BSc. ZOOLOGY

PROGRAMME AND COURSE OUTCOMES

BSc. Zoology

Programme Outcomes

PO1	The students inculcate a love and understanding of the fascinating world of animal life.
PO2	Students get an in-depth knowledge of the diversity in form, structure and habits of Non-chordata and Chordata. .
PO3	The students are introduced with the methodology and perspectives of Science in general so that they are enabled to systematically pursue higher studies and research in Zoology in relation to other disciplines of science. .
PO4	Imparts basic knowledge on ecosystem and the necessity and measures for ecosystem conservation and disaster management
PO5	Students get basic ideas regarding the structure and functioning of cells and also about the aspects of genetic engineering
PO6	Students understand the principles of inheritance and the practical applications of biotechnology in medicine, agriculture, industry, pollution control, forensics and judiciary
PO7	Students get familiarized with various organ systems and their functions and their role in homoeostasis of body
PO8	Students get an in-depth knowledge on the biochemical aspects of metabolism enabling them to develop ideas on research in the field of advanced biochemistry
PO9	Students get expertise to carry out routine hematological and microbiological techniques.
PO10	Students are introduced with the methodology and perspectives of applied branches of Zoology with a view of educating youngsters on the possibilities of self-employment
PO11	Instigating an attitude and aptitude in students for the pursuing higher education in the field of Zoology and allied biological sciences.

Course Outcomes

Semester 1

COURSE TYPE	LANGUAGE COURSE I
COURSE NAME	LANGUAGE SKILLS
COURSE CODE	EN111.1
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Master the language for personal and professional growth.
CO2	Acquire basic language skills through interactive classroom sessions.
CO3	Connect language with literature.

COURSE TYPE	ADDITIONAL LANGUAGE I
COURSE NAME	MALAYALAM POETRY
COURSE CODE	ML 1111.1
CREDIT	3
HOURS	4
COURSE OUTCOMES	
CO1	Gaining an awareness of the historical development of Malayalam poetry.
CO2	The poetic taste and interest in poetry is developed.
CO3	A finer understanding of poetic elements emerges.
CO4	Ability to critically analyse poems.
CO5	Comparatively defining writing poems.
CO6	Preparing a poetry review.

COURSE TYPE	LANGUAGE COURSE I
COURSE NAME	HINDI KAHANI SAHITYA
COURSE CODE	HN 1111.1
CREDIT	3
HOURS	4

COURSE OUTCOMES	
CO1	Recollect the main works of the representative story writers
CO2	Understand the craft of the different story writers
CO3	Analyze and evaluate the works of the story writers they studied
CO4	Understand how the resource language is used as a medium in creative writing

COURSE TYPE	LANGUAGE COURSE I
COURSE NAME	GRAMMAR, COMMUNICATION, POETRY, HISTORY OF SYRIAC LITERATURE
COURSE CODE	SR 1111.1
CREDIT	3
HOURS	4
COURSE OUTCOMES	
CO1	To communicate effectively
CO2	Understand the craft of constructing conversations
CO3	Articulation and expression of ideas
CO4	Understand and assimilate ideas in a text

COURSE TYPE	FOUNDATION COURSE I
COURSE NAME	WRITINGS ON CONTEMPORARY ISSUES
COURSE CODE	EN1121
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	Sensitize students to the major issues in the society and the world.
CO2	Introduce and provide varied perspectives on contemporary issues.
CO3	Encourage critical and analytical skill.

COURSE TYPE	CORE COURSE I
COURSE NAME	ANIMAL DIVERSITY I
COURSE CODE	ZO 1141
CREDIT	3

HOURS	4
COURSE OUTCOMES	
CO1	To learn the basics of systematics and understand the hierarchy of different categories.
CO2	To learn the diagnostic characters of different phyla through brief studies of examples.
CO3	To obtain an overview of economically important invertebrate fauna.

COURSE TYPE	COMPLEMENTARY COURSE I
COURSE NAME	THEORETICAL CHEMISTRY
COURSE CODE	CH1131.4
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	Discuss Bohr atom model and represent electronic configuration of elements. Differentiate particle nature and wave nature of matter. Associate wave concept with microscopic matter.
CO2	Understand the relevance of periodic classification of elements. Describe the various types of chemical bonds. Apply the VSEPR theory to explain the geometry of molecules
CO3	Comprehend different segments of titrations.
CO4	Understand the nature of environmental threats and role of chemistry

COURSE TYPE	COMPLEMENTARY COURSE II
COURSE NAME	MICROTECHNIQUE, ANGIOSPERM ANATOMY AND REPRODUCTIVE BOTANY
COURSE CODE	BO 1131
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	To generate awareness about anatomical features of Angiosperms & reproductive biology as well as to learn

	techniques for micro preparations.
CO2	To develop skills for preparation and identification of microscopic structures
CO3	To distinguish various tissue systems and internal structure
CO4	To acquire basic knowledge about embryo development and pollen grains

Semester 2

COURSE TYPE	LANGUAGE COURSE III
COURSE NAME	ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT
COURSE CODE	EN1121.1
CREDIT	5
HOURS	5
COURSE OUTCOMES	
CO1	Engage with a wide range of issues in environmental studies and disaster management.
CO2	Acquire values for environmental protection and conservation.
CO3	Recognise the ecological basis for regional and global environmental issues
CO4	Manage natural disasters and other emergency situations
CO5	Develop a critical vocabulary related to environmental studies and disaster management.

COURSE TYPE	LANGUAGE COURSE IV
COURSE NAME	ENGLISH GRAMMAR USAGE AND WRITING
COURSE CODE	EN1212.1
CREDIT	4
HOURS	4
COURSE OUTCOMES	
CO1	Acquire good understanding of modern English grammar.
CO2	Write grammatically and idiomatically correct language.
CO3	Improve verbal communication skill.
CO4	Minimize mother tongue influence.

COURSE TYPE	LANGUAGE COURSE V
SEMESTER	II
COURSE NAME	LITERATURE OF PROSE
COURSE CODE	ML 1211.1
CREDIT	3
HOURS	4
COURSE OUTCOMES	
CO1	Enables general awareness of major literary forms in Malayalam prose.

CO2	Researching and analysing the evolution of prose forms.
CO3	The imaginative ability to analyse texts is developed.
CO4	Comparatively observes the writing style of the writers.
CO5	Critical studies are prepared by analysing the content, language, socio-political perspective and aesthetic level of the writings.

COURSE TYPE	LANGUAGE COURSE V
COURSE NAME	KATHETAR HIDI GADYA VIDHAAYEIN
COURSE CODE	HN 1211.1
CREDIT	3
HOURS	4
COURSE OUTCOMES	
CO1	Recollect the main works of the prescribed writers
CO2	Understand the forms of various prose writing in Hindi
CO3	Analyses & evaluate the prose forms prescribed, with respect to the craft and the relevance

COURSE TYPE	LANGUAGE COURSE V
COURSE NAME	GRAMMAR, COMMUNICATION, POETRY, HISTORY OF SYRIAC LITERATURE
COURSE CODE	SR 1211.1
CREDIT	3
HOURS	4
COURSE OUTCOMES	
CO1	To enrich vocabulary and conversational articulation
CO2	Understand the forms of various genres of writings in Syriac
CO3	Analyse and evaluate the history of Syriac literature

COURSE TYPE	CORE COURSE II
COURSE NAME	ANIMAL DIVERSITY II
COURSE CODE	ZO 1241
CREDIT	3
HOURS	4
COURSE OUTCOMES	

CO1	To learn the general characteristics and classification of different classes of vertebrates.
CO2	To understand the vertebrate evolutionary tree.
CO3	To understand general aspects of applied interest in relation to vertebrates

COURSE TYPE	COMPLEMENTARY COURSE III
COURSE NAME	INORGANIC CHEMISTRY
COURSE CODE	CH1231.4
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	Understand the biological and environmental aspects of organic compounds.
CO2	Comprehend the meaning of stability of nucleus. Summarise the applications of radioactivity.
CO3	Predict the properties of transition metal complexes A 5 Apply complexation reactions in qualitative and quantitative analysis
CO4	Appreciate biological processes like photosynthesis, respiration etc. Discuss the biochemistry of trace elements.

COURSE TYPE	COMPLEMENTARY COURSE IV
COURSE NAME	Thallophytes, Archegoniatae and Plant pathology
COURSE CODE	BO 1321
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	To create awareness about the world of microbes and non-flowering plants.
CO2	To familiarize characteristic features of microbes and their significance in environment
CO3	To generate idea about types of algae, fungi, lichen and their economic as well as evolutionary significance
CO4	To familiarize the students the characteristic features, life cycle and evolutionary significance of Bryophytes, Pteridophytes and Gymnosperms.

Semester 3

COURSE TYPE	LANGUAGE COURSE VI
COURSE NAME	ENGLISH FOR CAREER
COURSE CODE	EN1311.1
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Introduce students to the language skills required for appearing in career oriented competitive examinations.
CO2	Develop cognitive, logical, verbal and analytical skills necessary to succeed in competitive examinations.
CO3	Provide the pattern of questions based on common models of competitive tests.
CO4	Help students to prepare for and appear in competitive examinations.

COURSE TYPE	LANGUAGE COURSE VII
COURSE NAME	LANGUAGE AWARENESS AND CREATIVITY
COURSE CODE	ML 1311.1
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Understanding the usage patterns of Malayalam language.
CO2	Acquiring the skill to use language correctly.
CO3	Gaining proficiency in elementary grammar lessons and self-assessment.
CO4	Gaining practical training in translation and conducting and evaluating translation essays.
CO5	Gaining insight into the creative lives of writers and observing them comparatively.
CO6	Creating new compositions.

COURSE TYPE	LANGUAGE COURSE VII
COURSE NAME	HINDI KAVITA SAAHITYA
COURSE CODE	HN 1311.1
CREDIT	4
HOURS	5

COURSE OUTCOMES	
CO1	Appreciates ancient and modern Hindi poems.
CO2	Critically evaluates the contribution of Ancient and modern poets to the development of Hindi poetry
CO3	Elucidates key lines of poetry with reference to context.

COURSE TYPE	LANGUAGE COURSE VII
COURSE NAME	GRAMMAR, COMMUNICATION, PROSE, HISTORY OFSYRIAC PEOPLE IN INDIA
COURSE CODE	SR 1311.1
CREDIT	3
HOURS	5
COURSE OUTCOMES	
CO1	To develop LSRW skills.
CO2	Critically evaluate the aesthetics of literature
CO3	Understands how past influences the present

COURSE TYPE	CORE COURSE III
COURSE NAME	EXPERIMENTAL ZOOLOGY, INSTRUMENTATION BIOSTATISTICS AND BIOINFORMATICS
COURSE CODE	ZO 1341
CREDIT	3
HOURS	5
COURSE OUTCOMES	
CO1	To learn the fundamental characteristics of science as a human enterprise
CO2	To understand how science works
CO3	To study to apply scientific methods independently

COURSE TYPE	COMPLEMENTARY COURSE V
COURSE NAME	ORGANIC CHEMISTRY
COURSE CODE	CH1331.4
CREDIT	3
HOURS	5
COURSE OUTCOMES	

CO1	Classify carbohydrates, aminoacids, proteins, nucleic acids, lipids, polymers and drugs. Predict absolute configuration of stereo centers.
CO2	Summarize optical, geometrical and conformational isomerism. Draw the structure of simple carbohydrates
CO3	Discuss the structure of proteins.
CO4	Understand about nucleic acids and lipids.
CO5	To know about Polymers and their applications in daily life
CO6	To get an idea on classification of drugs, their action and applications.

COURSE TYPE	COMPLEMENTARY COURSE VI
COURSE NAME	SYSTEMATIC BOTANY, ECONOMIC BOTANY, ETHNO BOTANY, PLANT BREEDING
COURSE CODE	BO 1331
CREDIT	3
HOURS	5
COURSE OUTCOMES	
CO1	To study the structure and function of each system in the human body.
CO2	To study the etiology of common physiological disorders, syndromes and diseases.

Semester 4

COURSE TYPE	LANGUAGE COURSE VIII
COURSE NAME	READINGS IN LITERATURE
COURSE CODE	EN 141.11
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Familiarize with various genres of writing.
CO2	Able to effectively read and appreciate literature
CO3	Acquire critical thinking by reading between the lines

COURSE TYPE	LANGUAGE COURSE IX
COURSE NAME	LITERATURE OF VISUAL ARTS
COURSE CODE	ML 1411.1
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Discovers and describes the richness and diversity of Kerala's visual arts.
CO2	Examining the evolution from composition to practice.
CO3	Kathakali, OttanTullal, Drama and Cinema art forms and the literary works based on them are evaluated together.
CO4	Critically enjoying the visual arts.
CO5	Writing Plays and Screen plays.
CO6	Leads the creative expression of arts such as acting, screen play writing, Play writing

COURSE TYPE	LANGUAGE COURSE IX
COURSE NAME	HINDI KAVITA SAAHITYA
COURSE CODE	HN 1411.1
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Appreciate and evaluate one act plays with respect to craft and subject.
CO2	Understand the correct usages in Hindi and write grammatically correct sentences in Hindi.
CO3	Define parts of speech and identify the parts of speech in a given

	sentence.
CO4	Translate simple passages from English to Hindi.

COURSE TYPE	LANGUAGE COURSE IX
COURSE NAME	GRAMMAR, COMMUNICATION, PROSE, HISTORY OF SYRIAC PEOPLE IN INDIA
COURSE CODE	SR 1411.1
CREDIT	3
HOURS	5
COURSE OUTCOMES	
CO1	Enhance integral development through effective communication
CO2	Understand the correct usages in Syriac and write grammatically correct sentences.
CO3	Develop imagination by comprehending the aesthetics of literature.
CO4	To apply historical knowledge in solving present problems

COURSE TYPE	CORE COURSE IV
COURSE NAME	ECOLOGY, HABITAT DESTRUCTION & DISASTER MANAGEMENT
COURSE CODE	ZO 1441
CREDIT	3
HOURS	5
COURSE OUTCOMES	
CO1	Students get basic knowledge on ecosystem, food chain, food web and energy flow.
CO2	Students acquire general awareness on pollution and their impacts.
CO3	Imparts basic knowledge on ecosystems and their functioning.
CO4	Students learn about various types of anthropogenic pressures on ecosystem, related degradation and management measures.
CO5	Students get awareness of toxicants, their impacts on human health and environment and remedial measures.
CO6	Create awareness about disasters, prevention and mitigation measures.

COURSE TYPE	COMPLEMENTARY COURSE VII

COURSE NAME	PHYSICAL CHEMISTRY
COURSE CODE	CH1431.4
CREDIT	3
HOURS	3
COURSE OUTCOMES	
CO1	Classify reactions based on order and molecularity. Calculate rate and order of reactions.
CO2	Discuss different concepts of acids and bases.
CO3	Understand different techniques used for the study of colloids
CO4	Applications of UV and NMR spectroscopy
CO5	Review the principles underlying the working of sophisticated instruments
CO6	Understand Liquid-Liquid systems.

COURSE TYPE	COMPLEMENTARY PRACTICAL
COURSE NAME	LAB COURSE FOR ZOOLOGY
COURSE CODE	CH 1432.4
CREDIT	2
HOURS	Practical-2
COURSE OUTCOMES	
CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, outlook and scientific temper (GOOD LAB PRACTICES)
CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures
CO3	Develop skill in observation, prediction, and interpretation of reactions. Prepare organic compounds, Purify and recrystallise.
CO4	Develop skill in weight calculation for preparing standard solutions.
CO5	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry, iodometry, cerimetry, argentometry and complexometry
CO6	Conduct chromatographic separation of mixtures

COURSE TYPE	COMPLEMENTARY COURSE VIII
COURSE NAME	PLANT PHYSIOLOGY, PLANT ECOLOGY, HORTICULTURE AND PLANT BIOTECHNOLOGY
COURSE CODE	BO 1431

CREDIT	3
HOURS	Theory-3 Practical-2
COURSE OUTCOMES	
CO1	To learn the basic principles involved in the culture and breeding of common, edible and ornamental fishes of Kerala and the art of aquarium keeping.
CO2	To get a basic understanding of human genomics and reproductive biology including stern cell research and prenatal diagnostic techniques
CO3	To create awareness about physiological aspects of growth & metabolism along with knowledge about Ecology, horticulture and Biotechnology
CO4	To understand physiology of absorption, photosynthesis and respiration.

Semester 5

COURSE TYPE	CORE COURSE VI
COURSE NAME	CELL AND MOLECULAR BIOLOGY
COURSE CODE	ZO 1541
CREDIT	4
HOURS	7
COURSE OUTCOMES	
CO1	Students acquire sufficient knowledge on the fundamental structure, function and biochemistry of the cell.
CO2	They understand the principles of molecular biology and gene manipulation.
CO3	Students learn ultra-structure of prokaryotic and eukaryotic cells.
CO4	Students understand the fundamental differences
CO5	Students learn the structure, replication and modification of the genetic material of eukaryotes.
CO6	Students understands the mechanism of gene expression and gene regulation.
CO7	Gets an awareness of bacterial recombination.
CO8	Students acquire scientific knowledge on cancer and ageing.

COURSE TYPE	CORE COURSE VII
COURSE NAME	GENETICS AND BIOTECHNOLOGY
COURSE CODE	ZO 1542
CREDIT	4
HOURS	7
COURSE OUTCOMES	
CO1	Structure of gene is to be learned.
CO2	Students develop a proper understanding on the relation between heredity and variation.
CO3	Students get educated on the underlying genetic mechanism operating in human and state of the art of bio-techniques

CO4	Students develop a proper understanding on the relation between heredity and variation.

COURSE TYPE	CORE COURSE VIII
COURSE NAME	IMMUNOLOGY AND MICROBIOLOGY
COURSE CODE	ZO 1543
CREDIT	4
HOURS	5
COURSE OUTCOME	
CO1	Students understand the scope and importance of clinical immunology.
CO2	Students understand the principles and mechanisms of immunology.
CO3	Learn the malfunctioning and disorders of the immune system
CO4	Students acquire knowledge on immunodeficiency diseases.
CO5	Transplantation and mechanism of Graft retention and rejection are learned.
CO6	Students get a brief history of microbiology.
CO7	Students develop a broad understanding of the positive as well as negative aspects of microbes.
CO8	Economic importance (applied aspects) of microbes in industry can be studied.

COURSE TYPE	OPEN COURSE
COURSE NAME	HUMAN HEALTH AND SEX EDUCATION
COURSE CODE	ZO 1551.2
CREDIT	2
HOURS	3
COURSE OUTCOMES	
CO1	To make the student understand the importance of good health.

CO2	To educate the student on clean sexual habits thereby warding off sexually transmitted diseases.

COURSE TYPE	PROJECT AND FIELD STUDY
COURSE NAME	PROJECT AND FIELD STUDY
COURSE CODE	B0 1646
CREDIT	3
HOURS	3
COURSE OUTCOMES	
CO1	To inculcate proficiency to identify appropriate research topics and presentation
CO2	Research and analyse the content or matter.
CO3	Assimilate and present the matter in specific model.

Semester 6

COURSE TYPE	FOUNDATION COURSE II
COURSE NAME	PHYSIOLOGY AND BIOCHEMISTRY
COURSE CODE	ZO 1641
CREDIT	4
HOURS	5
COURSE OUTCOMES	
CO1	Students develop a clear understanding of the correlation and coordination between the structure and function of different organs and organ systems of the body.
CO2	Proper study on the physiology helps students understand the physiology of different organ systems of the body.
CO3	Students learn the correlation between diseases and the abnormal structure or improper functions of organs.
CO4	Students understand the possible causes of abnormal physiology and the resultant diseases.
CO5	Students understand the structure and functions of bio-molecules and their role in metabolism.
CO6	This course opens new areas of research to students.

COURSE TYPE	CORE COURSE X
COURSE NAME	DEVELOPMENTAL BIOLOGY AND EXPERIMENTAL EMBRYOLOGY
COURSE CODE	ZO 1642
CREDIT	4
HOURS	4
COURSE OUTCOMES	
CO1	Students get a brief idea about the history of developmental biology.
CO2	Provide the students a bird's eye view of sophisticated embryological techniques
CO3	Study the various stages involved in the development of organisms.

CO4	Study the initial developmental procedures involved in Amphioxus, Frog and chick
CO5	Procure information on state- of- the art experimental procedures in embryology.
CO6	Different control mechanisms of development including gene action are studied.

COURSE TYPE	CORE COURSE XI
COURSE NAME	ETHOLOGY, EVOLUTION AND ZOOGEOGRAPHY
COURSE CODE	ZO 1643
CREDIT	4
HOURS	4
COURSE OUTCOMES	
CO1	To study the physiological basis of behaviour.
CO2	Study the different types of communication system among animals.
CO3	To get a concept on organic evolution.
CO4	To get knowledge on the distribution of animals in the biosphere.

COURSE TYPE	ELECTIVE COURSE
COURSE NAME	ORNAMENTAL FRESH WATER FISH PRODUCTION
COURSE CODE	ZO 1651.2
CREDIT	2
HOURS	4
COURSE OUTCOMES	
CO1	To learn the scientific method of setting an aquarium
CO2	To learn the culture breeding and marketing techniques of common indigenous ornamental fishes

COURSE TYPE	CORE COURSE XII
COURSE NAME	CORE PRACTICAL
COURSE CODE	CELL BIOLOGY, GENETICS, BIOFORMATICS, BIOTECHNOLOGY,

	IMMUNOLOGY AND MICROBIOLOGY
CREDIT	ZO 1644
HOURS	2
COURSE OUTCOMES	
CO1	To prepare and observe chromosomal arrangements during cell division
CO2	To study chromosomal aberrations in man
CO3	To gain broad knowledge on conventional biotechnological-procedures
CO4	To perform routine blood analysis.

COURSE TYPE	CORE COURSE XIII
COURSE NAME	CORE PRACTICAL
COURSE CODE	PHYSIOLOGY AND BIOLOGICAL CHEMISTRY, MOLECULAR BIOLOGY AND BIOSTATISTICS
CREDIT	ZO 1645
HOURS	2
COURSE OUTCOMES	
CO1	Students learn anatomy by dipping through simple dissections and mountings on permitted species.
CO2	Students get familiarized with various organ systems by examining approved animals.
CO3	Emphasize the adage that ‘seeing is believing’ by observing typical examples and economically important specimens.
CO4	Students learn the working principle of different scientific instruments.

COURSE TYPE	CORE COURSE XIV
COURSE NAME	CORE PRACTICAL
COURSE CODE	DEVELOPMENTAL BIOLOGY, ECOLOGY, ETHOLOGY, EVOLUTION AND ZOOGEOGRAPHY

CREDIT	ZO 1646
HOURS	2
COURSE OUTCOMES	
CO1	Students learn anatomy by diping through simple dissections and mountings on permitted species.
CO2	Students get familiarized with various organ systems by examining approved animals.
CO3	Procure information on state- of- the art experimental procedures
CO4	Different control mechanisms of development including gene action are studied.

COURSE TYPE	PROJECT, FIELD STUDY & STUDY TOUR
COURSE NAME	PROJECT, FIELD STUDY & STUDY TOUR
COURSE CODE	ZO 1646
CREDIT	3
HOURS	2
COURSE OUTCOMES	
CO1	To inculcate proficiency to identify appropriate research topics and presentation
CO2	Research and analyse the content or matter.
CO3	Assimilate and present the matter in specific model.