

Program Outcomes, Program Specific Outcomes and Course Outcomes
Department of Zoology, SBMS College, Sualkuchi

All courses are focused to increase students' knowledge and critical thinking in accordance to the syllabus and curriculum prescribed by the affiliating university i.e. Gauhati University, Guwahati. The programme outcomes, programme specific outcomes and course outcomes are mainly the subject of the affiliating university. However, for communication with all the stakeholders these are the important points.

B.Sc in Zoology (CBCS Course)	
Programme Outcome	<p>The BSc. Zoology programme is prepared to help the students:</p> <ol style="list-style-type: none"> 1. To gain basic knowledge of various disciplines of Zoology and General biology and develop skill over animal sciences, understands the interactions among various living organisms. 2. To make them understand the rich diversity of organisms and their ecological significances as NE India being the HUB of Biodiversity. 4. To acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation in zoology. 5. To impart awareness for the conservation of the environment and nature. 6. To make understand the complex evolutionary processes and behavioural pattern of various animals. 7. Students are able to correlate the physiological and biochemical processes of animals.
Programme Specific Outcome	<p>As a result of completion of the course, the students will be able to understand ecological factors, environmental conservation processes and its importance in pollution control and protection of threatened species. They will be able to explain physiological and biochemical activities of human beings and its impact on bodies. They will gain knowledge about applied fields of zoology like sericulture, fisheries, apiculture, poultry and dairy farms along with tissue preparation, molecular and statistical techniques. They will understand about various concepts of genetics and its importance in human health. They will be able to apply such knowledge in the practical fields. The students will be able to identify socio-economic animals & it's beneficial effects to human. They will obtain knowledge in wildlife and can choose Wildlife Tourism as a career.</p>

Semester	Paper	Course Outcome (COs)
Major Course		

1 st Semester	Zoo-HC-1016 Theory Non-Chordates I: Protista to Pseudo coelomates	<ul style="list-style-type: none"> • To give a thorough knowledge how to classify according to their characters of Non chordates • To give a brief description on life cycle and pathogenicity of Protozoan and Helminth parasites. • Importance of evolutionary significance
	Zoo-HC-1016 Practical	<ul style="list-style-type: none"> • To know the diversity in non-chordates and their systematic position by observing museum specimens. • To study life cycle of different species through slides or photographs
	Zoo-HC-1026 Theory Principles of Ecology	<ul style="list-style-type: none"> • To create basic knowledge on Ecology • To understand the unique and group attributes of population • To give an idea on Gause's Principle with laboratory and field examples for population interaction • To know the impact of community characteristics on ecological succession • To make aware of importance of wildlife conservation and management
	Zoo-HC-1026 Practical	<ul style="list-style-type: none"> • To study life tables and survivorship curves from data provided • Study of different parameters of aquatic ecosystem • To get a knowledge and observation on our National Park, Biodiversity Park, Wildlife Sanctuary etc.
2 nd Semester	Zoo-HC-2016 Theory Non-Chordates II: Coelomates	<ul style="list-style-type: none"> • To give a thorough knowledge how to classify according to their characters of Non chordates (Coelomates) • To give a brief understanding on social insects • Importance of evolutionary significance
	Zoo-HC-2016 Practical	<ul style="list-style-type: none"> • To know the diversity in non-chordates and their systematic position by observing museum specimens. • To understand organs through permanent slides • To prepare a project report on any topic related to course
	Zoo-HC-2026 Theory Cell Biology	<ul style="list-style-type: none"> • To emphasize the role of Cell biology, the most developing areas of biological science. • To make aware of different cell organelles, their structure and role in living organisms
	Zoo-HC-2026 Practical	<ul style="list-style-type: none"> • To prepare and study various stages of meiosis cell division • To study the presence of Barrbody in human female.
	Zoo-HC-3016 Theory Diversity of Chordates	<ul style="list-style-type: none"> • To give a thorough knowledge on classification and their characters of Chordates • To give a brief description on Archaeopteryx- a connecting link. • To focus on adaptative radiation of birds and mammals. • To study the distribution of vertebrates in different geographical realms.

3 rd Semester	Zoo-HC-3016 Practical	<ul style="list-style-type: none"> • To know the diversity in chordates and their systematic position by observing museum specimens. • To understand organs through permanent slides • To prepare a power point presentation on any topic related to course
	Zoo-HC-3026 Theory Physiology: Controlling and Coordinating System	<ul style="list-style-type: none"> • To create knowledge regarding internal system of chordates • To impart knowledge about the controlling and coordinating systems of animals • To gain knowledge on signal transduction pathways of hormones
	Zoo-HC-3026 Practical	<ul style="list-style-type: none"> • To acquire knowledge about various tissues by preparing permanent slides • To study various endocrine glands by observing slides
	Zoo-HC-3036 Theory Fundamentals of Biochemistry	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge in biochemistry. • Defining and explaining the basic principles of biochemistry studies for illustrating different their structure, function and metabolism.
	Zoo-HC-3036 Practical	<ul style="list-style-type: none"> • To impart idea on functional group of various biomolecules • To know the action of pH, temperature on salivary amylase • To know the separation technique of amino acid using paper chromatography
4 th Semester	Zoo-HC-4016 Theory Comparative anatomy of Vertebrate	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge in physiology. • Explaining various aspects of physiological activities of animals. Students should be familiar with physiological systems in vertebrate systems.
	Zoo-HC-4016 Practical	<ul style="list-style-type: none"> • Through video recording students will be acquainted with different organs of human body • Demonstration of skeletal systems of different vertebrates
	Zoo-HC-4026 Theory Physiology Life sustaining System	<ul style="list-style-type: none"> • This course will provide a deep knowledge in physiology. • By the end of the course, students should be familiar with physiological systems in chordates.
	Zoo-HC-4026 Practical	<ul style="list-style-type: none"> • Gain knowledge of determination of blood groups. • To create knowledge regarding total count of RBCs and WBCs of chordates. • To gain the knowledge of haemin crystal formation of blood • To make the student observe the histological structure of different organs in vertebrate.

	Zoo-HC-4036 Theory Biochemistry of Metabolic process	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge in biochemistry of metabolic processes. • Defining and explaining the structure, function and metabolism of protein, carbohydrate and lipid students will get knowledge the role of biomolecules in the body.
	Zoo-HC-4036 Practical	<ul style="list-style-type: none"> • The course will make available to understand of detection and estimation of protein by Lowry's method • The course will provide how to perform the acid and alkaline phosphate assay from serum.
5 th Semester	Zoo-HC-5016 Theory Molecular biology	<ul style="list-style-type: none"> • To impart knowledge about the DNA replication in prokaryotes and eukaryotes. • To create knowledge about the salient feature of DNA and RNA • To gain knowledge on gene regulation • To create knowledge about the concept of genetic code • To understand the process of protein synthesis
	Zoo-HC-5016 Practical	<ul style="list-style-type: none"> • To gain knowledge on quantitative estimation of DNA and RNA • To study the polytene chromosomes from Chironomus larva • To estimate growth kinetics of E. coli. By turbidity method
	Zoo-HC-5026 Theory Principles of Genetics	<ul style="list-style-type: none"> • To emphasize the central role of genetics in the life of all organisms • To study the concept of chromosomal mechanisms of sex determination in man and drosophila • To know the various techniques adopted for recombination in bacteria and virus.
	Zoo-HC-5026 Practical	<ul style="list-style-type: none"> • To study human karyotype and pedigree analysis of human inherited traits • To study the Mendelian laws and gene interactions.
	Zoo-HE-5016 Theory Computational Biology and Biostatistics	<ul style="list-style-type: none"> • To inspire the students in learning the scope of bioinformatics • To update and expand basic Biostatistics skills. • To equip with the knowledge of modern developments and recent trends in biological sciences
	Zoo-HE-5016 Practical	<ul style="list-style-type: none"> • To access the biological databases and interpret the output. • To learn graphical representation of statistical data with the help of computer
	Zoo-HE-5046 Theory Parasitology	<ul style="list-style-type: none"> • The course will provide the information about the parasitic Protists, parasitic platyhelminths, parasitic nematodes, parasitic arthropods and parasitic vertebrates.

	Zoo-HE-5046 Practical	<ul style="list-style-type: none"> • Through practical demonstration the students will make aware of life cycle of various parasites and their effect on human and other poultry birds
6 th Semester	Zoo-HC-6016 Theory Developmental Biology	<ul style="list-style-type: none"> • To impart knowledge about historical perspective of cytoplasmic development • To create knowledge about cell- cell interaction • To gain knowledge on implantation of human embryo • To create knowledge about the agents affecting embryonic development • To emphasize the hormonal regulation on development
	Zoo-HC-6016 Practical	<ul style="list-style-type: none"> • To acquire knowledge about various developmental stages of frog and chick embryo through permanent slides and life cycle.
	Zoo-HC-6026 Theory Evolutionary Biology	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge on evolutionary concept • Students will acquire a broad understanding of microevolution and species concept • Gain knowledge of origin and evolution of man and horse and also about the primate phylogeny
	Zoo-HC-6026 Practical	<ul style="list-style-type: none"> • Students will learn homology and analogy of specimens, fossils from models etc. • Through different bioinformatic tools students will learn to construct the phylogenetic trees of a given trait.
	Zoo-HE-6016 Theory Biology of Insect	<ul style="list-style-type: none"> • To learn about the insect taxonomy, morphology and physiology • To Study global environmental problems and its impact on the social insects. • To learn the insects around us as mechanical and biological vectors, the role of chemicals in host plant interaction
	Zoo-HE-6016 practical	<ul style="list-style-type: none"> • To learn about body parts of insect • To learn the methods of collection, preservation and identification of different insects. • To study the insects around us as harmful and beneficial and their products
	Zoo-HE-6046 Theory Wildlife Conservation and management	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge in values of wildlife, their conservation ethics and importance of conservation of wildlife, importance of National Park and Sanctuaries etc. • To study population attributes and relation to their habitat
	Zoo-HE-6046 Practical	<ul style="list-style-type: none"> • The course is designed to make aware about the wild mammalian fauna, avian fauna, herpeto- fauna etc. Students will get interested to know the study of animal evidences in field by observing pugmarks, hoofmarks, nest, antlers etc. They will be given the knowledge of different equipment's needed in wildlife studies.
Generic/Regular Course		

	Zoo-HG/RC-1016 Theory Animal Diversity	<ul style="list-style-type: none"> • To give a thorough knowledge how to classify according to their characters of Non chordates • To give a brief description on life cycle and pathogenicity of Protozoan and Helminth parasites. Importance of evolutionary significance <ul style="list-style-type: none"> • To give a thorough knowledge how to classify according to their characters of Non chordates (Coelomates) • To give a brief understanding on social insects and importance of evolutionary significance of peripatus
	Zoo-HG/RC-1016 Practical	<ul style="list-style-type: none"> • To know the diversity in non-chordates and their systematic position by observing museum specimens. • To study life cycle of different species through slides or photographs
	Zoo-HG/RC-2016 Theory Comparative anatomy and Developmental Biology of Vertebrates	<ul style="list-style-type: none"> • This course will provide students with a deep knowledge in physiology. • Explaining various aspects of physiological activities of animals. Students should be familiar with physiological systems in vertebrate systems. • To impart knowledge about historical perspective of cytoplasmic development • To create knowledge about cell- cell interaction • To gain knowledge on implantation of human embryo • To create knowledge about the agents affecting embryonic development • To emphasize the hormonal regulation on development
	Zoo-HG/RC-2016 Practical	<ul style="list-style-type: none"> • Through video recording students will be acquainted with different organs of human body • Demonstration of skeletal systems of different vertebrates • To acquire knowledge about various developmental stages of frog and chick embryo through permanent slides and life cycle.
	Zoo-HG/RC-3016 Theory Physiology and Biochemistry	<ul style="list-style-type: none"> • To create knowledge regarding internal system of chordates • To impart knowledge about the controlling and coordinating systems of animals • To gain knowledge on signal transduction pathways of hormones • This course will provide students with a deep knowledge in biochemistry. • Defining and explaining the basic principles of biochemistry studies for illustrating different their structure, function and metabolism.
	Zoo-HG/RC-3016 Practical	<ul style="list-style-type: none"> • To acquire knowledge about various tissues by preparing permanent slides • To study various endocrine glands by observing slides • To impart idea on functional group of various biomolecules

		<ul style="list-style-type: none"> • To know the action of pH, temperature on salivary amylase
	Zoo-HG/RC-4016 Theory Genetics and Evolutionary Biology	<ul style="list-style-type: none"> • To emphasize the central role of genetics in the life of all organisms • To study the concept of chromosomal mechanisms of sex determination in man and drosophila • To know the various techniques adopted for recombination in bacteria and virus. • This course will provide students with a deep knowledge on evolutionary concept • Students will acquire a broad understanding of microevolution and species concept • Gain knowledge of origin and evolution of man and horse and also about the primate phylogeny
	Zoo-HG/RC-4016 Practical	<ul style="list-style-type: none"> • To study human karyotype and pedigree analysis of human inherited traits • To study the Mendelian laws and gene interactions • Students will learn homology and analogy of specimens, fossils from models etc. • Through different bioinformatic tools students will learn to construct the phylogenetic trees of a given trait.
	Zoo-RE-5016 Theory Applied Zoology	<p>This course will provide students with a deep knowledge in Parasitic world, host parasite relation and also epidemic disease.</p> <p>Students will know about the insects of economically importance. They will also gain the knowledge on poultry farming, aquaculture and also preservation and insemination in cattle.</p>
	Zoo-RE-5016 Practical	Students will be able to identify different parasitic species, vectors etc. By visiting poultry farm, animal breeding centre, fish culture system they will understand the importance of these in practical life.
	Zoo-RE-6016 Theory Aquatic Biology	The course will provide the information about the aquatic biology of freshwater ecosystem as well as marine biology. Students will learn about the management of aquatic resources, factors affecting their environment, causes of pollution.
	Zoo-RE-6016 Practical	Students will be able to identify the phytoplankton, zooplankton and macrophytes. They will gain knowledge about the use of limnological instruments and their importance in determination of BOD and dissolved oxygen of water bodies.



**Signature of HoD
(Bandana Deka)**