



Yogoda Satsanga Mahavidyalaya

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(NACC Accredited, Grade: B++, CGPA: 2.89)

CORE COURSE OUTCOME OF ZOOLOGY HONOURS PROGRAMME BASED ON CBCS CURRICULUM

Semester	Course code	Course name	Course outcome
I	CC1	Non-chordates I Protista to Pseudocoelomates	<ul style="list-style-type: none">• Students get aware of the diversity of animal kingdoms• Gain knowledge of protozoan parasites and associated diseases• They get curious about the host-pathogen interactions and their impact on human health (Malaria, Taeniasis etc)• They learn to take precautions to prevent parasitic diseases.• Learn about hygiene practices and their relevance to human health.
	CC2	Ecology	<ul style="list-style-type: none">• They are made aware of their surroundings and the concept of a healthy bio ecosystem.• They can now take proper measurements to protect and nurture the bio ecosystems.• The course has inculcated the concept of healthy co-existence.• Aware of the uniqueness of each living and non-living species and their interactions.
II	AECC	Environmental Studies	<ul style="list-style-type: none">• Students learn about the concept and benefits of a sustainable environment• They learn about biodiversity and bio conservations.• They get aware of natural resources and their limitations.• They also get aware of pollution and its prevention measures.• They learn about the environmental policies, their implications and their repercussions.• They are familiar with various environment-related activities and movements.
	CC3	Non-chordates II	<ul style="list-style-type: none">• Students get aware of the diversity of animal kingdoms

		Coelomates	<ul style="list-style-type: none"> • They develop an understanding related to the evolution of Coelom across the kingdom. • They are familiar with evolutionary development and its significance to the animal kingdom
	CC4	Cell Biology	<ul style="list-style-type: none"> • Students gain knowledge about the cellular organisation and its complexities. • They are aware of cellular compartmentalisations, their functions and their biological significance. • They are also aware of cell division and its role in maintaining a stable genetic constituency. • They are fully aware of cellular cross-talk and their role in structural and functional coordination.
III	SEC1	Elementary computer application software	<p>In this fast-growing Information Technology era, knowledge of computer applications is vital for growth and development.</p> <ul style="list-style-type: none"> • Students are aware of basic computer systems and their operations. • They develop basic software skills like Microsoft Office (Word, PowerPoint and Excel) to enable them for day-to-day needs. • In a recent pandemic, computer knowledge has helped them to opt for an online mode of learning.
	CC5	Chordates	<ul style="list-style-type: none"> • They get an introduction to the higher phylum of animal kingdoms. • They are familiar with many species of chordates. • They gain detailed impressions of the various species around them.
	CC6	Animal Physiology-controlling and coordinating system	<ul style="list-style-type: none"> • They know the organisation of living systems • They understand the intricacies of human physiology. • They are also familiar with physiology associated diseases (Diabetes,), and their prevention and cure. • They know the significance of hormones and their role in biological functions.
	CC7	Biochemistry	<ul style="list-style-type: none"> • Students develop an insight into the application of chemistry in biology. • Students learn to develop a perspective in an interdisciplinary way. • They learn to relate various interrelated physiological and metabolic events. • Students analyse and appreciate the basic concepts of chemical reactions in the biological system.

IV	SEC1	Sericulture	<ul style="list-style-type: none"> • This course enables students to understand the role of organisms with economic significance. • They learn to apply the practical application of biological organisms and their exploitation in human welfare. • This course enables the students to establish a small scale industry and become financial independence.
	CC8	Vertebrate anatomy	<ul style="list-style-type: none"> • This course helps to understand a comparative account of the different vertebrate systems • This course provides an insight into the anatomical advancements of vertebrate evolution, organisation and functions of various systems. • Understand the importance of comparative vertebrate anatomy to discriminate human biology. • This course gives an insight into evolutionary interconnection among the species and their biosystem. • Students learn to analyse and critically evaluate the structure and functions of the vertebrate system and its anatomical specializations concerning different natural surroundings.
	CC9	Animal Physiology-Life sustaining systems	<ul style="list-style-type: none"> • This course educates the students about the life-sustaining biological systems of the human body. • Students can understand fundamentals as well as advanced concepts of body systems and their feedback loop mechanisms. • They can understand the connections between human physiology and its correlation with lifestyle decisions, diseases and disorders and homeostatic imbalances. • They know the role of self-sustaining systems like circulatory, digestive, respiratory and excretory systems and their coordination in maintaining the human body's functioning.
	CC10	Metabolism	<ul style="list-style-type: none"> • This provides an understanding of biochemical processes functioning in the body. • This enables them to appreciate the interdisciplinary aspects of biology. • They understand the processes in the metabolism of carbohydrates, proteins and lipids through various anabolic and catabolic pathways and their regulations.

			<ul style="list-style-type: none"> • They know about concepts to illustrate how enzymes and redox carriers help in carrying out the functioning of physiological systems. • They plan and learn to execute the quantitative and qualitative assays of physiologically significant enzymes.
V	DSE1	Biology of insects	<ul style="list-style-type: none"> • Students learn to appreciate the beauty of insects, their classifications and their distribution. • They learn about the different types of insects, their favourable habitats and their role in maintaining a healthy bio ecosystem. • They learn about the social organisation and behavioural organisation of insects. • Students are encouraged to learn about insect behaviour and their exploitation as biosystem indicators. • Students learn about insects as biological vector and their role in human health.
	DSE2	Endocrinology	<ul style="list-style-type: none"> • Students know the regulatory mechanism of different hormones involved in human physiology. • They know the hormonal feedback mechanisms and their impact on maintaining homeostasis. • They get an insight into the various hormone-related disorders and their cellular and molecular basis.
	CC11	Molecular Biology	<ul style="list-style-type: none"> • Students learn to understand the basic structure of nucleic acids and their specific roles in maintaining cellular biology. • They learn to appreciate the intricacies of a biological system that how the DNA is packaged inside the nucleus in association with the histone proteins and organized in a genome. • They learn the foundations of the role and mechanism of DNA replication and repair and the importance of the constant succession of genes over the generations. • They understand the contrast between eukaryotic and prokaryotic molecular organisation. • They learn the central dogma and interrelationship of DNA, RNA and protein synthesis and their regulations.

			<ul style="list-style-type: none"> • They learn the characteristics of genetic code, interpretation of codon table and explanation of the relationship between codons on mRNA and the amino acids in a polypeptide chain. • They can explain the regulation and selectivity of genetic information in the form of functional proteins.
	CC12	Genetics	<ul style="list-style-type: none"> • Students get a thorough understanding of the chemical basis of heredity. • The course provides a platform to learn classical genetics to understand the inheritance of different traits and diseases among populations, and their ethnicity and correlate with contemporary and modern techniques like genomics, metagenomics, genome editing and molecular diagnostic tools. • Students learn the fundamental genetics like Mendelian and Non-Mendelian inheritances, linkages, mutations, sex determination of various animals, extrachromosomal inheritances, transposable genetic elements etc. • They learn about the different mutations and their frequency in a population. • They also understand the various aspects of biostatistics such as central tendency, t-test, chi-square, ANOVA, correlations and regression.
VI	DSE3	Fish and Fisheries	<ul style="list-style-type: none"> • Students learn about the different types of fishes, their classification and their natural habitats. • They also learn about the fish cultures and their impact on human feeding habits • They can also exploit this knowledge to establish various types of fisheries and aquaculture of fishes and their economic importance.
	DSE4	Immunology	<ul style="list-style-type: none"> • Students learn the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity • They can explain the cellular/molecular pathways of humoral/cell-mediated adaptive responses, the role of the Major Histocompatibility Complex, the cellular and molecular aspects of lymphocyte activation, homeostasis, differentiation, and memory • They understand the molecular and cellular basis of processes involved in inflammation and immunity, and their significance in health and immunity.

			<ul style="list-style-type: none"> • This enables them to integrate the knowledge to the functioning of human systems in health and disease such as vaccination, autoimmunity, immunodeficiency, hypersensitivity and tolerance
	CC13	Developmental biology	<ul style="list-style-type: none"> • This course helps the students to understand the development of multicellular organisms from a single-cell zygote. • Students can appreciate the mechanisms that support growth and development. • This course intrigues students to learn about the unique post-embryonic development that happens in other animals • It will help them to understand the concept of ageing and the relevance of this knowledge in several medical applications. • They learn about the different model system, their importance and their limitations in research.
	CC14	Evolution	<ul style="list-style-type: none"> • Students know about concepts of life's beginning and related different theories like Lamarckism, Darwinism, Neo-Darwinism etc. • They are aware of evidence of evolutions like fossil records, geological time and various concepts about the origin of species and extinctions. • They learn to draw and interpret phylogenetic trees. • They can study population genetics and its applicability.

GENERAL ELECTIVE OUTCOME OF ZOOLOGY FOR OTHER SUBJECTS

Semester	Course code	Course name	Course outcome
I	GE 1	Animal Diversity	<ul style="list-style-type: none"> • Students get aware of the diversity of animal kingdoms. • They learn about the characteristic feature of the given phyla. • They also develop a fair understanding of the evolution of organisms across the kingdom. • They are familiar with evolutionary development and its significance to the animal kingdom • They get an introduction to the higher phylum of animal kingdoms. • They are familiar with many species of chordates. • They gain adaptation mechanisms of the various phyla.
II	GE 2	Human Physiology	<ul style="list-style-type: none"> • They know the organisation of living systems like digestion, excretion, respiration, circulation and reproduction and the intricacies of their physiology. • They are also familiar with the physiology associated with diseases and their prevention and cure. • They know the significance of hormones and their role in biological functions. • Students know the regulatory mechanism of different hormones involved in human physiology. • They get an insight into the various hormone-related disorders and their cellular and molecular basis.
III	GE 3	Food, Nutrition & health	<ul style="list-style-type: none"> • This provides an understanding of various components of food, and their dietary sources. • This course enables the student to think about a practical aspect of food science, like their biochemical constituents and their impact on human health. • They also get awareness about the concept of a balanced diet and healthy living.

			<ul style="list-style-type: none"> • They learn about the biochemical processing of food and its significance in sustainable living. • This enables them to appreciate the interdisciplinary aspects of biology as it involves chemistry and biology together. • They understand the processes in the metabolism of carbohydrates, proteins and lipids through various anabolic and catabolic pathways and their regulations. • They learn to relate various interrelated physiological and metabolic events. • Students analyse and appreciate the basic concepts of chemical reactions in the biological system. • They also learn about food-related disorders and other social health problems. • They get educated about food and water-borne infections and food hygiene.
IV	GE 4	Environment and public health	<ul style="list-style-type: none"> • Students get aware of the concept of climate change, global warming, acid rain, ozone layer depletion and the impact of climate change on human health. • They get aware of natural resources and their limitations. • They also get aware of pollution and its prevention measures. • They learn about the environmental policies, their implications and their repercussions. • They are familiar with various environment-related activities and movements. • They learn about the waste, its sources, management and related disasters.