



গড়গাঁও মহাবিদ্যালয় GARGAON COLLEGE

TEACHING PLAN
DEPARTMENT OF ZOOLOGY
JULY 2019 - JUNE 2020

GARGAON COLLEGE

TEACHING PLAN

Course: B. Sc.

Session: Odd semester 2019

Name of the Teacher: Dr. Rina Handique

Methods to be applied: Lecture and presentation method along with interaction and discussion.


Teaching Materials: Green & White Board, Chalk Pencil, Marker, Duster, Books, Journal, Newspaper, Magazine, Periodicals, Laptop, Projector.

1st Semester (CBCS)	
Course Code: ZC101T	
CORE COURSE I: NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES	
Allotted Unit No	1
Unit Name	Unit 1: Protista, Parazoa and Metazoa
No. of Class required	19
Detail of the topics to be taught (Classes required)	General characteristics and Classification up to Classes, Structural organization & nutrition of Euglena, Amoeba and Paramecium, Life cycle and pathogenicity of Plasmodium vivax Locomotion and Reproduction in Animal protista (Protozoa) Evolution of symmetry and segmentation of Metazoa
Allotted Unit No	2
No. of Tutorials	1
Unit Name	Unit 2: Porifera
No. of class required	7
Detail of the topics to be taught (Classes required)	General characteristics and Classification up to classes, Canal system and spicules in sponges
No. of Tutorials	1
Unit Name	Unit 5: Platyhelminthes
No. of Class required	12
Detail of the topics to be taught (Classes required)	General characteristics and Classification up to classes, Life cycle and pathogenicity of <i>Fasciola hepatica</i> and <i>Taenia solium</i>
No. of Tutorials	1
Unit Name	Unit 6: Nematelminthes
No. of class required	4
Detail of the topics to be taught (Classes required)	General characteristics and Classification up to classes, Life cycle, and pathogenicity of <i>Ascaris lumbricoides</i> and <i>Wuchereria bancrofti</i> , Parasitic adaptations in helminthes.
No. of Tutorials	1
Course Code: ZC102T	
CORE COURSE II: PRINCIPLES OF ECOLOGY	
Allotted Unit No	1
Unit Name	Unit 1: Introduction to Ecology
No. of class required	6
Detail of the topics to be taught (Classes required)	History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of abiotic factors
No. of Tutorials	1
Allotted Unit No	3
Unit Name	Unit 3: Community
No. of lass required	12
Detail of the topics to be taught (Classes required)	Community characteristics: species richness, dominance, diversity, abundance, vertical stratification, Ecotone and edge effect; Ecological succession with hydrosere Theories pertaining to climax community
No. of Tutorials	1
3rd Semester (Non-CBCS)	

ZOOMT- 301: CHORDATE DIVERSITY AND COMPARATIVE ANATOMY	
Allotted Unit No	2
Unit Name	Unit 2
No. of Class required	8
Detail of the topics to be taught (Classes required)	Distinctive characters of Petromyzontia, Chondrichthyes & Dipnoi; Classification of Osteichthyes upto orders with examples; Ammocoete larva and its importance in evolution; structures of gills, accessory/respiratory organs and swim bladders of fish; sense organs; locomotion, migration and parental care in fish.
No. of Tutorials	2
Allotted Unit No.	3
Unit Name	Unit 3
No. of Class required	8
Detail of the topics to be taught (Classes required)	Distinctive characters and classification of Amphibia upto orders with examples; parental care, metamorphosis and neoteny in amphibia; distinctive characters and classification of Reptilia upto orders with examples; anatomical peculiarities and affinities of <i>Sphenodon</i> ; poisonous snakes of India; biting mechanisms of poisonous snakes.
No. of Tutorials	1
Allotted Unit No.	5
Unit Name	Unit 5
No. of Class required	8
Detail of the topics to be taught (Classes required)	Comparative anatomy of integument- fish, reptile and mammals, pectoral and pelvic girdles of tetrapoda; brain and cranial nerves in amphibia and mammals; comparative account of alimentary, circulatory and reproductive system in reptiles, birds and mammals.
No. of Tutorials	2
ZOOMT- 303: BIOINSTRUMENTATION AND BIostatISTICS	
Allotted Unit No	1
Unit Name	Unit 1:
No. of Class required	8
Detail of the topics to be taught (Classes required)	Chromatography- details of paper, ion exchange and thin layer chromatography.
No. of Tutorials	1
Allotted Unit No.	5
Unit Name	Unit 5:
No. of Class required	10
Detail of the topics to be taught (Classes required)	Scope and utility of statistics in Bioscience; Sampling, collection and graphical representation of data ; measures of statistical average; mean deviation and standard deviation; Probability tests; Correlation and regression; Significance tests (t, F and X ² tests)
No. of Tutorials	1
5th Semester (Non CBCS)	
ZOOMT- 501: GENETICS AND EVOLUTION	
Allotted Unit No.	4
Unit Name	Unit 4.
No. of Class required	7
Detail of the topics to be taught (Classes required)	Evidences and theories of evolution- palaeo-biological and molecular evidences; Lamarckism, Darwinism, Neo Darwinism, Mutation theory and Modern Synthetic theory; origin of life (chemical and biological origin); variation- types and sources; isolation; speciation (sympatric, allopatric and peripatric); fossil and fossilization.
No. of Tutorials	1
Allotted Unit No.	5
Unit Name	Unit 5:
No. of Class required	10
Detail of the topics to be taught (Classes required)	Concept of population- gene pool and gene frequency (Hardy- Weinberg law); change in gene frequency (genetic drift, gene flow, genetic load); continental drift; parallel, divergent and convergent evolution; endemism and adaptive radiation

No. of Tutorials	1
ZOOMT- 503: ANIMAL PHYSIOLOGY	
Allotted Unit No.	1
Unit Name	Unit 1:
No. of Class required	14
Detail of the topics to be taught (Classes required)	Muscle and its contraction- molecular composition of myofilaments; sarcoplasmic reticulum and T- tubules; mechanism of muscle contraction; characteristic of muscle twitch- isometric and isotonic contractions; summation and tetanus.
No. of Tutorials	1
Allotted Unit No.	2
Unit Name	Unit 2:
No. of Class required	9
Detail of the topics to be taught (Classes required)	Digestion- site and sequence of digestion; digestive secretions and their regulation; mechanism of digestion and absorption of carbohydrates, proteins and lipids; role of gastro-intestinal hormones, balanced diet.
No. of Tutorials	1
Allotted Unit No.	3
Unit Name	Unit 3:
No. of Class required	13
Detail of the topics to be taught (Classes required)	Excretion- structure and functions of nephron; renal blood supply; mechanism and regulation of urine formation; renal failure and dialysis/
No. of Tutorials	1
Allotted Unit No.	4
Unit Name	Unit 4:
No. of Class required	7
Detail of the topics to be taught (Classes required)	Circulation- coronary circulation; origin and conduction of cardiac impulse; cardiac cycle; cardiac output and its regulation; disorders of cardio-vascular system; haemostasis; respiration- structure and functions of haemoglobin; O ₂ and CO ₂ transport by blood; regulation of respiration; carbon monoxide poisoning; tracheal respiration in insects.
No. of Tutorials	2
ZOOMT- 505: ENVIRONMENTAL BIOLOGY AND WILDLIFE	
Allotted Unit No.	4
Unit Name	Unit 4:
No. of Class required	8
Detail of the topics to be taught (Classes required)	Environmental pollution (water, air and soil); bioindicators in pollution studies; ecological succession; ecological backlash; greenhouse effect; ozone layer depletion and its impact.
Allotted Unit No.	5
Unit Name	Unit 5:
No. of Class required	10
Detail of the topics to be taught (Classes required)	IUCN status of species category; important endangered species of N.E. India - rhinoceros, tiger, golden langur, dancing deer, river dolphin, pigmy hog, white winged wood duck and golden mahseer (<i>Tor spp.</i>); threats to biodiversity; man-wildlife conflict; ex-situ and insitu conservation strategies; major national parks of NE India; concept of biosphere reserve and biodiversity hot spot; Indian Wildlife Protection Act, 1972.
ZOOMT- 507: ENDOCRINOLOGY	
Allotted Unit No.	1
Unit Name	Unit 1:
No. of Class required	8
Detail of the topics to be taught (Classes required)	Comparative anatomy of pituitary, thyroid, adrenal and pancreas in fish, amphibia, birds and mammals.
No. of Tutorials	1
Allotted Unit No.	2
Unit Name	Unit 2:
No. of Class required	8

Detail of the topics to be taught (Classes required)	Hormones secreted by endocrine glands (pituitary, thyroid, adrenal and pancreas) and their functions in mammals.
No. of Tutorials	1
Allotted Unit No.	3
Unit Name	Unit 3:
No. of Class required	10
Detail of the topics to be taught (Classes required)	General characters of hormones; mechanism of action of hormones; regulation of hormone secretion; hypothalamo-hypophysial system; disorders associated with hypo and hyper secretion of hormones.
No. of Tutorials	1
Allotted Unit No.	4
Unit Name	Unit 4:
No. of Class required	8
Detail of the topics to be taught (Classes required)	Roles of hormones in reproductive cycle, pregnancy, parturition and lactation; methods of contraception; amniocentesis and IVF.
No. of Tutorials	1


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Subject: ZOOLOGY

SESSION: 2019-2020

Name of the Teacher: Pimily Langthasa

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SESSION: EVEN SEMESTER 2020

2ND SEMESTER (CBCS)	
PAPER TITLE (CODE): CELL BIOLOGY (CORE COURSE IV)	
Allotted Unit No.	5
Unit Name	Unit 5: Cytoskeleton
No. of Class required	4
Detail of the topics to be taught (Classes required)	Structure and Functions: Microtubules, Microfilaments and Intermediate filaments (4)
No. of Tutorials	Nil
Allotted Unit No.	6
Unit Name	Unit 6: Nucleus
No. of Class required	9
Detail of the topics to be taught (Classes required)	Structure of Nucleus (2) Nuclear envelope, Nuclear pore complex, Nucleolus (2) Chromatin: Euchromatin and Hetrochromatin (2) packaging (nucleosome) (3)
No. of Tutorials	3
4TH SEMESTER (NON-CBCS)	
PAPER TITLE (CODE): ZOOMT- 401: CELL BIOLOGY, HISTOLOGY & HISTOCHEMISTRY	
Allotted Unit No	1
No. of Class required	9
	Structure and functions of chromosome (1); polytene and lamp brush chromosomes (1); chromatin- molecular organization, nucleosome (1), DNA packaging in prokaryotes and eukaryotes (3), heterochromatin and euchromatin (1); models of chromosomal movements(2)
Allotted Unit No	3
No. of Class required	9
Detail of the topics to be taught (Classes required)	Cell cycle- molecular events in different phases (2), regulation of cell cycle (2); normal and malignant cell growth (2); cell division (mitosis and meiosis) (2); programmed cell death (apoptosis) (1).
No. of tutorials	1

Allotted Unit No	4
No. of Class required	7
Detail of the topics to be taught (Classes required)	Basic concept of cell signalling (endocrine, paracrine and autocrine signalling) (1); second messengers (1); function of cell surface receptors- G protein-coupled receptors and G proteins (5)
No. of tutorials	2
PAPER TITLE (CODE): ZooMT- 403: DEVELOPMENTAL BIOLOGY	
Allotted Unit No	1
No. of Class required	7
Detail of the topics to be taught (Classes required)	Gametogenesis- formation of gametes (spermatogenesis; oogenesis) (3); structure, maturation and growth of sperm and ovum (3); vitellogenesis (1).
No. of tutorials	1
Allotted Unit No	2
No. of Class required	6
Detail of the topics to be taught (Classes required)	Fertilization- types (1) and mechanism of fertilization (2); mono and polyspermy (2); parthenogenesis (1).
No. of tutorials	2
6th SEMESTER (NON-CBCS)	
PAPER TITLE (CODE): ZOOMT- 603: MOLECULAR BIOLOGY AND IMMUNOLOGY	
Allotted Unit No	1
No. of Class required	10
Detail of the topics to be taught (Classes required)	Genome organization in prokaryotes and eukaryotes (4), DNA as genetic material (1), structure and functions of DNA & RNA (3); Watson & Crick Model of DNA (1); other forms of DNA (A & Z) (1).
No. of tutorials	2
Allotted Unit No	2
No. of Class required	10
Detail of the topics to be taught (Classes required)	Replication and transcriptions (5); genetic code (2); Wobble hypothesis (1); protein biosynthesis in prokaryotes (2).
No. of tutorials	4
Allotted Unit No	3
No. of Class required	9
	Recombination in prokaryotes (2); transformation, conjugation and transduction (3); concept of transposons and plasmids (1); regulation of gene expression in prokaryotes, operon concept (Lac operon) (3).
No. of tutorials	3
Allotted Unit No	4
No. of Class required	7
Detail of the topics to be taught (Classes required)	Types of immunity (1); cells and organs involved in immunity (1); lymphoid organs (1); antigens, properties of

	antigens (1), adjuvant and haptens (1); antigen-antibody reaction (1); vaccines and vaccinations (1).
No. of tutorials	2
Allotted Unit No	5
No. of Class required	12
Detail of the topics to be taught (Classes required)	Immunoglobulin: basic structure, classes and functions (1); clonal selection theory; polyclonal and monoclonal antibodies (2); major histocompatibility complex-structure and functions (3); immune system in health and disease (1); basic concept of Immune diagnostic techniques (immunodiffusion, RIA and ELISA) (2); AIDS (1).
No. of tutorials	2



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