



গড়গাঁও মহাবিদ্যালয়
GARGAON COLLEGE
NAAC accredited with 'B' Grade



Course Distribution
Department of Botany
2020-21

DEPARTMENT OF BOTANY, GARGAON COLLEGE

Course Distribution

Name of the Teacher: Mrs. Joya Saikia Goswami ; Designation: Associate Professor; Session: AUG - DEC 2020

Sl. No.	Semester	Subject	Stream	Paper Code	Unit
1	I	Microbiology and Phycology	HONS	C 1	Unit 4: Algae Unit 5: Cyanophyta, Chlorophyta, Xanthophyta and Charophyta Unit 6: Phaeophyta and Rhodophyta
		Biomolecules and Cell Biology	HONS	C 2	Unit 1: Biomolecules Unit 2: Bioenergetics Unit 3: Enzymes
		Biodiversity (Microbes, Algae, Fungi, Lichen and Archegoniate)	HONS	GE 1	Unit 5: Introduction to Archegoniate Unit 6: Bryophytes Unit 7: Pteridophytes Unit 8: Gymnosperms
2	III	Anatomy of Angiosperms	HONS	C 5	Unit 1: Introduction and scope of Plant Anatomy Unit 2: Structure and Development of Plant Body . Unit 3: Tissues Unit 4: Apical meristems secondary growth in root and stem.Sapwood and heartwood; Ring and diffuse porous wood; Early and late wood, Dendrochronology. Development and composition of periderm, rhytidome and lenticels. Unit 5: Adaptive and Protective Systems anatomical adaptations of xerophytes , hydrophytes and epiphytes.

		Economic Botany	HONS	C 6	<p>Unit 1: Origin of Cultivated Plants Concept of Centres of Origin, their importance with reference to Vavilov’s work. Indigenous Knowledge System (IKS). Examples of major plant introductions; Crop domestication and loss of genetic diversity; evolution of new crops/varieties, importance of germplasm diversity.</p> <p>Unit 2: Cereals: Wheat and Rice (origin, morphology, processing & uses)</p> <p>Unit 3: Legumes: Origin, morphology and uses of Chick pea, Pigeon pea and fodder legumes. Importance to man and ecosystem.</p> <p>Unit 4: Sources of sugars and starches: Morphology and processing of sugarcane, products and by-products of sugarcane industry. Potato – morphology, propagation & uses.</p> <p>Unit 5: Spices: Listing of important spices, their family and part used. Economic importance with special reference to fennel, saffron, clove, cinnamommum, cardamom and black pepper</p> <p>Unit 6: Beverages: Tea, Coffee (morphology, processing & uses)</p>
		Plant Ecology and Taxonomy	GENERIC	GE 3	<p>Unit 1: Introduction</p> <p>Unit 2: Ecological factors Soil: Origin, formation, composition, soil profile. Water: States of water in the environment, precipitation types. Light and temperature: Variation Optimal and limiting factors; Shelford law of tolerance. Adaptation of hydrophytes and xerophytes</p> <p>Unit 3: Plant communities Characters; Ecotone and edge effect; Succession; Processes and types</p> <p>Unit 4: Ecosystem</p> <p>Unit 5: Phytogeography</p>
		Basics of Vermicomposting	HONS	SEC 1.1	<p>Unit 1: Introduction to vermiculture</p> <p>Unit 2: The species of earthworms</p> <p>Unit 3: Biology of earthworms</p>

3	V	Development and Reproduction in Angiosperm	MAJOR	501	<p>Development in Angiosperm Unit–1: Organisation of tissues: Types of tissues, Meristematic and permanent, their types, structures, distribution and functions; theories of differentiation of roots and shoots. Unit –2: Stellar Body – origin and development, Root – stem transition, leaf traces and leaf gaps, branch gaps, abscission layer. Unit –3: Secondary structures of roots and stems, initiation of cambium and its activities. 4 class hours Unit–4: Anomalous secondary growth in thickness (<i>Amaranthus</i>, <i>Asparagms</i>, <i>Boerharia</i> and <i>Mirabilis</i>). Unit–5:Anatomico–physiological consideration of dermal, mechanical, conducting and photosynthetic system of tissues; anatomy of C3 and C4 plants.</p>
			MAJOR		<p>Reproduction in Angiosperm Unit –1: A general account of the following topics: Development of male and female gametophyte of angiosperms; monosporic, bisporic & tetrasporic embryosac. Unit –2: Fertilization, development of embryo; Apomixis, polyembryony, Palynology. Unit –3: Development of Endosperm – nuclear, cellular, helobial; haustorial structures.</p>



Head
Department of Botany
Gargaon College, Simaluguri
Dist. Sivasagar, Pin 785686, Assam

DEPARTMENT OF BOTANY, GARGAON COLLEGE

Course Distribution

Name of the Teacher: Dr. Dimbeshwar Das; Designation: Assistant Professor; Session: AUG - DEC 2020

Sl. No.	Semester	Subject	Stream	Paper Code	Unit
1	I	Microbiology and Phycology	HONS	C 1	Unit 1: Introduction to microbial world Unit 2: Bacteria Unit 3: Viruses
		Biomolecules and Cell Biology	HONS	C 2	Unit4: The cell, Cell wall and plasma membrane Unit 5: Cell organelles Unit 6: Cell division
		Biodiversity (Microbes, Algae, Fungi, Lichen and Archegoniate)	HONS	GE 1	Unit 1: Microbes Unit 2: Algae Unit 3: Fungi Unit 4: Lichen
2	III	Economic Botany	HONS	C 6	Unit 7: Sources of oils and fats, General description, classification, extraction, their uses and health implications groundnut, coconut, linseed, soybean, mustard and coconut (Botanical name, family & uses). Essential Oils: General account, extraction methods, comparison with fatty oils & their uses. Unit 8: Natural Rubber, Para-rubber: tapping, processing and uses. Unit 9: Drug-yielding plants, Therapeutic and habit-forming drugs with special reference to <i>Cinchona</i> , <i>Rawolfia</i> , <i>Andrographis</i> , <i>Aloe vera</i> and <i>Phyllanthus</i> (Morphology, processing, uses and health hazards). Unit 10: Timber plants, General account with special reference to teak, sal, pine & sisu. Unit 11: Fibers Classification based on the origin of fibers; Cotton, Coir and Jute (morphology, extraction and uses). Unit 12: Aromatics and Petrocrops, General account with special reference to <i>Aquilaria</i> , <i>Cymbopogon</i> , <i>Vetiveria</i> , <i>Pogostemon</i> , <i>Jatropha</i> and <i>Ricinus</i> .

		Genetics	HONS	C 7	<p>Unit 1: Mendelian genetics and its extension</p> <p>Unit 2: Extrachromosomal Inheritance</p> <p>Unit 3: Linkage, crossing over and chromosome mapping Sex Linked, sex-limited and sex-influence traits</p> <p>Unit 4: Variation in chromosome number and structure</p> <p>Unit 5: Fine structure of gene</p> <p>Unit 6: Gene mutations.</p> <p>Unit 7. Population and Evolutionary Genetics</p>
		Plant Ecology and Taxonomy	GENERIC	GE 3	<p>Unit 6: Introduction to plant taxonomy</p> <p>Unit 7: Identification, Functions of Herbarium, important herbaria and botanical gardens of the world and India; Documentation: Flora, Keys: single access and multi-access</p> <p>Unit 8: Taxonomic evidences from palynology, cytology, phytochemistry and molecular data.</p> <p>Unit 9: Taxonomic hierarchy</p> <p>Unit 10 Botanical nomenclature</p> <p>Unit 11 Classification, Types of classification-artificial, natural and phylogenetic. Bentham and Hooker (upto series), Engler and Prantl (upto series).</p> <p>Unit 12 Biometrics, numerical taxonomy and cladistics , Characters; variations; OTUs, character weighting and coding; cluster analysis; phenograms, cladograms (definitions and differences).</p>

3	V	Genetics & Plant Breeding, Biostatistics	MAJOR	503	<p>Genetics Unit – 1: Mendel’s Laws, their critical appreciation, gene interactions and modified monohybrid and dihybrid ratios; concept of alleles, multiple alleles and multiple genes, Linkage, Crossing Over and basic knowledge of Gene Mapping. Unit – 2: Determination of Sex, Sex Linked and Sex Limited Traits, Cytoplasmic Inheritance with reference to Plastid Inheritance and Kappa Particle Inheritance. Unit – 3: Chromosomal (numerical and structural) and Gene Mutation, concept of Biochemical Mutation. Unit – 4: Basic ideas of Gene and its fine structure, Genetic Engineering and Gene Cloning, Concept Trans Gene. Unit – 5: Human Genetics: Karyotype, impatant Syndromes and disorders</p> <p>Plant Breeding Unit – 1: Methods of reproduction: Sexual, Vegetative, apomixes; Principles and methods of Plant Breeding: Introduction, Selection, Hybridization, Heterosis Breeding and concept of Mutation Breeding. Unit – 2: In vitro Culture: Requirements, techniques and application in Crop Improvement.</p> <p>Biostatistics Unit –1: Application of statistics in Biological Science, collection and classification of data for frequency distribution. Unit –2: Measurement of Central Tendency; Mean, Media , Mode, Standard Error and Standard Deviation. Unit –3: Test of Significance, Probability Test.</p>
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DEPARTMENT OF BOTANY, GARGAON COLLEGE

Course Distribution

Name of the Teacher: Mrs. Sangeeta Chetia ; Designation: Associate Professor; Session: JAN - JUNE 2021

Sl. No.	Semester	Subject	Stream	Paper Code	Unit
1	II	Mycology and Phytopathology	HONS	C 3	Unit 2: Basidiomycota, General characteristics; Ecology; Life cycle and Classification with reference to black stem rust on wheat Puccinia (Physiological Specialization), loose and covered smut (symptoms only), Agaricus; Bioluminescence, Fairy Rings and Mushroom Cultivation. Unit 3: Allied Fungi and Oomycota General characteristics; Status of Slime molds, Classification; Occurrence; Types of plasmodia; Types of fruiting bodies. General characteristics; Ecology; Life cycle and classification with reference to <i>Phytophthora, Albugo</i> .
		Archegoniate	HONS	C 4	Unit 4: Type Studies- Pteridophytes Classification (up to family), morphology, anatomy and reproduction of <i>Psilotum, Selaginella, Equisetum and Ophioglossium, Marselia</i> . Apogamy and apospory, heterospory and seed habit, telome theory, stellar evolution; Ecological and economic importance.
		Plant Ecology and Taxonomy	GENERIC	GE 2	Unit 4: Ecosystem Unit 5: Phytogeography
2	IV	Plant Ecology and Phytogeography	HONS	C 9	Unit 5: Plant Communities Unit 6: Ecosystem: Structure and Function Unit 7: Phytogeography
		Plant Physiology and Metabolism	GENERIC	GE 4	Unit 6: Enzymes Unit 7: Nitrogen metabolism Unit 8: Plant growth regulators Unit 9: Plant response to light and temperature
3	VI	Agrotechnology and Sustainable Utilization of Plants	MAJOR	606	Unit -1: Origin of cultivated plants, ethnobotany and its importance in Indian context, Knowledge on Indigenous Knowledge System (IKS)
					Unit – 2: Agrotechnology of rice, wheat, mustard, sunflower, sesame, groundnut, soyabean, gram, mung, pea, tea, coffee, potato, cabbage, cauliflower, tomato and their economic utilization
					Unit – 5: Aromatic and Petrocrops (Cultivation and economic utilization) of patchouli, citronella, vitivar, sasi, jatropa, era.

DEPARTMENT OF BOTANY, GARGAON COLLEGE

Course Distribution

Name of the Teacher: Dr. Dimbeshwar Das; Designation: Assistant Professor; Session: JAN - JUNE 2021

Sl. No.	Semester	Subject	Stream	Paper Code	Unit
1	II	Mycology and Phytopathology	HONS	C 3	Unit 6: Phytopathology
		Archegoniate	HONS	C 4	Unit 1: Introduction, Unifying features of archegoniates; Transition to land habit; Alternation of generations. Unit 2: Bryophytes, General characteristics; Adaptations to land habit; Classification; Range of thallus organization. Unit 3: Type Studies- Bryophytes Unit 6: Fossil plants, Process of fossilization; Early land plants (<i>Psilophyton and Rhynia</i>), <i>Cycadeoidea, Sphenophyllum</i>
		Plant Ecology and Taxonomy	GE	GE 2	Unit 6: Introduction to plant taxonomy Unit 7: Identification, Functions of Herbarium, important herbaria and botanical gardens of the world and India; Documentation: Flora, Keys: single access and multi-access Unit 8: Taxonomic evidences from palynology, cytology, phytochemistry and molecular data. Unit 9: Taxonomic hierarchy, Ranks, categories and taxonomic groups Unit 10 Botanical nomenclature Unit 11 Classification, Types of classification-artificial, natural and phylogenetic. Bentham and Hooker (upto series), Engler and Prantl (upto series). Unit 12 Biometrics, numerical taxonomy and cladistics, Characters; variations; OTUs, character weighting and coding; cluster analysis; phenograms, cladograms (definitions and differences).
2	IV	Molecular Biology	HONS	C 8	Unit 1: Nucleic Acids: Carriers of genetic information Unit 2: The structure of DNA and RNA Unit 3: The replication of DNA Unit 4: Central dogma and genetic code
		Plant Systematics	HONS	C 10	Unit 1: Significance of Plant systematics Unit 2: Taxonomic hierarchy Unit 3: Morphology and Botanical nomenclature Unit 4: Systems of classification Unit 5: Biometrics, numerical taxonomy and cladistics Unit 6: Phylogeny of Angiosperms Unit 7: Major families of Angiosperms
		Vermicompost Technology	HONS	SEC 1.2	Unit 1: Small scale Vermicomposting Unit 2: Nutritional composition of vermicompost Unit 3: Identification of Earthworms, Preparation, packaging of vermicompost
3	VI	Molecular Biology and Immunology	MAJOR	603	Molecular Biology Unit 1: Nucleic Acids
					Unit-2: Replication of DNA
					Unit-3: Features of genetic code
					Unit-4: Recombination in Prokaryotes
					Unit-3: Features of genetic code

					Immunology Unit –1: Plant health management Unit –2: Immunity & resistant in mammals, principle of antigens and Antibodies reaction Unit–3: Interaction of plants with bacteria, virus and fungi
		Biophysics and Bioinformatics	MAJOR	604	Biophysics Unit –1: Scope and development of Biophysics Unit –2: Laws of Thermodynamics Unit–3: X-ray Crystallography (XRD), Chromatography, LASER and its biological applications, Fluorescence and its application, Basic concept of NMR and Ultra Sound Unit –3: Isotopes Bioinformatics Unit-1: Fundamentals of bioinformatics Unit-2: Biological database Unit-3. Database search and sequence alignment Unit-4: Phylogenetic analysis
		Agrotechnology and Sustainable Utilization of Plants	MAJOR	606	Unit – 3: Agrotechnology of Chilli, turmeric, zinger, cardamom, black piper, jute, cotton, ramie, bamboo, teak, sal, sisoo, ajar, nahar and their economic utilization. Unit – 4: Medicinal importance of sarpagandha, ashwagandha, kalmegh, satmul, bos, giloi (<i>Tinospora</i>), bhot jalakia, amlakhi, arjun, silikha and their economic utilization Unit – 6: Domestication of Plants; Germplasm Collection & Conservation, Importance of Germplasm of Wild Species: Gene Library, Gene Bank; Concept of , Biofertilizers, biopesticides and Organic farming; Useful aspect of Lower Group of Plants: Algae, Fungi, Lichen.

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