


"Dissemination of Education for Knowledge, Science and Culture"  
-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's  
**Vivekanand College, Kolhapur**  
**(An Empowered Autonomous Institute)**  
**Department of Zoology**  
**Academic year: 2025-26**


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### **Syllabus Completion Report (Term I)**

- 1. Dr. G. K. Sontakke**
- 2. Dr. T. C. Gaupale**
- 3. Dr. S. S. Desai**
- 4. Mr. G. H. Fadake**
- 5. Ms. N. A. Patel**
- 6. Dr. T. C. Patil**
- 7. Ms. P. S. Shetfalkar**
- 8. Ms. N. A. Jadhav**
- 9. Ms. P. R. Gaikwad**
- 10. Ms. M. L. Patil**

  
**Dr. G. K. Sontakke**  
Head  
Department of Zoology  
Vivekanand College Kolhapur  
(An Empowered Autonomous Institute)



  
**Dr. R. R. Kumbhar**  
Principal  
Vivekanand College, Kolhapur  
(An Empowered Autonomous Institute)

"Dissemination of Education for Knowledge, Science and Culture"

-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

**Vivekanand College, Kolhapur (An Empowered Autonomous Institute)**

**Department of Zoology**

**Academic year: 2025-2026**

**Syllabus Completion Report**

**Name of the Teacher: Dr. G. K. Sontakke**

**Term: I**

**Class: B.Sc. III (Theory)**

**Name of the Paper: Paper-DSC-XI, Ecology**

Month	Module unit	Sub unit	Remaining Units
July - 2025	UNIT- I	1.Ecology: Abiotic and biotic factors of ecosystem (Forest and Lake) 2.Ecosystem: Structure and function, types of ecosystem (terrestrial and aquatic), Food chain, food web, and ecological pyramids, Biogeochemical cycles (Nitrogen, Carbon, Phosphorus and Water) and its importance & applications	NIL
August - 2025	UNIT- I	3.Habitat and Niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche 4. Species interactions-types of interaction (competition, predation, commensalism, parasitism, mutualism, amensalism)	NIL
September- 2025	UNIT- II	5.Community Ecology: Nature of communities, characteristics (species richness, dominance, diversity, abundance), ecotone and edge effect. 6. Ecological Succession -Types of succession (primary, and secondary), stages of succession, mechanisms of succession, types of seres (hydrosere, lithosere).	NIL
October- 2025	UNIT- II	7. Population Ecology: Characteristics of a population; population growth curves; population regulation; life history strategies (r and K selection); concept of metapopulation 8. Ecological adaptation in aquatic, desert & terrestrial animals	NIL

**Class: B.Sc. I (PR)**

**Practical: ZOOLOGY LAB (1): 2DSC03ZOO19 (Practical I)**

Month	Practical	Remaining Units
July- 2025	1. Study of the specimens with respect to classification and morphological peculiarities: Phylum Porifera to Phylum Echinodermata 2. Study of the following permanent slides: a. T.S. or L.S. of Sycon	NIL

	b. T.S. of male and female <i>Ascaris lumbricoides</i> 3. Mounting of mouth part in cockroach/honey bee/ any insect 4. Mounting of sponging fibres and spicules	
August- 2025	5. Study of life history stages of <i>Taenia solium</i> 6. Study of life cycle of <i>Ascaris lumbricoides</i> 7. Preparation of <i>Paramoecium</i> culture 8. Temporary preparation of pedicellaria	NIL
September-2025	9. Study of compound Microscope : Simple and Compound 10. Temporary preparation of mitotic cells from onion roots 11. Extraction of DNA from given sample 12. Stained squash preparation of salivary gland chromosomes	NIL
October-2025	13. Study of Cell organelles (any three) by using microphotographs 14. Stained preparation of mitochondria from oral mucosa/ onion peels 15. Effect of tonicity of solutions on plasma membrane of RBCs	NIL

**Class: B.Sc. III Minor (PR)      Practical -ZOOLOGY LAB-5 : MIN03ZOO59 (Practical V)**

Month	Practical	Remaining Units
June - 2025	1. Study of parasitic association with their example - a) Commensalism. b) Parasitism. 2. To study the life cycle, pathogenicity, diagnosis and treatment of <i>Entamoeba histolytica</i> through permanent slides or microphotographs. 3. To study the life cycle, pathogenicity, diagnosis and treatment of <i>Plasmodium vivax</i> through permanent slides or microphotographs	NIL
July- 2025	4. To study the life cycle, pathogenicity, diagnosis and treatment of <i>Ascaris lumbricoides</i> through specimens, permanent slides or microphotographs. 5. To study the life cycle, pathogenicity, diagnosis and treatment of <i>Taenia solium</i> through specimens, permanent slides or microphotographs. 6. Study of the following parasites with their role as vectors- <i>Pediculus humanus</i> , <i>Xenopsylla cheopis</i> and <i>Cimex lectularius</i> through permanent slides or photographs.	NIL
August- 2025	7. Study of effects of parasites on host body (ectoparasite and endoparasite) 8. Study of the pathogenicity and control measures of ticks (Any two). 9. Study of the pathogenicity and control measures of Mite	NIL
September-2025	10. Study of parasites from the gut of any invertebrate (Insect) 11. Study of parasites from the gut of any vertebrate (Fish) 12. Study of parasites of the earthworm	NIL
October-2025	13. Study of parasitic vertebrates-Photographs 14. Collection and identification of parasites from cow dung 15. Collection & submission of various parasites/vectors (Any	NIL

five parasites)	
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**Class: B.Sc. II (VSC) (PR) ZOOLOGY LAB (3) Practical: VSC03ZOO39 (Practical II)**

Month	Practical	Remaining Units
June- 2025	1. Types of silk moths classification and description 2. Life cycle of silk Worm <i>Bombyx mori</i> (L)	NIL
July- 2025	3. Life cycle of Vanya / Non-Mulberry Silkworm 4. Difference between male and female silk moths of <i>Bombyx mori</i> 5. Sex separation in larva, pupa and adult of silkworm 6. General anatomy of silkworm (Photographs/Images/dissections) 7. Identification of egg, larva, pupa and moths of different non-mulberry silk moths (Photographs/Images).	NIL
August- 2025	8. Dissection and display (Photographs/Images/ dissections): a. Digestive system of larva. b. Silk glands. c. Reproductive system of male and female moths. d. Mounting of larval mouth parts and spiracle. e. Nervous system of silkworm larva. 9. Silkworm rearing techniques and its maintenance 10. Mulberry cultivation and its maintenance	NIL
September- 2025	11. Identification of different Mulberry Varieties / Species 12. Calculation of shell ratio and denier scale by using the formula 13. Identification of major Mulberry pests and diseases	NIL
October- 2025	14. Identification of major silkworm pests & diseases and their disposal 15. Study of sericulture equipment.	NIL

**Class: B.Sc. III (PR) Practical -ZOOLOGY LAB-5 : DSC03ZOO53 (Practical V)**

Month	Practical	Remark
June - 2025	1. Construction of ecological pyramids with suitable example 2. Study of food chain and food web 3. Study the biotic components of a pond	NIL
July- 2025	4. Determination of pH from the given water sample 5. Measurement of the water-holding capacity of the soil 6. Study the characteristics of different types of soils	NIL
August- 2025	7. Estimation of moisture content from different soil samples 8. Example based on species richness and abundance 9. Estimation of biomass in a given area (Terrestrial ecosystem)	NIL
September- 2025	10. Determination of relative humidity of the atmosphere using hygrometer 11. Study of animals in relation to adaptation (Aquatic and Desert)	NIL
October- 2025	12. Submission of report on fauna of college campus 13. Visit to Sanctuary/ National park / Seashore/ Freshwater ecosystem etc.	NIL

  
Dr. G. K. Sontakke

  
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**Syllabus Completion Report**

Name of the Teacher: **Dr. T. C. Gaupale**

Term: **I**

Class: **B.Sc. II Major (Theory)**

Name of the Paper: **Paper-VI, Ethology (MIN03ZOO32)**

Month	Module unit	Sub unit Allotted	Syllabus Completed	Remark
July - 2025	UNIT- II	<b>Cardiovascular system</b> Composition of blood, Structure of Heart, Origin and conduction of heartbeat, Cardiac cycle, ECG	Completed	Completed
August - 2025	UNIT- II	<b>Nerve</b> Structure of a neuron, Neurotransmitter, Synapse- Electrical and chemical synapse, Origin of action potential and its propagation in nerve fibres	Completed	Completed
September- 2025	UNIT- II	<b>Nerve</b> Origin of action potential and its propagation in nerve fibres	Completed	Completed
October- 2025	UNIT- II	<b>Muscle</b> Types of muscle, Ultra-structure of skeletal muscle, Mechanism of muscle contraction	Completed	Completed

Class: **B.Sc. II (PR)**

**Practical -ZOOLOGY LAB (3): 2DSC03ZOO39 (Practical III)**

Month	Practical	Syllabus Completed	Remark
July- 2025	13. Study of dialyzer unit 14. Study of permanent slides of duodenum, liver, pancreas, salivary gland 15. Study of permanent slides of spinal cord, lung, kidney, blood vessels (artery& vein) 16. Study of fossil evidences from plaster cast models and pictures	Completed	Completed
August- 2025	17. Study of homology and analogy from suitable specimens/ pictures 18. Study of Phylogeny of human evolution 19. Study of Phylogeny of horse 20. Study of Darwin's finches with diagrams/ cut-	Completed	Completed

	outs of beaks of different species		
September-2025	21. Study of adaptive radiation in marsupial 22. Study of fossil animals- Peripatus, Dipnoi fish, Archaeopteryx 23. Selection of fruit fly in relation to diet	Completed	Completed
October-2025	24. Example based on Hardy-Weinberg law 25. Submission of project report / posters 26. Visit to Pathology lab/ museum/natural history museum/ educational institutes	Completed	Completed


**Class: B.Sc. III Minor Theory SEMESTER-V ZOOLOGY MIN-IX MIN03Z0051: PARASITOLOGY**

Month	Practical	Syllabus Completed	Remark
June - 2025	Introduction and Concepts to Parasitology Definition: Parasitism, Parasite, Parasitoid, Host, Vector, Zoonosis. Types of Parasites with examples: Ectoparasites, Endoparasites, Facultative parasite Obligatory parasites. Types of Hosts with examples: Definitive host, Intermediate host	Completed	Completed
July- 2025	Host-Parasite relationship Host specificity, types of host specificity: structural specificity, physiological specificity, and ecological specificity. Effects of parasite on host, Factors affecting the host-parasite relationship. Parasitism, Symbiosis, Commensalisms, and Mutualism with suitable example.	Completed	Completed
August- 2025	Morphology, Life Cycle, Pathogenicity, Diagnosis, Prophylaxis and Treatment of- Parasitic Protists- <i>Plasmodium vivax</i> , <i>E. histolytica</i> , <i>Trypanosoma</i> , <i>giardia lamblia</i> Parasitic helminth - <i>Taenia solium</i> , <i>Ascaris lumbricoides</i>	Completed	Completed
September- 2025	Morphology, Life Cycle, pathogenicity and control measures of- Parasitic Arthropoda- Head louse, Rat fleas, Bed bugs	Completed	Completed
October- 2025	Parasitic Vertebrates - A brief account of parasitic vertebrates; Cookcutter Shark, Candiru, Hood Mockingbird, and Vampire bat	Completed	Completed

Month	Practical	Syllabus Completed	Remark
June - 2025	1. Study of parasitic association with their example - a) Commensalism. b) Parasitism. 2. To study the life cycle, pathogenicity, diagnosis and treatment of Entamoeba histolytica through permanent slides or microphotographs. 3. To study the life cycle, pathogenicity, diagnosis and treatment of Plasmodium vivax through permanent slides or microphotographs	Completed	Completed
July- 2025	4. To study the life cycle, pathogenicity, diagnosis and treatment of Ascaris lumbricoides through specimens, permanent slides or microphotographs. 5. To study the life cycle, pathogenicity, diagnosis and treatment of Taenia solium through specimens, permanent slides or microphotographs. 6. Study of the following parasites with their role as vectors- Pediculus humanus, Xenopsylla cheopis and Cimex lectularius through permanent slides or photographs.	Completed	Completed
August- 2025	7. Study of effects of parasites on host body (ectoparasite and endoparasite) 8. Study of the pathogenicity and control measures of ticks (Any two). 9. Study of the pathogenicity and control measures of Mite	Completed	Completed
September- 2025	10. Study of parasites from the gut of any invertebrate (Insect) 11. Study of parasites from the gut of any vertebrate (Fish) 12. Study of parasites of the earthworm	Completed	Completed
October- 2025	13. Study of parasitic vertebrates-Photographs 14. Collection and identification of parasites from cow dung 15. Collection & submission of various parasites/vectors (Any five parasites)	Completed	Completed

Month	Practical	Syllabus Competed	Remark
July- 2025	1. Study of the specimens with respect to classification and morphological peculiarities: Phylum Porifera to Phylum Echinodermata 2. Study of the following permanent slides: a. T.S. or L.S. of Sycon b. T.S. of male and female <i>Ascaris lumbricoides</i> 3. Mounting of mouth part in cockroach/honey bee/ any insect 4. Mounting of sponging fibres and spicules	Competed	Competed
August- 2025	5. Study of life history stages of <i>Taenia solium</i> 6. Study of life cycle of <i>Ascaris lumbricoides</i> 7. Preparation of <i>Paramoecium</i> culture 8. Temporary preparation of pedicellaria	Competed	Competed
September- 2025	9. Study of compound Microscope : Simple and Compound 10. Temporary preparation of mitotic cells from onion roots 11. Extraction of DNA from given sample 12. Stained squash preparation of salivary gland chromosomes	Competed	Competed
October- 2025	13. Study of Cell organelles (any three) by using microphotographs 14. Stained preparation of mitochondria from oral mucosa/ onion peels 15. Effect of tonicity of solutions on plasma membrane of RBCs	Competed	Competed

  
Dr. T.C. Gaupale

  
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**Department of Zoology**

**Academic year: 2025-2026**

**Syllabus Completion Report**

**Name of the Teacher: Dr. S. S. Desai**

**Term: I**

**Class: B.Sc. I (Theory)**

**Name of the Paper: Paper I Animal Diversity I (2DSC03ZOO11)**

Month	Module unit	Sub unit	Remark
June	Unit-I	Importance and scope of animal diversity	NIL
July 2025	Unit-I	Kingdom Protista- General characters and classification up to classes; locomotion in Protozoa	NIL
August 2025	Unit-I	Phylum Porifera- General characters and classification up to classes; Canal System in <i>Sycon</i>	NIL
September 2025	Unit-I	Phylum Cnidaria- General characters and classification up to classes; Polymorphism in <i>Obelia</i>	NIL
October-2025	Unit-I	Phylum Platyhelminthes: General characters and classification up to classes; Life history of <i>Taenia solium</i> and its parasitic adaptations	NIL

**Class: B. Sc. III (Theory) Name of the Paper: Animal Biotechnology (DSC03ZOO52)**

Month	Module unit	Sub unit	Remark
June- 2025	Unit-I	Introduction to Animal Biotechnology- Concept and Scopes of Biotechnology, Restriction enzymes and other enzymes used in RDT: Nomenclature and its types, DNA modifying enzymes: Nucleases, Polymerases, Phosphatases and ligases, Ligation of adaptors, and linkers.	NIL
July- 2025	Unit-I	Vectors: Characteristics and types of vectors Recombinant DNA in medicines: Insulin production. Transformation techniques: Calcium chloride method, liposomal Mediated gene transfer, DNA microinjection and Electroporation.	NIL
August- 2025	Unit-I & II	Blotting techniques: Southern, northern and western blotting Polymerase chain reaction. DNA fingerprinting. Method of DNA sequencing: Sanger's method .	NIL
September- 2025	Unit-II	Construction of genomic and cDNA libraries. Production of cloned animals- Nuclear Transplantation. Production of transgenic animals.	NIL
October- 2025	Unit-II	Gene therapy- Types and Applications. Application of biotechnology in animal husbandry, medicine and agriculture	NIL

Class: B.Sc. I (PR I)

Practical: ZOOLOGY LAB (1): 2DSC03ZOO19

Month	Practical	Remark
July- 2025	1. Study of the specimens with respect to classification and morphological peculiarities: Phylum Porifera to Phylum Echinodermata 2. Study of the following permanent slides: a. T.S. or L.S. of Sycon b. T.S. of male and female <i>Ascaris lumbricoides</i> 3. Mounting of mouth part in cockroach/honey bee/ any insect 4. Mounting of sponging fibres and spicules	NIL
August- 2025	5. Study of life history stages of <i>Taenia solium</i> 6. Study of life cycle of <i>Ascaris lumbricoides</i> 7. Preparation of <i>Paramoecium</i> culture 8. Temporary preparation of pedicellaria	NIL
September- 2025	9. Study of compound Microscope : Simple and Compound 10. Temporary preparation of mitotic cells from onion roots 11. Extraction of DNA from given sample	NIL
October- 2025	12. Stained squash preparation of salivary gland chromosomes	NIL


Class: B.Sc. II (PR III)

Practical: VSC03ZOO39

Month	Practical	Remark
June 2025	1. Types of silk moths classification and description 2. Life cycle of silk Worm <i>Bombyx mori</i> (L)	NIL
July 2025	3. Life cycle of Non-Mulberry Silkworm 4. Difference between male and female silk moths of <i>Bombyx mori</i> 5. Sex separation in larva, pupa and adult of silkworm 6. General anatomy of silkworm (Photographs/Images/dissections) 7. Identification of egg, larva, pupa and moths of different non-mulberry silk moths (Photographs/Images).	NIL
August 2025	8. Dissection and display (Photographs/Images/ dissections): a. Digestive system of larva. b. Silk glands. c. Reproductive system of male and female moths. d. Mounting of larval mouth parts and spiracle. e. Nervous system of silkworm larva. 9. Silkworm rearing techniques and its maintenance 10. Mulberry cultivation and its maintenance	NIL
September 2025	11. Identification of different Mulberry Varieties / Species 12. Calculation of shell ratio and denier scale by using the formula 13. Identification of major Mulberry pests and diseases	NIL
October 2025	14. Identification of major silkworm pests & diseases and their disposal 15. Study of sericulture equipments.	NIL

Month	Practical	Remark
June - 2025	<ol style="list-style-type: none"> <li>1. Handling, calibration, and applications of micropipettes</li> <li>2. Demonstration of equipments used in molecular biology-</li> <li>3. Electrophoresis, Gel documentation, Hot plate, Centrifuge, UV Transilluminator, Vortex mixer</li> <li>4. Isolation of the genomic DNA from <i>E. coli</i> cells</li> <li>5. Extraction of DNA from goat liver</li> <li>6. Extraction of DNA from whole blood</li> </ol>	NIL
July- 2025	<ol style="list-style-type: none"> <li>7. Isolation of RNA from animal tissue</li> <li>8. Spectrophotometric analysis of nucleotide</li> <li>9. Separation of DNA by agarose gel electrophoresis</li> <li>10. Demonstration of extraction of DNA from gel</li> <li>11. Analysis of DNA fragment size (molecular weight) using DNA ladder</li> <li>12. Separation of protein by SDS-PAGE</li> </ol>	NIL
August- 2025	<ol style="list-style-type: none"> <li>13. Study of DNA sequencing, PCR, and DNA fingerprinting through photographs</li> <li>14. Visit molecular biology laboratory/institution (CCMB/IASC/NCL/Serum/NCCS etc.)</li> <li>15. Sterilization technique</li> <li>16. Preparation of microbial culture media</li> <li>17. Preparation of Bacterial Culture</li> </ol>	NIL
September- 2025	<ol style="list-style-type: none"> <li>18. Plasmid DNA isolation from bacteria</li> <li>19. Estimation of RNA by Orcinol Method</li> <li>20. Estimation of DNA by Diphenylamine method</li> <li>21. Restriction digestion of plasmid DNA.</li> <li>22. Construction of circular and linear restriction map from the data provided.</li> </ol>	NIL
October- 2025	<ol style="list-style-type: none"> <li>23. Demonstration of ligation of DNA strands</li> <li>24. Preparation of competent cells in bacteria</li> <li>25. Demonstration of bacterial transformation</li> <li>26. Study of equipments used in Animal biotechnology</li> <li>27. Study of blotting techniques with photographs- Southern, Northern and Western Blotting</li> <li>28. Visit to stem cell/ tissue culture laboratory</li> </ol>	NIL

  
Dr. S. S. Desai

  
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 Department of Zoology  
 Academic year: 2025-2026

**Syllabus Completion Report**

Name of the Teacher: Mr. Ganesh H. Fadake

Term: I

Class: B.Sc. I (Theory)

Name of the Paper: Paper II, Cell Biology (2DSC03ZOO12)

Month	Module unit	Sub unit	Remaining Units
June-2025	UNIT-I	1. Introduction-Cell as basic unit of life	NIL
July- 2025	UNIT-I	2. Importance of Cell Biology,	NIL
August-2025	UNIT-I	3. Structure and function of Prokaryotic (E. coli) and Eukaryotic cell (Animal Cell)	NIL
September-2025	UNIT- I	4. Plasma Membrane: Structure, chemical composition and functions of plasma membrane, Fluid mosaic model.	NIL
October-2025	UNIT- I	5. Ultrastructure and Functions: Mitochondria, Endoplasmic Reticulum, Golgi apparatus, Ribosomes.	NIL

Class: B. Sc. III (Theory)

Name of the Paper: Paper- X, Molecular Biology (DSC03ZOO51)

Month	Module unit	Sub unit	Remaining Units
June- 2025	UNIT-I	1) Nucleic acid as the genetic material 2) Watson and Cricks model of DNA structure 3) Replication of DNA: Types of DNA replication 4) DNA replication in prokaryotes and eukaryotes	NIL
July- 2025	UNIT-I	5) Transcription: Transcription in prokaryotes and eukaryotes 6) Post-Transcriptional Modifications -Capping of mRNA, Splicing, Polyadenylation 7) Genetic Code and Wobbel hypothesis	NIL
Aug-2025	UNIT-II	8) Translation in prokaryotes and eukaryotes 9) Gene regulation- lac operon: structure, function, and regulation	NIL
Sept-2025	UNIT- II	10) DNA damage- Sources, mechanism and types 11) Consequences of DNA damage: Mutagenesis, cancer, aging, neurological disorders	NIL
Oct-2025	UNIT- I	12) DNA repair mechanisms: Direct repair, nucleotide excision repair, base excision repair, a. mismatch repair, etc.	NIL

Class: B.Sc. I (PR I)

Practical: ZOOLOGY LAB (1): 2DSC03ZOO19

Month	Practical	Remaining Units
July-2025	1. Study of the specimens with respect to classification and morphological peculiarities: Phylum Porifera to Phylum Echinodermata 2. Study of the following permanent slides: a. T.S. or L.S. of Sycon b. T.S. of male and female <i>Ascaris lumbricoides</i> 3. Mounting of mouth part in cockroach/honey bee/ any insect 4. Mounting of sponging fibres and spicules	NIL
August-2025	5. Study of life history stages of <i>Taenia solium</i> 6. Study of life cycle of <i>Ascaris lumbricoides</i> 7. Preparation of <i>Paramoecium</i> culture 8. Temporary preparation of pedicellaria	NIL
September-2025	9. Study of compound Microscope : Simple and Compound 10. Temporary preparation of mitotic cells from onion roots 11. Extraction of DNA from given sample	NIL
October-2025	12. Stained squash preparation of salivary gland chromosomes	NIL
		NIL

Class: B.Sc. II (PR)

Name of the Paper: Paper-VI, Biostatistics(MIN03ZOO31)

Month	Sub unit	Remaining Units
July-2025	1. Calculate the mean using given data (Any two examples) 2. Calculate the median using the given data (Any two examples) 3. Calculate the mode using the given data (Any two examples) 4. Calculate the standard deviation using the given data. 5. Draw a line/ Bar diagram using the given data.	NIL
Aug-2025	6. Draw a Histogram by using given data (equal unequal distribution) 7. Draw a Polygon using given data. 8. Draw frequency curve/ Ogive curve using given data 9. Drawing graphs and tables on a computer using given data.	NIL
Sept-2025	10. Examples based on regression (Any two examples) 11. Examples based on correlation (Any two examples) 12. To study the locomotory behaviour in - a) Earthworm b) Garden snail 13. To study chemical communication in ant 14. To study simple reflex behaviour in Cockroach	NIL
Oct-2025	15. To study the reaction of terrestrial woodlice to light and humidity 16. To study the aggression and courtship behaviour in crickets 17. To study the chemoreception in the adult fly 18. To study the courtship behaviour in fruit fly	NIL

Class: B.Sc. III (PR V)

Practical: DSC-PR-V: DSC03ZO059

Month	Practical	Remaining Units
June - 2025	<ol style="list-style-type: none"><li>1. Handling, calibration, and applications of micropipettes</li><li>2. Demonstration of equipments used in molecular biology-</li><li>3. Electrophoresis, Gel documentation, Hot plate, Centrifuge, UV Transilluminator, Vortex mixer</li><li>4. Isolation of the genomic DNA from <i>E. coli</i> cells</li><li>5. Extraction of DNA from goat liver</li><li>6. Extraction of DNA from whole blood</li></ol>	NIL
July- 2025	<ol style="list-style-type: none"><li>7. Isolation of RNA from animal tissue</li><li>8. Spectrophotometric analysis of nucleotide</li><li>9. Separation of DNA by agarose gel electrophoresis</li><li>10. Demonstration of extraction of DNA from gel</li><li>11. Analysis of DNA fragment size (molecular weight) using DNA ladder</li><li>12. Separation of protein by SDS-PAGE</li></ol>	NIL
August- 2025	<ol style="list-style-type: none"><li>13. Study of DNA sequencing, PCR, and DNA fingerprinting through photographs</li><li>14. Visit molecular biology laboratory/institution (CCMB/IASC/NCL/Serum/NCCS etc.)</li><li>15. Sterilization technique</li><li>16. Preparation of microbial culture media</li><li>17. Preparation of Bacterial Culture</li></ol>	NIL
September- 2025	<ol style="list-style-type: none"><li>18. Plasmid DNA isolation from bacteria</li><li>19. Estimation of RNA by Orcinol Method</li><li>20. Estimation of DNA by Diphenylamine method</li><li>21. Restriction digestion of plasmid DNA.</li><li>22. Construction of circular and linear restriction map from the data provided.</li></ol>	NIL
October- 2025	<ol style="list-style-type: none"><li>23. Demonstration of ligation of DNA strands</li><li>24. Preparation of competent cells in bacteria</li><li>25. Demonstration of bacterial transformation</li><li>26. Study of equipments used in Animal biotechnology</li><li>27. Study of blotting techniques with photographs- Southern, Northern and Western Blotting</li><li>28. Visit to stem cell/ tissue culture laboratory</li></ol>	NIL

Gadake.

Mr. Ganesh H. Fadake

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**Academic year: 2025-2026**

**Syllabus Completion Report**

**Name of the Teacher: Ms. N. A. Patel**

**Term: I**

**Class: B.Sc. I (Theory)**

**Name of the Paper: Paper II, Cell Biology (2DSC03ZOO12)**

Month	Module unit	Sub unit	Remark
July- 2025	Unit-II	Giant chromosome- Polytene chromosome	NIL
July- 2025	Unit-II	Lampbrush chromosome, Overview of cell cycle	NIL
August- 2025	Unit -II	Phases and significance of mitosis and meiosis	NIL
September- 2025	Unit - II	Structure and organization of microtubules, microfilaments	NIL
October- 2025	Unit - II	Structure and organization of intermediate filaments	NIL

**Class: B. Sc. III (Theory) Name of the Paper: Biometry and Bioinformatics (DSE-I: DSE03ZOO51)**

Month	Module unit	Sub unit	Remark
June- 2025	Unit -I	Biostatistics: Biostatics as a tool in research, Scope of Biostatistics, Measures of central tendency: Concept of mean, mode, median 15hrs.	NIL
July- 2025	Unit -I	Frequency distribution: Principles of frequency distribution, Graphical presentation of data (Line diagram, Bar diagram; Pie chart, Histogram- equal and unequal classes, Polygon and frequency curve, Ogive curve), Tabulation – Definition requirement of a good table, Part of the table, Type of tabulation, and its application.	NIL
August- 2025	Unit –I & II	Methods of sampling data: Random sampling, Stratified sampling, Systematic sampling, Tools of biostatistics in life sciences & research: Correlation: Types and methods of Correlation, Measure of dispersion (standard deviation), mean deviation, Student t-test, Chi-Square test, ANOVA. Introduction to Bioinformatics: Definition, Basic concepts in bioinformatics, importance and role of bioinformatics in life sciences	NIL
September- 2025	Unit - II	Elementary knowledge of computer: Organization of computer, input and output devices, elementary idea of	NIL

		software, hardware Information Resources: Introduction, aim and objectives, National Centre for Biotechnology Information(NCBI), National Library of Medicine (NLM), and National Institute of Health (NIH), EBI, Sequence retrieval system(SRS): Entrez, DBGet.	
October-2025	Unit - II	Genomics and Genome databases: Introduction, Databases, Data, Nucleic acid sequence database, Gene Bank, EMBL, DDBJ, Human Genome Project (HGP), Goal and applications of Genomics Gene Expression Analysis: Microarray data analysis	NIL

Class: B.Sc. I (PR)

Practical: ZOOLOGY LAB (1): 2DSC03ZOO19 (Practical I)

Month	Practical	Remark
July-2025	1. Study of the specimens with respect to classification and morphological peculiarities: Phylum Porifera to Phylum Echinodermata 2. Study of the following permanent slides: a. T.S. or L.S. of Sycon b. T.S. of male and female <i>Ascaris lumbricoides</i> 3. Mounting of mouth part in cockroach/honey bee/ any insect 4. Mounting of sponging fibres and spicules	NIL
August-2025	5. Study of life history stages of <i>Taenia solium</i> 6. Study of life cycle of <i>Ascaris lumbricoides</i> 7. Preparation of <i>Paramoecium</i> culture 8. Temporary preparation of pedicellaria	NIL
September-2025	9. Study of compound Microscope : Simple and Compound 10. Temporary preparation of mitotic cells from onion roots 11. Extraction of DNA from given sample	NIL
October-2025	12 Stained squash preparation of salivary gland chromosomes	NIL

Class: B.Sc. II (Major) (PR) Practical: Practicals based on Animal Physiology (2DSC03ZOO31) and Evolution (2DSC03ZOO32)


Month	Practical	Remark
July-2024	1. To prepare hemin crystals from a given blood sample/own blood 2. To detect ABO blood groups in human blood. 3. To determine the bleeding time of own blood 4. To determine the clotting time of own blood.	NIL
August-2024	5. To determine Erythrocyte Sedimentary Rate (E.S.R) 6. To Estimate of Hb by Sahli's haemometer 7. To Count the total RBCs of own blood 8. To Count the total WBCs of own blood	NIL
September-	9. 9. To study Differential WBCs of own blood 10. To Measure human blood pressure	NIL

2024	11. To Interpret the ECG. 12. Measurement of lung capacity	
October-2024	13. Study of dialyzer unit	NIL

**Class: B.Sc. III (PR) Practical: Practicals Based on Paper Biometry & Bioinformatics (DSE03ZOO51)**

Month	Practical	Remark
June - 2024	1. Calculate the mean, mode and median using given data (Any three examples) 2. Calculate the standard deviation using the given data.	NIL
July-2024	3. Draw a line/ Bar/ Pie diagram using the given data. 4. Example based on student t-test & ANOVA. 5. Example based on Chi-square test 6. Draw a Histogram by using given data (equal unequal distribution)	NIL
August-2024	7. Examples based on correlation (Any two examples) 8. Introduction to PUBMED Central database using the ENTREZ search engine. 9. Retrieval of nucleotide and protein sequence from Genebank 10. Similarity sequence search using BLAST	NIL
September-2024	11. Accessing Structural database and download protein sequence. 12. Multiple sequence alignment and phylogenetic tree construction. 13. Molecular visualization and measuring of bond length in protein using RASMOL.	NIL
October-2024	14. Construction and interpretation of phylogenetic tree using PHYLIP	NIL

  
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**Syllabus Completion Report**


**Name of the Teacher: Dr. Tejashri C. Patil**

**Term: I**

**Class: B.Sc. II**

**Name of the Paper: Animal Physiology (2DSC03ZOO31)**  
**and Evolution (2DSC03ZOO32)**

Month	Module unit	Sub unit	Remaining Units
July-2025	UNIT-I	<b>Digestion</b> Brief account of the alimentary canal and digestive glands, Physiology of digestion and absorption of carbohydrates, proteins, and lipids <b>Respiration</b> Brief account of the respiratory system, Pulmonary ventilation, Respiratory volumes and capacities,	NIL
August-2025	UNIT-I	Transport of oxygen and carbon dioxide in the blood, Haldane effect, Bohr's effect, Chloride shift <b>Cardiovascular system</b> Composition of blood, Structure of Heart, Origin and conduction of heartbeat, Cardiac cycle, ECG	NIL
September-2025	UNIT-II	<b>Evidences of Evolution</b> Fossils, Types of fossils, Process of fossilization, dating of fossils, comparative anatomy, vestigial Structures <b>Species concept</b> Biological species concept (Advantages and limitations); Isolating mechanisms, Modes of speciation (Allopatric, Sympatric, Peripatric and Parapatric)	NIL
October-2025	UNIT-II	<b>Extinction</b> Mass extinction (Causes, Names of five major extinctions, K-T extinction in detail), Role of extinction in evolution	NIL

  
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**Class: B.Sc. I Batch B1 Practical: Based on: Animal Diversity I Zoology and Cell Biology (2DSC03ZOO19)**

Month	Practical	Remaining units
July-2025	<ol style="list-style-type: none"> <li>1. Study of the following specimens with respect to classification and morphological peculiarities                             <ol style="list-style-type: none"> <li>a. Amoeba, Paramecium, Sycon, Euplectella</li> <li>c. Obelia, Physalia</li> <li>d. <i>Taenia solium</i>, e. Male and female <i>Ascaris lumbricoides</i>, f. Aphrodite, Hirudinaria</li> <li>g. Limulus, Periplaneta, h. Pila, Octopus, i. Star fish, Antedon</li> </ol> </li> <li>2. Study of the following permanent slides:                             <ol style="list-style-type: none"> <li>a. T.S. or L.S. of Sycon</li> <li>b. T.S. of male and female <i>Ascaris lumbricoides</i></li> </ol> </li> <li>3. Study of mouth parts in insects</li> <li>4. Temporary Preparation of spicules and sponging fibres</li> </ol>	NIL
August-2025	<ol style="list-style-type: none"> <li>5. Study of life history stages of <i>Taenia solium</i></li> <li>6. Study of life cycle of <i>Ascaris lumbricoides</i></li> <li>7. Preparation of paramecium culture</li> <li>8. Temporary Preparation of Pedicellaria</li> <li>9. Temporary Preparation of tube feet</li> </ol>	NIL
September-2025	<p>Cell Biology (At least 7 experiments)</p> <ol style="list-style-type: none"> <li>1. Study of microscope: simple and compound</li> <li>2. Temporary Preparation of mitotic cell from onion roots</li> <li>3. Temporary Preparation of nucleus from W.B. Cs</li> <li>4. Extraction of DNA from Given sample</li> </ol>	NIL
October-2025	<ol style="list-style-type: none"> <li>5. Stained squash preparation salivary gland chromosome</li> <li>6. Study of cell organelles</li> <li>7. Stained preparation of mitochondria from oral mucosa</li> <li>8. effect of tonicity of solution on plasma membrane of RBCs</li> <li>9. Field visit-Museum, National Park, Sea shore</li> </ol>	NIL

**Class: B.Sc. I Batch O8 Practical: Based on: Dairy Production and Technology (2OEC03LFS12)**

Month	Practical	Remaining units
July-2025	<ol style="list-style-type: none"> <li>1. Study of nutrients of milk</li> <li>2. Total fat analysis of milk</li> <li>3. Testing of milk adulteration</li> <li>4. Preservation of milk sample for Chemical analysis</li> <li>5. sampling of milk and milk products for microbial and chemical analysis</li> </ol>	NIL
August-2025	<ol style="list-style-type: none"> <li>6. Determination of specific gravity of milk</li> <li>7. determination of titratable acidity of milk</li> <li>8. Study of transport and chilling and storage of milk at farm level</li> <li>9. Preparation of dahi</li> <li>10. Preparation of Lassi</li> </ol>	NIL
September-2025	<ol style="list-style-type: none"> <li>11. Preparation of Butter milk</li> <li>12. Preparation of Butter</li> <li>13. Preparation of Ghee</li> <li>14. Preparation of peda</li> <li>15. Preparation of Kheer</li> </ol>	NIL
October-2025	<ol style="list-style-type: none"> <li>16. Preparation of paneer</li> <li>17. Determination of moisture content, acidity, fat content of paneer</li> <li>18. Visit dairy or milk product industry</li> </ol>	NIL


**Class: B.Sc. II Batch Z1 Practical: Based on: Animal Physiology (DSC03ZOO31)  
and Evolution (DSC03ZOO32)**

Month	Practical	Remaining units
July-2025	1. To prepare hemin crystals from a given blood sample/own blood 2. To detect ABO blood groups in human blood. 3. To determine the bleeding time of own blood 4. To determine the clotting time of own blood.	NIL
August-2025	5. To determine Erythrocyte Sedimentary Rate (E.S.R) 6. To Estimate of Hb by Sahli's haemometer 7. To Count the total RBCs of own blood 8. To Count the total WBCs of own blood	NIL
September-2025	9. To study Differential WBCs of own blood 10. To Measure human blood pressure 11. To Interpret the ECG.	NIL
October-2025	12. Measurement of lung capacity 13. Study of dialyzer unit	NIL

**Class: B.Sc. III Batch Z1 Practical: Based on: VSC-PR-IV: VSC03ZOO59: Pearl Culture**

Month	Practical	Remaining units
June-2025	1. Study of common species of fresh water pearl mussel used for pearl culture 2. Study of morphology and anatomy of fresh water pearl mussel	NIL
July-2025	3. Study of life cycle of fresh water pearl mussel 4. Study of construction of fresh water pearl culture unit	NIL
August-2025	5. Maintenance of fresh water pearl culture unit 6. Embedding beads in suitable mussel for pearl culture 7. Isolation and processing of pearl	NIL
September-2025	8. Study of diseases and predators of fresh water pearl mussel 9. Study of pearl formation and it's chemical composition 10. Study of types of pearls – (Natural pearl and Cultured pearl)	NIL
October-2025	11. Testing of natural and artificial pearl 12. Economic importance and marketing of pearl 13. Visit to any pearl culture unit	NIL

  
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