

FYUGP 2023

Semester I

MAJOR 1: Biology of Non-Chordates

Course Objectives:

The course Biology of Non-Chordates designed to know the diversity of non-chordates in the world and to understand the underlying principles of classification of non-chordates. Students will learn to classify invertebrates and to be able to understand the morphological, adaptive and anatomical features of diverse non-chordate groups, their economic and ecological significance and their relationships. The course will create general interest among students about the life of animals without backbone in order to explore and appreciate the diversity of non-chordates in nature and to understand our role as caretaker of life.

Course Outcome:

By studying this course, students will be able to;

- ❖ Understand, classify and identify the diversity of non-chordates.
- ❖ Acquire knowledge of systematic position, habitat and structural organization of non-chordates.
- ❖ Critically analyse the organization, complexity and characteristic features of non-chordates.
- ❖ Understand the economic importance of non-chordates, their interaction with the environment, role in the ecosystem, evolutionary history and their relationships.
- ❖ Appreciate the diversity of non-chordates living in varied habitats.
- ❖ Enhance collaborative learning and communication skills through practical sessions, group discussions, assignments and projects.

SEC 1: Sericulture and Apiculture

Course Objectives:

Sericulture and Apiculture deals with the application of zoological knowledge for the benefit of mankind. It is a specialized branch of zoology which deals with animal world that is associated with the economy, health and welfare of humans. It includes culturing animals for mass production for human use and to control or eradicate animals that are injurious to man directly or indirectly.

Course Outcome:

This course offers students;

- ❖ An understanding of experiential learning on the methodology of sericulture and Apiculture.
- ❖ It will also provide information about economic aspects of culturing animals.
- ❖ It would promote Community and Youth Development.

MINOR 1: Animal Diversity

Course Objectives:

This minor course will help to learn the distinctiveness of the different animal phyla/classes. Allow the students to learn the diagnostic characters of different phyla/class through brief studies of examples. Finally, it will help to understand the evolutionary tree.

Course outcome:

Students are expected to;

- ❖ Gain the basic knowledge on the animal diversity.
- ❖ Gain the knowledge on animal classification.
- ❖ Know the general characteristics, lifecycle pattern of representative animals of some of the non-chordate and chordate animals.
- ❖ Acquire special adaptive feature of some phyla/classes.

Semester II

MAJOR 2: Biology of Chordates

Course Objectives:

The course Biology of Chordates designed to know the diversity of chordates around world and to understand the underlying principles of classification of chordates. The course will help to learn how to classify vertebrates and to be able to understand the morphological, adaptive and anatomical features of diverse chordate groups, their economic, ecological and evolutionary significance and their relationships. The course will create general interest among students about the life of animals in order to explore and appreciate the diversity of chordates in nature and to understand our role as caretaker of life.

Course Outcome:

By studying this course, students will be able to;

- ❖ Understand classify and identify the diversity of chordates.
- ❖ Acquire knowledge of systematic position, habitat and structural organization of chordates.
- ❖ Critically analyse the organization, complexity and characteristic features of chordates.
- ❖ Understand the economic importance of chordates, their interaction with the environment, role in the ecosystem, evolutionary history and their relationships.
- ❖ Appreciate the diversity of chordates living in varied habitats.
- ❖ Enhance collaborative learning and communication skills through practical sessions, group discussions, assignments and projects.

SEC 2: Aquaculture & Fisheries and Poultry Farming

Course Objectives:

Aquaculture & Fisheries and Poultry Farming deals with the application of zoological knowledge for the benefit of mankind. It is a specialized branch of zoology which deals with animal world that is associated with the economy, health and welfare of humans. It includes culturing animals for mass production for human use and to control or eradicate animals that are injurious to man directly or indirectly.

Course Outcome:

This course offers students;

- ❖ An understanding of experiential learning on the methodology of aquaculture, fisheries and poultry farming.
- ❖ About the idea on detailed information regarding aquaculture management with interdisciplinary approaches because the conservation of aquatic resources is essential in the present scenario.
- ❖ It will also provide information about economic aspects of culturing animals.
- ❖ It would promote Community and Youth Development.

MINOR 1: Animal Diversity

Course Objectives:

This minor course will help to learn the distinctiveness of the different animal phyla/classes. Allow the students to learn the diagnostic characters of different phyla/class through brief studies of examples. Finally, it will help to understand the evolutionary tree.

Course outcome:

Students are expected to;

- ❖ Gain the basic knowledge on the animal diversity.
- ❖ Gain the knowledge on animal classification.
- ❖ Know the general characteristics, lifecycle pattern of representative animals of some of the non-chordate and chordate animals.
- ❖ Acquire special adaptive feature of some phyla/classes.

MDC: Conservation Biology

Course Objectives:

The objective of the curriculum is to ensure students get acquainted with the diverse elementary concepts associated with the conservation of living resources on earth alongside they get an exposure to the relevance, necessity and significance of Conservation Biology in the perspectives of the today's world. All these aspects are addressed within the scope of the standard of the course prescribed.

Course outcome:

Students are expected to;

- ❖ Be conversant with the of biological resources on earth.
- ❖ Be aware of the importance of the living resources the human civilization dwelling with.
- ❖ Be encouraged to get associated with the conservation activities at various levels.
- ❖ Be positive to take up courses on Conservation Biology at higher levels.
- ❖ Be capable of thinking on or innovating methodologies of conservation, efficiently volunteer in various conservation projects.

Semester III

MAJOR 3: Cell Biology

Course Objectives:

This course will help to learn the students to the basic concepts and processes in cyto-biology. It will enable the student to understand the structure and function of cell membrane and cell organelles, the inner skeleton, how they communicate with each other and how division and regulation takes place in cells. The course will help to understand how cells get external signals and respond to it. The practical content of this course is designed to measure the cell and to understand the stages of cell division.

Course outcome:

Students are expected to;

- ❖ Understand the cell and its biology which will help them to get an insight into the cellular structure, various components of cells and functions.
- ❖ Understand the chemical composition, physicochemical and functional organization of the membrane and organelles.
- ❖ Acquire knowledge about how cells divide by means of meiosis and mitosis and will be able to correlate different factors which control cell cycle progression.
- ❖ To understand how cells get external signals and respond to it.
- ❖ Be capable of measuring the cell, prepare the cell for observation and observe the chromosome during division of the cell.

MAJOR 4: Biochemistry-Fundamentals

Course Objectives:

The course provides an introduction to biochemistry and appreciation for the chemical basis of biological processes, in-depth understanding of the chemical structure of carbohydrates, proteins, lipids, nucleic acids and enzymes. The practical content of this course is designed to qualitatively identify the major biomolecules in the sample and to separate the biomolecules from the mixture.

Course outcome:

Students are expected to;

- ❖ Understand the important groups and bonds involved in biomolecules
- ❖ Understand the basic structure of the building block of the major biomolecules
- ❖ Understand the structure of the polymer made of monomeric building blocks
- ❖ Acquire knowledge about the enzyme
- ❖ Be capable of identifying the major biomolecules in the sample and to separate the micro- and macromolecules from the mixture.

MAJOR 5: Ecology

Course Objectives:

Ecology is the study of organisms, the environment, and the interactions between the organisms and their surroundings. Numerous levels, including organism, population, community, biosphere, and ecosystem are researched. Understanding the distribution of biotic and abiotic elements, as well as how they interact and relate to one another and the environment, is the major goal of ecology. It also looks at how living things may use the environment and its resources effectively today so that future generations can benefit from them as well. The preservation of clean air and water, the production of food, and the maintenance of biodiversity in a changing climate all depend on it. It is crucial for resource allocation, environmental conservation, and pollution reduction.

Course outcome:

This course offers students

- ❖ The knowledge to conserve and protect nature and prevent the extinction of species,
- ❖ An idea how all species fit together, what are their habitat requirements, how they influence each other, and what population size ensures their survival, etc.
- ❖ The awareness about environmental problems
- ❖ Imparting basic knowledge about the environment and its allied problems.
- ❖ Developing an attitude of concern for the environment.

SEC 3: Pest Management and Medical Diagnostics

Course Objectives:

The overall objective of this course is to provide student with applied knowledge of zoology. The course will develop a basic understanding of pest management system and medical diagnostic by introducing theoretical and practical knowledge of commonly used tools and techniques in these fields. Course will provide impetus among students to look for becoming zoology based entrepreneur as their career choice instead of traditional job search.

Course outcome:

This course offers students

- ❖ Acquire knowledge in various pest types and their management.
- ❖ Acquaint knowledge about the different tools and techniques used in these fields.
- ❖ Gain knowledge about medical diagnosis and various aspects of it.
- ❖ Students can start their own business i.e. self-employments.
- ❖ Get employment in different applied sectors.

MINOR 2: Cell Biology and Genetics

Course Objectives:

This minor course will help to learn the students to the basic concepts and processes in cytobiology and genetics. It will capable the student to understand the structure and function of cell organelles, how they communicate with each other and how division and regulation takes place in cells. The course will help to understand how cell get external signals and respond to it. The practical content of this course is designed to understand the stages of cell division. It will also capable the student to understand the principle of heredity, mutation of the genetic material and the mechanism of the sex determination.

Course outcome:

Students are expected to;

- ❖ Understand the cell and its biology which will help them to get an insight into the cellular structure, various components of cells and functions.
- ❖ Understand the chemical composition, physicochemical and functional organization of organelle.
- ❖ Acquire knowledge about how cells divide by means of meiosis and mitosis and will be able to correlate different factors which control cell cycle progression.
- ❖ To understand how cell, get external signal and respond to it.
- ❖ To understand the principles of heredity through chromosomal and extra chromosomal factors
- ❖ To understand the change in gene as well as the chromosome
- ❖ To understand the mechanism of sex determination
- ❖ Be capable to prepare the cell for observation and prepare the cell to observe the chromosome during division of the cell.
- ❖ Be capable to identify the genetic disease by observing the chromosomal change