

A.V.C. COLLEGE (AUTONOMOUS), MAYILADUTHURAI, MANNAMPANDAL.
M.Sc., Wildlife Biology

SEMESTER – II – S.S. – I: INVERTEBRATA AND CHORDATA
Credit: 4 Code: 18PWLS 201

Objective: To make the students understand the classification, biology and economic values of Invertebrates and vertebrates.

UNIT – I

Protozoa; Porifera: Characteristic features and classification of up to classes with examples for each classes.

Detailed study: Paramecium.

General Topics: Economic Importance of sponges.

UNIT - II

Coelenterata, Platyhelminthes, Aschelminthes- Characteristic features and classification of up to classes with examples for each classes.

Detailed study: Liver fluke.

General Topics: Types and formation of coral reefs.

Helmints parasite and Human diseases. Ascariasis, Filariasis, Schistosomiasis and Taeniasis.

UNIT - III

General characteristics of the Prochordata and Pisces.

Distinctive features and affinities of Balanoglossus.

Retrogressive Metamorphosis in Ascidia.

Migration in Fishes.

UNIT – IV

General characteristics of Amphibia and Reptilia.

Parental care in Amphibia.

Gymnophonia- Adaptation and Mode of life.

Identification of Poisonous and non poisonous snakes.

UNIT - V

General characteristics of Aves and Mammals.

Flight Adaptation in Birds.

Adaptation of Aquatic Mammals.

Dentition in Mammals.

A.V.C. COLLEGE (AUTONOMOUS), MAYILADUTHURAI, MANNAMPANDAL.
M.Sc., Wildlife Biology

SEMESTER – II – S.S. – II: CELL BIOLOGY & GENETICS

Credit : 4

Code: 18 PWL3201

Objective: To make the students understand the basic biology of cells & to enable the students to understand the basic principles of Inheritance.

UNIT – I

Structure and functions of Plasma membrane-lysosome-Golgi bodies- Ribosomes and Mitochondria-Cytoskeleton- Structure and functions of Endoplasmic Reticulum.

UNIT - II

Nucleus- Chromosome-Type – Cell Division- Mitosis and Meiosis- DNA, RNA. Chromatin and Nucleosome. Protein synthesis -Part Transcriptional Modification of Protein- Intracellular protein transport.

Cancer Cells- Characteristics, types - Apoptosis - Oncogenes –Factors inducing cancer

UNIT - III

Mendelism: Laws of inheritance.

Interaction of Genes: Epistatic genes, Duplicate genes and complementary genes. Linkage and Crossing over: Definition and suitable examples (*Drosophila*).

Mapping of Chromosome: Principles and Methods.

UNIT – IV

Sexdetermination: Chromosomal, genic balance, environmental and hormonal basis.

Sex linkage: Colour blindness and hemophilia in man and eye colour in *Drosophila*.

Polygenicinheritance: kernel color in wheat and skin colour in man.

UNIT – V

Classification of microbes. Structure of a *bacterium*. Bacterial respiration and reproduction . Classification of viruses- physical and chemical structures of viruses. DNA and RNA viruses.

Microbial genetics: Transformation, Conjugation, Sexduction and Transduction in bacteria.Chromosomal syndromes in man-Down's, Turner's and Klinefelter's.

Inborn errors of metabolism-Phenylketonuria, Alkeptonuria, Sickle Cell anaemia, Albinism.

Text books:

1. Powar, C.B. (1983), Cell Biology, Himalaya Publishing House, Bombay
2. David Freifelder (1998), Molecular Biology, II Ed., Narosa Publishing House, New Delhi.
3. De Robertis, E.D.P., and De Robertis, Jr. E.M.F. 2001. Cell and molecular biology. Williams & Wilkins, USA.
4. Kavita B. Ahluwalia. 1991. 'Genetics' Wiley Eastern Ltd., New Delhi. 2.

Venpus
K. Subho
21/2/19

A.V.C. COLLEGE (AUTONOMOUS), MANNAMPANDAL – 609 305
M.Sc., Wildlife Biology

SEMESTER – III - S.S. III: EMBRYOLOGY AND EVOLUTION

Code: 18PWLS 303

Objective: To enable the students to understand the basic concept of Embryology and Evolutions.

UNIT - I

Gametogenesis: Primordial germ cell, Spermatogenesis, Oogenesis.

Yolk: Types-synthesis-Transportation and importance.

Structure of typical sperm and ovum.

Types of eggs: Based on the development, distribution of yolk and shell.

UNIT - II

Fertilization: events in fertilization-physical, chemical and physiological changes-theories of fertilization. Cleavage: Planes and patterns- Blastulation- Gastrulation-structure of typical blastula and gastrula- Fate map.

Morphogenetic movements and gastrulation in frog and chick.

Organogenesis with reference to frog-Development of brain, eye, heart and kidney- Extra embryonic membrane in chicks-Placentation in mammals.

UNIT - III

Embryonic induction-concepts- Mechanism of Embryonic induction-concept of organizer-Metamorphosis-Amphibian metamorphosis-ecological-morphological-physiological and bio chemical changes-Regeneration: types-factors influencing regeneration.

UNIT - IV

Immunotechnology: Clinical methods for detection of antigens and antibodies: Immunodiffusion.

Hormones of pituitary gland, thyroid gland, parathyroid, thymus, adrenal and pancreas.

Hypersensitivity: Definition and classification; Types- I, II, III, IV and V.

Transplantation immunology: Types of grafts- Allograft rejection- Prevention of allograft rejection.

UNIT - V

Evolution: Theories of Evolution: Origin of Life- Lamarckism- Neo Lamarckism, De Vries theory of Mutation- Modern concepts of Mutation: Darwin's theory-Neo Darwinism and modern synthetic theory of evolution. Recapitulation theory and its importance. Molecular evolution- Abiotic formation of sugars, amino acids, organic acids, purines, pyrimidines, glycerol and nucleotides and their polymerization to DNA and RNA and formation of Nucleoproteins

Text Books:

1. Veer balarastogi, Developmental biology, Kedarnath Ram nath publishers, meerut.
2. Arumugam.N. 1998. Developmental Biology, Saras Publications,
3. Balinsky, B.I. 1981. An Introduction to Embryology. W.B. Saunders Company. Philadelphia.
4. R.C. Dubey, D.U. Maheshwari 2005. A Text book of Microbiology. S.Chand and company Ltd, New Delhi
5. Monroe.W.Strickberger, Evolution Third Edition. Jones and Bartlett publishers International, London, UK.

Reference Books:

1. Berry.A.K.2007. An Introduction to Embryology, Emkay Publications, New Delhi-51.
2. Beril., N.J..1986. Developmental Biology. Tata Mcgraw-Hill Publishing Ltd. New Delhi.
3. Banerjee. S , Development Biology, Dominant Publishers, New Delhi
4. Browder, L.N. (1980) Developmental Biology, Saunders College, Philadelphia.
5. Deuchar, E.M. (1976) Cellular Interaction In Animal Development, Chapman And Hall, London.
6. Verma, P.S. and Agarwal V.K. 2005. Chordate Embryology (Developmental Biology) S. Chand & Company Ltd., New Delhi.
7. Moody, P.A. 1978. Introduction to Evolution. Harper International.
8. Dodson. 1990. Evolution, Reinhold, New York.
9. Barton, N. H., Briggs, D. E.G., Eisen, J. A., Goldstein, A. E., Patel, N. H., Cold. Evolution, Spring Harbor Laboratory Press, New York, USA

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A.V.C. COLLEGE (AUTONOMOUS), MANNAMPANDAL – 609 305
M.Sc., Wildlife Biology
SEMESTER – III – S.S. – IV: PHYSIOLOGY & ECOLOGY
Code: 18PWLS 304

Objectives:

1. To enable the students to understand the basic principles of ecosystem, biophysics and biochemistry.
2. To enable the students to understand the basic mechanism of physiology.

UNIT – I

Physiology:

Nutritive requirements- Role of salivary glands, liver, pancreas and intestinal glands in digestion and absorption.

Composition and constituents of blood- blood groups- Rh factor in man; coagulation and factors and mechanism of coagulation; acid-base balance thermoregulation. Neuron, Nerve Impulse - Its conduction and synaptic transmission- Neurotransmitters.

UNIT – II

Principles of Biochemistry & Biophysics:

PH and Buffer

Classification, Structure and function of carbohydrates, lipids, amino acids and proteins.

Enzyme- structure and functions.

Biophysics:

Laws of Thermodynamics: Concept of free energy and entropy

Diffusion and Osmosis: Definition, methods of determination of Osmosis.

Colloids & Emulsions: sol-gel changes, Tyndall effect ; Surface tension

UNIT – III

Ecology:

Abiotic factors: Water, soil, light. Biotic factors; Intra (Aggregation, colony formation, social organization) and inter specific associations (Neutralism, symbiosis and antagonism).

Coastal ecosystem- bars- beach drift - beach forms- Beach and near shore sediments and morphology- Beach rock- Abrasion Platforms and cliffs- estuaries.

UNIT – IV

Structure and function of an ecosystem: Producers, consumers, Decomposers – Ecological Pyramids – Primary and Secondary productivity in an Ecosystem - Methods of measurements – Concept of trophic level - Energy flow in an ecosystem - Food chain - Food web.

Biome and Ecotone: Ecotone- Ecological Succession -Population ecology-Characteristics and Dynamics Characteristics of different biomes. Energy and nutrient flow in biomes.

UNIT - V

Habitat Ecology: Fresh water, Marine, Estuary, Desert

Pollution: Air and water- Microbiological analysis - in fresh water and marine water.

Microorganisms and pollution – Microorganisms in sewage-Phyto remediation

Food borne infections and intoxications- Clostridium, Salmonella, and Staphylococcus- Microtoxins in food with reference to Aspergillus species

Text books:

1. Sambasivaiah, Kamalakararao and Augustine Chellappa 1990. A Text book of Animal Physiology and Ecology, S. Chand & Co., Ltd., New Delhi – 110 055.
2. Parameswaran, Anantakrishnan and Ananta Subramaniam, 1975. Outlines of Animal Physiology, S. Viswanathan [Printers & Publishers] Pvt. Ltd
3. Casey, E.J.(1962), Biophysics Concepts and Mechanisms, East West Press Pvt. Ltd., Delhi.
4. Arora, M.P. 2004. Biophysics. Himalaya Publishing House, Mumbai. P 378.
5. Arumugam, N.*et al.*, 2005. Immunology and Microbiology, Saras Publications, Kanyakumari
6. Saha, T.K, Ecology and Environmental Biology, Books and Allied (P) Ltd, Kolkata.
7. Arumugam, N. 1992. Concepts of ecology. Saras Pub., Nagargoil.
8. Ramamurthy, V and S. Raveendran. 2010. Fundamentals of Biochemistry. Aruna Publications, Koradacherry.

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A.V.C. College (Autonomous)

UGC Recognized "College with Potential for Excellence - Phase I & II"

NIRF All India Ranking 2019 : College (Rank - band : 101-150)

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PG & RESEARCH DEPARTMENT OF ZOOLOGY AND WILDLIFE BIOLOGY

Ref. No.

Date :

VALUE ADDED COURSES (SELF-STUDY)

M.Sc. WILDLIFE BIOLOGY

YEAR 2019-20

The following students have completed the value added courses viz. Invertebrata and chordata (18PWLS 201) and Cell biology and Genetics (18PWLS 202) in the year 2019-20.

Roll No	Name
P19 7701	ABINLAL.M
P19 7704	DIGVIJAYA PATTNAIK
P19 7705	HAREESHA SHASHTRI
P19 7706	VISHAL P.PAI
P19 7726	ANEENA LAKSHMANAN
P19 7727	APARNA.P.RAJ

The following students have completed the value added courses viz, Embryology & Evolution (18PWLS 303) and Physiology & Ecology (18PWLS 304) in the year 2019-20.

Roll No	Name
P18 7705	PRASATH .S
P18 7706	ARAVIND C.K.
P18 7707	NILESH K.K
P18 7708	VYSHNAVSASI.K
P18 7728	ANUSREE PRADEEPAN

for *G. Shantik*
Head of the Department of Zoology
& Wildlife Biology,
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