

B.Sc. (BIOLOGY)

UGBY-01

Plant Diversity-I

Block-01

A

Diversity of Plants and Related Organisms

Unit-01 Plants and Related Organisms and their Classification

Unit-02 Introduction of Cyanobacteria, Fungi, Algae and Lower Plants

B

Comparative Morphology and Cell Structure in Algae

Unit-03 Reproduction in Algae

Unit-04 Classification of Algae

Unit-05 Algae Habitats and Distributions

Unit-06 Algae and Human Welfare

Block-II Fungi

Unit-07 Fungal Habitats and Morphology

Unit-08 Comparative Account of Reproduction in Fungi

Unit-09 Role of Fungi in Human Welfare

Unit-10 Lichens

Block-III Bryophytes

Unit-11 Morphology and Anatomy of Bryophytes

Unit-12 Reproduction and Evolutionary Trends in Bryophytes

Unit-13 Importance and used of Bryophytes

Block-IV Pteridophytes

Unit-14 Comparative Morphology and Anatomy

Unit-15 Comparative Study of Reproduction in Pteridophytes

Unit-16 Lower Plants

UGBY-02
Plant Diversity-II

Block-01	Gymnosperms
Unit-01	Introduction of Gymnosperms
Unit-02	Cycadopsida: Cycas
Unit-03	Coniteropsida: Pinus
Unit-04	Gnetopsida: Ephedra and Gnetem
Unit-05	Economic Importance of Gymnosperms

Block-II	Flowering Plants
Unit-06	Introduction to Angiosperms
Unit-07	Tissues
Unit-08	Root, Stem and Leaf
Unit-09	Flowers, Fruits and Seeds Pollination Biology

Block-III

A	Economic Botany
Unit-10	Cereals and Millets
Unit-11	Legumes (Pulses)
Unit-12	Fruits and Nuts
Unit-13	Vegetables
Unit-14	Plants Oils and Fats
Unit-15	Sugar and Starches
B	Spices
Unit-16	Beverages
Unit-17	Medicinal and Aromatic Plants
Unit-18	Wood, Fibre and Related Products

Block-IV Families of Angiosperms

Unit-19	Picot Families-I- Introduction, Objectives, Ranunculaceae, Fabaceae, Myrtaceae Apiaceae
Unit-20	Picot Families-II- Introduction, Objectives, Rubiaceae, Asteraceae, Saoiticeae, Assclepiadaceae, Solanaceal,
Unit-21	Acanthaceae, Lamiaceae, Amaranthaceae, Santalaceae, Euphorbiaceae Musaceae, Monocot Families- Introduction, Objectives, Liliaceae, Arecaseae, Poaceae
Unit-22	Some Unusual Plants- Introduction, Objectives, Carnivorous Plants with Unusual modes of Nutrition, Saprophytic Plants, Parasitic Plants, Plant Curios, Seed and Fruits, Special Monocots

UGBY-03
Plant Diversity Lab

Block-01 Practical Based On

Unit-01 Cyanobacteria
Unit-02 Algae
Unit-03 Fungi
Unit-04 Lower Plants

Block-02

A Practical Based On

Unit-05 Higher Plants
Unit-06 Gymnosperm
Unit-07 Anatomy

B Practical Based On

Unit-08 Higher Plants Economic Botany

C

Unit-09 Higher Plants Taxonomy and Economic Botany

D

Unit-10 Jay and Glossary- An Identification key, Glossary of Taxonomic Terms

UGBY-05 (Cell Biology)

Block-01 Introduction to Cell Biology

Unit-01 Introduction to the cell
Unit-02 Functional to the cell
Unit-03 Molecules of the cell
Unit-04 Macromolecules of the cell

Block-02 Cell membranes and Enzymes

Unit-05 Supra-molecular Structures and Cell Membranes
Unit-06 Membrane Transport Processes
Unit-07 Transport Molecules and Proton Pumps
Unit-08 Enzymes: Specificity and Mechanism of Action
Unit-09 Enzymes: Regulation and Control

Block-III Metabolism and Communication in Cells

Unit-10 Energy Releasing Pathways
Unit-11 Biosynthesis
Unit-12 Nucleus: Structure and Function
Unit-13 Protein Biosynthesis
Unit-14 Chemical Signaling Between Cells

Block-IV Cell Division, Cell movement & Differentiated Cell Types

Unit-15 Cell Cycle and Mitosis
Unit-16 Meiosis and Cell Division
Unit-17 Cell Adhesion, Cell Movement and Extracellular Matrix
Unit-18 Differentiated Animal Cell Types
Unit-19 Differentiated Plant Cell Types

UGBY-06 Plant Ecology

Block-01 Environment and its Components

- Unit-01 Ecology and Ecosystem
- Unit-02 Environmental Components: Light, Temperature and Atmosphere
- Unit-03 Environmental Components: Water
- Unit-04 Environmental Components: Soil

Block-II Ecosystem: Functioning Types

- Unit-05 Nutrient Cycling
- Unit-06 Types of Ecosystems: Terrestrial Ecosystems
- Unit-07 Types of Ecosystems: Aquatic Ecosystems

Block-III Community Ecology

- Unit-08 Nature and Structure of Community
- Unit-09 Community Change
- Unit-10 Community Organization and Interaction among Organisms
- Unit-11 Population Parameters and Regulation

Block-IV Humans and Ecology

- Unit-12 An Overview of human Evaluation and Human Population
- Unit-13 Ecosystem Degradation and the wildlife
- Unit-14 Environmental Pollution: Causes, Consequences and Control

UGBY-07 (Genetics)

Block-01 Heredity and Phenotypes

- Unit-01 Mendel's Law of Inheritance
- Unit-02 Extensions and Modifications of Medallion
- Unit-03 Sex Determination
- Unit-04 Six Linkage and Dosage Compensation
- Unit-05 Developmental Basis of Sex
- Unit-06 linkage Crossing over and Chromosome Mapping

Block-II The Physical Basis of Heredity

- Unit-07 Extra Nuclear inheritance
- Unit-08 Human Chromosomes
- Unit-09 Structural Abnormalities in Chromosomes and their Effect
- Unit-10 Numerical Abnormalities in Chromosomes and their Effect
- Unit-11 Genetics of Bacteria and bacteriophages

Block-III Gene Structure and Function

- Unit-12 Gene fine Structure
- Unit-13 Regulation of Gene Expression in Prokaryote
- Unit-14 Regulation of Gene Expression and Development in Eukaryotes
- Unit-15 Mutations and Mutagenesis
- Unit-16 Carcinogenesis and Teratogenesis
- Unit-17 Immune genetics

Block-IV Population and Applied Genetics

- Unit-18 Genetics of Blood
- Unit-19 Quantitative Traits and Genetics in Twins
- Unit-20 Behavioral Genetics
- Unit-21 Genetics and Human Welfare
- Unit-22 Genetics in Agriculture and Plant Improvement

UGBY-08 (Plant Physiology)

Block-01	Animal Physiology-I
Unit-01	Nutrition Feeding Digestion
Unit-02	Respiration
Unit-03	Circulation
Unit-04	Excretion
Unit-05	Osmotic and Ionic Regulation
Block-II	Animal Physiology-II
Unit-06	Movements
Unit-07	Temperature Relations in Animals
Unit-08	Reproduction
Unit-09	Communication I & II
Block-III	Plant Physiology
Unit-10	Plant Water Relations
Unit-11	Mineral Nutrition
Unit-12	Photosynthesis
Unit-13	Transport in the Phloem
Block-IV	Plant Physiology-II
Unit-14	Inorganic Nitrogen and Sulphur Metabolism
Unit-15	Plant Hormones
Unit-16	Development and Differentiation
Unit-17	Responses of Plant of Stress

UGBY-09 (Development Biology)

Block-01	Plant Development-I
Unit-01	Anther and Ovule
Unit-02	Gametogenesis
Unit-03	Pollination and Fertilization
Unit-04	Endosperm
Unit-05	Embryogenesis
Unit-06	Seed and Fruit
Block-II	Plant Development-II
Unit-07	Root and Shoot Morphogenesis
Unit-08	Effect of Plant Growth Regulators on Development
Unit-09	Apical Dominance
Unit-10	Secondary Growth
Unit-11	Plant Tissue and Organ Culture
Unit-12	Current Trends in Developmental Studies
Block-III	Animal Development-I
Unit-13	Beginning of a New Organism
Unit-14	Cleavage and Gastrulation
Unit-15	Morphogenesis and Tissue Organization
Unit-16	Mechanisms of Cell Interaction
Unit-17	Organogenesis of Eye and Limb
Block-IV	Animal Development-II
Unit-18	Metamorphosis
Unit-19	Regeneration
Unit-20	Growth, Aging, Cancer
Unit-21	Human Development

UGBY-10

Taxonomy and Evolution

Block-01 History and Concept of Taxonomy

- Unit-01 Taxonomy Concepts and Their Development
Unit-02 System of Classification: Plants
Unit-03 System of Classification: Animals
Unit-04 Binomial Nomenclature

Block-II Tools and Trends in Taxonomy

- Unit-05 Tools of a Taxo Monist I & II
Unit-06 Modern Trends in Plant Taxonomy
Unit-07 Modern Trends in Animal Taxonomy

Block-III Evolution -I

- Unit-08 Concept of Organic Evolution
Unit-09 Evidence for Evolution
Unit-10 The process of Evolutionary Change

Block-IV Evolution -II

- Unit-11 Natural Selection in Action
Unit-12 Speciation
Unit-13 Human Evolution – I&II

UGBY-11(N)/UGSTAT-01(O) *Statistical Methods*

BLOCK – I . Data Collection and Its Representation

Unit-I- Data Collection and Tabulation :

Meanings, Definitions and Applications of Statistics, Measurements and Scale, Measurements of qualitative data, Methods of data collection, Types of data.

Unit-II- Representation of Data- I (Diagrammatical representation):

Frequency distribution, Tabulation of data, Diagrammatical Representation of data, Bar diagram, Multiple bar diagram, Divided bar diagram, Percentage bar diagram, Pie chart, Pictogram, leaf chart,

Unit-II- Representation of Data- I (Graphical representation):

Graphical representation of frequency distribution, Histogram, Frequency polygon, Frequency curve, Ogive.

BLOCK – II . Measures of Central Tendency and Dispersion

Unit-I- Measures of Central Tendency :

Types of measures of central tendency, Arithmetic mean, Fundamental Theorems on Arithmetic mean, Geometric mean, Harmonic mean, Median, Mode, Percentiles, Deciles, and Quartiles.

Unit-II- Measures of Dispersion :

Types of measures of Dispersion, Range, Mean Deviation, Variance and Standard deviation, Effect of change of origin and scale, Relationship between measures of central tendency and measures of dispersion, Coefficient of variation.

BLOCK – II . Moments, Skewness and Kurtosis

Unit-I- Moments, Raw Moments and Central Moments :

Definition of moments, raw moments for ungrouped data, raw moments for grouped data, Central moments, Factorial moments, Interrelationship between various moments, effect of change of origin and scale on moments, Charlier's checks, Sheppard's correction for moments.

Unit-II- Skewness and Kurtosis : Definition of skewness, Measures of skewness, Pearson's coefficient, Bowley's coefficients, Kurtosis, Measures of Kurtosis, effect of change of origin and scale.

UGBY-11(O)

Biochemistry

Block-01 Biomolecules-I

Unit-01 Cell Structure and Function
Unit-02 Carbohydrates
Unit-03 Lipids
Unit-04 Nucleic Acids

Block-II Biomolecules-II

Unit-05 Proteins
Unit-06 Enzymes
Unit-07 Vitamins Coenzymes and Miwrals

Block-III Bioenergetics and Metabolism

Unit-08 Bioenergetics
Unit-09 Metabolism-I & II
Unit-10 Photosynthesis

Block-IV Gene Expression

Unit-11 Replication and Transcription
Unit-12 Protein Biosynthesis
Unit-13 Biotechnology
Unit-14 Immunology

UGBY-12(O) Mathematical Methods

Block-I Algebra and Geometry

Unit-01 Sets and Functions
Unit-02 Graphs and Functions
Unit-03 Elementary Algebra
Unit-04 Coordinate Geometry
Unit-05 Vectors

Block-II Calculus

Unit-06 Differential Calculus
Unit-07 Applications of Differential Calculus
Unit-08 The Integration
Unit-09 Integration of Elementary Functions
Unit-10 Differential Equations

Block-III Probability Distribution

Unit-11 Statistics
Unit-12 Probability
Unit-13 Discrete Probability Distribution
Unit-14 Continuous Probability Distribution

Block-IV Statistical Inference

Unit-15 Sampling (Statistical data Sampling)
Unit-16 Hypothesis Tests
Unit-17 Correlation and Regression

UGBY (L)-I Laboratory Work-I

UGBY (L)-II Laboratory Work-II