
	CO4	Train to become an Entrepreneur

Programme code:06	For B.Sc., Botany, Chemistry and Biochemistry			
Course code: 20UZ02A2	Allied A Paper 2 Cell biology, Genetics, Embryology, Physiology, Ecology and Evolution			
Batch	Semester	Hour/Week	Total hours	Credit
2020-2021	II	5	75	4

Course Objective

1. To acquire the knowledge about the cytology and developmental biology of living animals
2. To understand the physiology and of digestion
3. To create the awareness about the environmental pollution and learn about the evolutionary modification.

Course Outcomes

K1 - K4	CO1	Get knowledge about the cell organelles and its functions and Genetic disorders.
	CO2	Understand the embryology of frog
	CO3	Apply the knowledge in the field of nutrition in man and conservation of eco system
	CO4	Obtain knowledge of the evolutionary significance of animals

Programme Code- 06		B.Sc. Zoology		
Course Code: 20UZO303		Core Paper 3 – Cell and Molecular biology		
Batch 2020-2021	Semester III	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To provide the fundamental knowledge on cell types and characters.
2. To enhance the knowledge on cell organelles and their role in metabolic activities.
3. To understand the cell division and genetic makeup of the cell and its significance.

Course Outcomes

K1 – K4	CO1	Understand the importance of microscopy and staining techniques.
	CO2	Apply knowledge on the metabolic machinery of the cells.
	CO3	Analyze the significance of normal and abnormal activities of cells.
	CO4	Get knowledge on protein synthesis and cancer biology.

ProgrammeCode : 06		B.Sc.: Zoology		
Course Code 20UZO404		Core Paper 4 –Physiology		
Batch 2020-2021	Semester IV	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To get knowledge about the nutrition and feeding mechanism
2. To understand the structure and functions of various organ systems in the animal
3. To distinguish the interrelationship within physiological systems

Course Outcomes

K1 – K4	CO1	Explain and recognize the physiological structure and functions of various organs
	CO2	Apply anatomical knowledge in predicting the physiological consequences
	CO3	Describes physiological activity of organ system
	CO4	Distinguishes the types and functions of endocrine glands

Programme code :06		B.Sc. Zoology		
Course Code 20UZO4S2		Skill Based Subject 2- Health Education		
Batch	Semester	Hours / Week	Total Hours	Credits
2020-2021	IV	2	30	3

Course Objectives

1. To inculcate knowledge on health education and life styles
2. To create awareness about the importance of environment for healthy life
3. To educate the students in relation to health education programmes of Public importance.

Course Outcomes (CO)

K1- K4	CO1	Get knowledge about the concept of health
	CO2	Understand the role of Nutrition in Man
	CO3	Study various environmental pollution and diseases and their impacts on Man
	CO4	Create awareness on prevention and control of diseases

Programme code : 06		B.Sc.Zoology		
Course Code 20UZO4CM		Core Practical II – Cell and Molecular Biology and Physiology		
Batch 2020-2021	Semester IV	Hours / Week 2	Total Hours 60	Credits 2

Course Objectives

1. To impart the practical knowledge on hematological studies
2. To understand mitotic and meiotic cell divisions
3. To know the principles of biomedical instrumentation and osmoregulation

Course Outcomes (CO)

K2 – K5	CO1	Understand the significance of osmoregulation
	CO2	Apply basic principles of hematological and cell studies
	CO3	Analyse the principles and uses of bioinstrumentation in medical laboratory
	CO4	Evaluate the importance of blood cell counts

Programme code : 06	B.Sc Zoology			
Course code 20UZO505	Core Paper - 5- Genetics			
Batch 2020-2021	Semester V	Hour/Week 5	Total hours 75	Credit 4

Course Objectives

1. To make the students to develop a comprehensive knowledge of pioneers and their contributions to genetics
2. To make the students understand various principles of heredity.
3. To create the knowledge about the application of genetic principles in different populations.

Course Outcomes

K1 – K4	CO1	Get knowledge about the Mendelian principles in dominance and Co- dominance.
	CO2	Understand the genetic linkage, crossing over and sex- linked inheritance in animals
	CO3	Analyze the Genetic disorders in Man
	CO4	Evaluate the need of genetic counseling and its significance.

Programme code : 06	B.Sc. Zoology			
Course code 20UZO506	Core Paper -6- Evolution			
Batch 2020 -2021	Semester V	Hour/Week 5	Total hours 75	Credit 5

Course Objectives

1. Obtain the knowledge of animal behavior
2. Understand the concept of biological clock and circadian rhythm
3. Students can learn the processes of origin of life

Course Outcomes

K1 - K4	CO1	Get knowledge about the chronology of animals
	CO2	Understand the modern synthetic theory of evolution
	CO3	Apply the reproductive behavior of animals
	CO4	Analyze the significance of geological time scale

Programme Code : 06	B.Sc, Zoology			
Course code 20UZO507	Core Paper - 7 – Ecology			
Batch	Semester	Hour/Week	Total hours	Credit
2020-2021	V	5	75	4

Course Objectives

1. To know the fundamental principles that govern the functioning of the environment.
2. To understand the concept of ecosystem and balance of nature.
3. To assess the relationship between environment and organisms.

Course Outcomes

K1 - K4	CO1	Get knowledge about the ecological studies and their significance
	CO2	Understand the interlink between living and nonliving resources for an ecosystem management
	CO3	Acquire knowledge on Community and Habitat ecology at different geographical regions to enhance species specific management
	CO4	Analyze the ecological significance and their management

Programme Code:06		B.Sc. Zoology		
Course Code 20UZO508		Core Paper- 8 – Biostatistics and Bioinformatics		
Batch 2020-2021	Semester V	Hours / Week 5	Total Hours 75	Credits 4

Course Objectives

1. To provide the fundamental knowledge on statistics in biology.
2. To enhance the knowledge on statistical use, interpret results using descriptive statistical methods and analysis of significance level.
3. To learn the biological databases and apply bioinformatics tools.

Course Outcomes

K1 – K4	CO1	Get awareness in the data collection, analysis and interpretation of results.
	CO2	Understand the significance of biostatistics on biological sciences and also applied in research work.
	CO3	Apply fundamental knowledge on principle's and applications of instruments and its usage in projects.
	CO4	Analyze the role of computer applications and bioinformatics tools in biological data interpretation.

Programme code: 06	B.Sc. Zoology		
20UZO5EI	Major Elective Paper 3 – Economic Zoology		
Batch 2020-2021	Hours / Week 4	Total Hours 60	Credits 5

Course Objectives

1. To get knowledge about sustainable agriculture, organic farming and waste management by using Vermitechnology.
2. To understand the rearing and harvesting techniques in sericulture, apiculture and lac culture.
3. To inculcate knowledge on Aquaculture, Poultry and Animal husbandry aspects.

Course Outcomes

K1 – K4	CO1	Get knowledge about the characteristics and role of earthworm in sustainable agriculture.
	CO2	Understand the problems in Sericulture, apiculture and lac culture.
	CO3	Apply the knowledge on disease management in the field of poultry and Animal husbandry.
	CO4	Analyze the economic importance of Apiculture, Lac culture, Poultry and aquaculture.

Programme code - 06	For All UG Programmes			
Course code - 20UZO5X1	Human Anatomy (EDC)			
Batch	Semester	Hour/week	Total hours	Credit
2020-2021	5	2	30	3

Course objectives:

1. To make the students to learn about the human body from cellular to system level.
2. To set a strong base for the biology related courses for other major students.
3. To motivate the students to pursue healthcare / bioinspired courses related higher studies and research.

Course outcomes:

Knowledge Level	Course Outcomes	
K1 – K4	CO1	Learn the different organ system of the human body
	CO2	Equipe the knowledge with structure of different organ system of the human
	CO3	Apply the knowledge gained on anatomy of human organ system in the healthcare
	CO4	Analysing the role of each organ system for the healthy life.

Programme Code: 06		B.Sc. Zoology		
Course Code 20UZO609		Core Paper 9 – Microbiology and Immunology		
Batch	Semester	Hours / Week	Total Hours	Credits
2020-2021	VI	4	60	4

Course Objectives

1. To update basic knowledge on microorganisms.
2. To understand the economic importance of microbes in relation to agriculture, industry and medicine.
3. To analyze and inculcate the fundamental knowledge on immune system and immunological responses to antigens.

Course Outcomes

K1 – K4	CO1	Make awareness about the morphology, taxonomy and culture methods of microbes.
	CO2	Uptain knowledge on microbes of biosphere.
	CO3	Understand the microbial diseases, causative organisms and their control measures.
	CO4	Study the immune systems and immune responses.

Programme Code : 06		B.Sc., Zoology		
Course Code 20UZO610		Core Paper 10 – Biotechnology		
Batch	Semester	Hours / Week	Total Hours	Credits
2020-2021	VI	5	75	4

Course Objectives

1. To get knowledge about application oriented aspects
2. To provide a platform to learn the deliberate use of living organisms for human welfare
3. To study the importance of Industrial Biotechnology

Course Outcomes

K1 – K5	CO1	Understand the Basics of Genetic Engineering
	CO2	Understand the techniques of cloning
	CO3	Get knowledge on Gene transfer tehcniques
	CO4	Apply the knowledge gained on Industry

Programme Code : 06		B.Sc. Zoology		
Course Code 20UZO611		Core Paper- 11 – Developmental Biology		
Batch 2020-2021	Semester VI	Hours / Week 5	Total Hours 75	Credits 4

Course Objectives

1. To get knowledge about theories of development and gametogenesis
2. To study the process of fertilization and cleavage of animals
3. To understand the embryonic developmental stages and extra embryonic nutrition of animals

Course Outcomes

K1 -K4	CO1	Study the laws and theories of development and gametogenesis.
	CO2	Understand the process and different methods of fertilization.
	CO3	Apply the knowledge on various developmental stages of animals.
	CO4	Analyze the importance and knowledge on embryonic nutrition.

Programme Code : 06		B.Sc, Zoology		
Course Code 20UZO612		Core Paper 12 – Animal Diversity		
Batch 2020 -2021	Semester VI	Hours / Week 4	Total Hours 60	Credits 4

Course Objectives

1. To understand the present status of Fauna.
2. To create awareness on conservation of endangered species.
3. To understand the comparison of ancient and recent information about the biodiversity.

Course Outcome

K1 - K4	CO1	Get knowledge about the endangered and extinct species.
	CO2	Compare the ancient and recent information about biodiversity
	CO3	Apply the knowledge in Inventorying new species and find out the species extinction rate.
	CO4	Analyze the significance various ecosystem and conservation of Biodiversity

ProgrammeCode : 06		B.Sc., Zoology		
Course Code 20UZO6CN		Core practical 3. Evolution, Genetics, Microbiology and Immunology and Biotechnology		
Batch 2020-2021	Semester VI	Hours / Week 2	Total Hours 60	Credits 2

Course Objectives

1. To know the application of various techniques in genetic engineering
2. To Understand the Immunotechniques
3. To Understand the evolution of animals

Course Outcomes

K2 – K5	CO1	Understand more knowledge in the operations of advanced Biotechnological equipments
	CO2	Apply the products obtained through microorganisms
	CO3	Analyze practical information in animal cell culture and plant cell culture
	CO4	Evaluate the values of biofertilizers and biopesticides for the healthy society

Programme Code :06		B.Sc, Zoology		
Course code 20UZO6CO		Core Practical 4. Ecology, Developmental Biology and Animal Diversity		
Batch	Semester	Hour/Week	Total hours	Credit
2020 -2021	VI	2	60	2

Course Outcomes

K2 – K5	COI	Get practical knowledge about the species identification, diversity and their ecological significance
	CO2	Understand about the species diversity and water pollution due to anthropogenic activity
	CO3	Apply practical knowledge on plankton analysis, sericulture, vermiculture, and pest management.
	CO4	Analyze about practical and filed knowledge in relation to environment management

Programme Code: 06	B.Sc. Zoology		
	Major Elective 1 - Wild Life Ecology and Management		
Batch 2020 -2021	Hours / Week 3	Total Hours 45	Credits 5

Course Objectives

1. To understand and appreciate biodiversity and the Act to protect the wild species.
2. To learn different techniques to study wild life and develop knowledge of the benefits of ecosystem.
3. To get knowledge the about various methods to conserve biodiversity.

Course Outcomes

K1 - K4	CO1	Explain the various components of an ecosystem
	CO2	Describe the wildlife management in India and National Parks and Sanctuaries.
	CO3	Analyze the Biodiversity hot spots, Endangered species and their Protection
	CO4	Evaluate the Wild life management Techniques and animal plant interaction.

Programme code: 06	B.Sc Zoology		
	Major Elective Paper 2 –Poultry Science and Management		
Batch 2020-21	Hour/Week 3	Total hours 45	Credit 5

Course Objectives

1. To develop knowledge on the history and the role of poultry in rural development and its structure.
2. To learn the methods of rearing, breeding and production of poultry.
3. To get the knowledge about the preparation of feed, antibiotics, vaccines and marketing.

Course Outcomes

K1 – K4	CO1	Get knowledge about the importance of poultry farming
	CO2	Understand the types of poultry breeding
	CO3	Apply the knowledge in types of incubators for poultry breeding
	CO4	Evaluate the importance of poultry marketing

Programme code: 06	B.Sc. Zoology		
	Major Elective Paper 3 – Economic Zoology		
Batch 2020-2021	Hours / Week 4	Total Hours 60	Credits 5

Course Objectives

1. To get knowledge about sustainable agriculture, organic farming and waste management by using Vermitechnology.
2. To understand the rearing and harvesting techniques in sericulture, apiculture and lac culture.
3. To inculcate knowledge on Aquaculture, Poultry and Animal husbandry aspects.

Course Outcomes

K1 – K4	CO1	Get knowledge about the characteristics and role of earthworm in sustainable agriculture.
	CO2	Understand the problems in Sericulture, apiculture and lac culture.
	CO3	Apply the knowledge on disease management in the field of poultry and animal husbandry.
	CO4	Analyze the economic importance of Apiculture, Lac culture, Poultry and aquaculture.

Programme code - 06	B.Sc Zoology		
	Major Elective 4- Pests and Their management		
Batch 2020-2021	Hour/Week 3	Total hours 45	Credit 5

Course Objectives

1. To acquire information on insect pests and non- insect pests in agricultural crops
2. To get knowledge on biology and nature of damage caused by insect pests and non insect pests in various crops
3. To learn knowledge about the insect vector of human and their control measures

Course Outcomes

K1 - K4	CO1	Get knowledge about the importance of insect pests of agricultural crops and plant diseases transmitted by insect pests.
	CO2	Understand the biology and nature of damage caused by insect pests and non insect pests in various crops
	CO3	Study the insect pests of stored grains
	CO4	Apply knowledge on the importance of vectors on human health and their control measures

Programme Code: 06	B.Sc. Zoology		
	Major Elective 5 - Vermitechnology		
Batch 2020-2021	Hours / Week 3	Total Hours 45	Credits 5

Course Objectives

1. To aware the significance of sustainable agriculture and organic farming.
2. To inoculate basic knowledge on recycling of biodegradable waste of different kinds.
3. To understand the value of Vermitechnology and its significance.

Course Outcomes

K1 – K4	CO1	Get knowledge on the significance of earthworms.
	CO2	Understand the importance of waste degradation by eco-friendly method.
	CO3	Apply the significance of vermicomposting methods.
	CO4	Apply knowledge on commercialization of Vermiproducs.

Programme code: 06	B.Sc., Zoology		
	Major Elective Paper 6 -- Human Genetics and Counseling		
Batch 2020-2021	Hour/Week 3	Total hours 45	Credit 5

Course Objectives

1. To understand knowledge on the blood types, transfusion and diseases.
2. To know about the applications of aminocentesis, dermatoglyphics and Population genetics.
3. To learn the applications of Genetic engineering and Genetic counseling

Course Outcomes

K1 – K4	COI	Explain the Physiology and genetics of blood groups.
	CO2	Describe the various syndromes and Population genetics.
	CO3	Analyses the application of genetic engineering in man.
	CO4	Evaluate the genetic counseling and pedigree chart.

Programme Code :06	B.Sc, Zoology			
Course code 20UZO6Z1	Project Work and Viva - Voce			
Batch	Semester	Hour/Week	Total hours	Credit
2020-2021	VI	3	45	5

Course Objectives

1. To acquire the basic knowledge about research and carryout research problems in zoology.
2. To explore the ability to plan carryout innovative project in group
3. To improve the knowledge on various research methods in zoology

Course Outcomes

K2 – K4	CO1	Use foundational practical knowledge to carry out research in the specified area.
	CO2	Analyze the results and to collect the basic information in zoology.
	CO3	Evaluate the research findings and present them in written and oral.
	CO4	Implement the research findings for the upliftment of mankind

Programme Code : 06	B.Sc, Zoology			
Course code 20UZO6S4	Skill Based Subject 3 Commercial Fish Culture			
Batch	Semester	Hour/Week	Total hours	Credit
2020-2021		2	30	3

Course Objectives

1. To develop knowledge in characteristics, structure and resources of fisheries.
2. To increase the fishery sector performance by production, culture practices and farm management.
3. To improve the trade and its contribution to the nation economy.

Course Outcomes

K1 - K4	CO1	Get knowledge about the commercial production of fishes in India
	CO2	Understand the practices of fish culture and its management to produce quality fish for human consumption
	CO3	Apply practical knowledge into fish production and marketing to become successful entrepreneur
	CO4	Analyze students acquired technical knowledge which is helpful to begin an entrepreneurship in the field of Fisheries