STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
COURSE PLAN (June - November 2026)

Department : **Zoology**
Name/s of the Faculty : **Dr. Lyndsay Priscilla A**
Course Title : **Cell and Molecular Biology**
Course Code : **23ZL/MC/CM54**
Shift : **I**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the basic concepts related to structure of prokaryotic and eukaryotic cells, the structure and functions of various organelles, diseases related to defective mitochondria and lysosome, cell signalling, cell cycle and its regulation, apoptosis and cancer biology, the structure and types of nucleic acids, DNA replication and repair and the organisation, regulation and expression of genes	K1
CO2	describe the structure of prokaryotic and eukaryotic cells, the structure and functions of various organelles, diseases related to defective mitochondria and lysosome, cell signalling, cell cycle and its regulation, apoptosis, characteristics of cancer cell and genetic basis of cancer, the structure and types of nucleic acids, DNA replication and repair and the organisation, regulation and expression of genes	K2
CO3	apply the knowledge gained to compare the structure of prokaryotic and eukaryotic cells, describe the structure and functions of various organelles, diseases related to defective mitochondria and lysosome, cell signalling, cell cycle and its regulation, apoptosis, characteristics of cancer cell and genetic basis of cancer, the structure and types of nucleic acids, DNA replication and repair and the organisation, regulation and expression of genes	K3
CO4	analyse the structure of prokaryotic and eukaryotic cells, the structure and functions of various organelles, diseases related to defective mitochondria and lysosome, cell signalling, cell cycle and its regulation, apoptosis, characteristics of cancer cell and genetic basis of cancer, the structure and types of nucleic acids, DNA replication and repair and the organisation, regulation and expression of genes	K4

CO5	evaluate the structure of prokaryotic and eukaryotic cells, the structure and functions of various organelles, diseases related to defective mitochondria and lysosome, cell signalling, cell cycle and its regulation, apoptosis, characteristics of cancer cell and genetic basis of cancer, the structure and types of nucleic acids, DNA replication and repair and the organisation, regulation and expression of genes						K5
Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Jun 15 – 22, 2026 (Day Order 1- 6)	1.1 1.2	Introduction to Cell and basic properties of cells. Two basic classes of cells – Prokaryotes and Eukaryotes - Endosymbiont theory Cell membrane: Structural organization,	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	Quiz Recapitulation
Jun 23 – July 1, 2026 (Day Order 1- 6)	1.2 1.4 2.1	Cell membrane: Asymmetry and Fluidity, Specializations in Structure Transport Across Membranes. Mitochondria: Structure, functions Mitochondrial diseases Peroxisomes Endoplasmic Reticulum	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	Mind map of PM Concept review questions

July 2 – July 8, 2026 (Day Order 1- 6)	2.1 2.1 2.2	Golgi Apparatus Lysosomes: Structure, Polymorphism, Functions and Diseases Vesicular Transport and Protein trafficking	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	Diagrammatic summary of vesicular transport **Component 1 Frame your own questions Marks 20**
July 9 – 16, 2026 (Day Order 1- 6)	5.4 4.1 2.3	Ribosome: Structure & Function Nucleic Acids: Types, Molecular Structure and Functions of DNA and RNA Nuclear Organization	K1 - K5	5	CO 1 - 5	Lecture Molecular Models Chain reaction exercise	Recapitulation Quiz
July 17 – 24, 2026 (Day Order 1- 6)	2.4 5.1	Chromosomes: Structure, Types and Functions Organization of Prokaryotic genes and Eukaryotic genes	K1 - K5	5	CO 1 - 5	Lecture Flipped classroom Animation	Muddiest point technique
July 25 – 28, 2026 (Day Order 1- 3)	4.2	DNA Replication: Theta model in prokaryotes	K1 - K5	2	CO 1 - 5	Lecture PowerPoint Presentation Animation	Recapitulation
July 29 – Aug 3, 2026	**C.A. Test - I**						

Aug 4 - 6, 2026 (Day Order 4 - 6)	4.2	Rolling Circle Model - Replication in Eukaryotes	K1 - K5	3	CO 1 - 5	Lecture PowerPoint Presentation Animation	Key difference between the prokaryotic and eukaryotic DNA replication
Aug 7 – 14, 2026 (Day Order 1- 6)	4.3 5.2 5.3	DNA Repair mechanisms Gene regulation in Eukaryotes: Transcriptional activation and repression Transcription: Biosynthesis of RNA – Transcription Factors	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	DNA repair Comparison – cause, effect and efficiency **Component 2 Assignment on differences in prokaryotic and eukaryotic DNA replication Marks: 20**
Aug 17 - 24, 2026 (Day Order 1- 6)	5.3 5.4	Post Transcriptional Modifications Mechanism of translation: Genetic Code Post Translational Modifications in Collagen	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	Quiz
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	5.4	RNA interference: Types (siRNA, miRNA & piRNA) and Significance	K1 - K5	5	CO 1 - 5	Lecture Animation	Comparison/ Discussion

	1.3	Cytoskeleton: Microtubules, Actin Filaments and Intermediate Filament					Highlight key differences
Sep 3 – 11, 2026 (Day Order 1- 6)	1.3 3.1 3.2	Cytoskeleton Cell cycle and its regulation - Mitosis Cell cycle and its regulation - Meiosis Cell Signaling: Basic principles of intercellular and intracellular signaling	K1 - K5	5	CO 1 - 5	Lecture Group discussion Animation	Quiz
Sep 15-17, 2026 (Day Order 1 - 3)	3.2	Cell Signaling: Signal Transduction	K1 - K5	2	CO 1 - 5	Lecture Simulation	Muddiest point technique
Sep 18 –23, 2026	**C.A. Test - II**						
Sep 24 - 28, 2026 (Day 4 – 6)	3.3	Apoptosis - Role of neurotrophins	K1 - K5	3	CO 1 - 5	Lecture PowerPoint Presentation Animation	Recapitulation
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	3.3 3.4	Apoptosis - Role of mitochondria in Apoptosis Cancer Biology: Characteristics of a Cancer Cell – Altered	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	**Component 3 Concept review questions - Quiz Marks: 10**

		Cell Cycle in Cancer Cell					
Oct 8 - 14, 2026 (Day Order 1 - 6)	3.4	- Genetic Basis (A brief study): Role of Proto-oncogenes, Oncogenes and Tumour Suppressor Genes	K1 - K5	5	CO 1 - 5	Lecture PowerPoint Presentation Animation	Recapitulation
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						

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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : **Zoology**

Name/s of the Faculty : **Ms. Mary Angelin**

Course Title : **Fundamentals of Biotechnology**

Course Code : **23ZL/MC/FB54**

Shift : **I**

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

Cos	Description	CL
CO1	recall the basic concepts and tools in biotechnology, mechanisms and methods of cloning, DNA transfer and site-directed mutagenesis, applications of various techniques in human welfare, genetically modified organisms and related ethical issues, animal cell and tissue culture techniques, Stem Cell therapy and significance of IPR, methods of DNA sequencing, basic concepts of Bioinformatics, significance of Human Genome Project and Enzyme technology and its applications	K1
CO2	describe the tools in biotechnology, mechanisms and methods of cloning, DNA transfer and site-directed mutagenesis, applications of various techniques in human welfare, genetically modified organisms, animal cell and tissue culture techniques, Stem Cell therapy and significance of IPR, methods of DNA sequencing, basic concepts of Bioinformatics, significance of Human Genome Project and Enzyme technology and its applications	K2
CO3	apply the acquired knowledge to explain the tools in biotechnology, mechanisms and methods of cloning, DNA transfer and site-directed mutagenesis, applications of various techniques in human welfare, genetically modified organisms, animal cell and tissue culture techniques, Stem Cell therapy and significance of IPR, methods of DNA sequencing, basic concepts of Bioinformatics, significance of Human Genome Project and Enzyme technology and its applications	K3
CO4	analyse the role of various tools in biotechnology, methods of cloning, significance of DNA transfer and site-directed mutagenesis, applications of various techniques in human welfare, genetically modified organisms, animal cell and tissue culture techniques and Stem Cell therapy, significance of IPR, methods of DNA sequencing, applications of Bioinformatics, significance of Human Genome Project and applications of Enzyme technology	K4

CO5	evaluate the role of various tools in biotechnology, methods of cloning, significance of DNA transfer and site-directed mutagenesis, applications of various techniques in human welfare, genetically modified organisms, animal cell and tissue culture techniques and Stem Cell therapy, significance of IPR, methods of DNA sequencing, applications of Bioinformatics, significance of Human Genome Project and applications of Enzyme technology						K5
Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Jun 15 – 22, 2026 (Day Order 1- 6)	1.1	Definition & Areas of Biotechnology	K1 – K5	5	CO1 – CO5	Lecture with interaction	Discussion
	1.2	Tools of Genetic Engineering - Enzymes, Recombinant DNA Technology, Passenger DNA				Audiovisuals relating to tools of genetic engineering	
Jun 23 – July 1, 2026 (Day Order 1- 6)	1.2	Cloning Vectors - cDNA Library - Gene Bank	K1 – K5	5	CO1 – CO5	Lecture Learning by doing	Component: Quiz on Cloning Vectors – 10 marks
	1.3	Electrophoresis, Northern, Southern and Western Blots				PowerPoint Presentation	Questioning
July 2 – July 8, 2026 (Day Order 1- 6)	1.3	PCR technique	K1 – K5	5	CO1 – CO5	Lecture Simulation	Discussion
	2.1	Cloning in Prokaryotes and Eukaryotes	K1 – K5	5	CO1 – CO5	Audiovisuals relating to cloning	Questioning
July 9 – 16, 2026	2.2	Methods of Transfer of Foreign DNA into Cells:	K1 – K5	5	CO1 – CO5	PowerPoint Presentation	Discussion

(Day Order 1- 6)		Electroporation, Particle Bombardment Gun, Ultrasonication, Liposome Mediated Transfer and Microinjection				Audio visuals relating to methods of transfer	
	2.3	Site - Directed Mutagenesis				Lecture	Puzzle solving
July 17 – 24, 2026 (Day Order 1- 6)	3.1	Gene Cloning in Medicine: Insulin and Somatotropin	K1 – K5	5	CO1 – CO5	Flipped Classroom	Questioning
July 25 – 28, 2026 (Day Order 1- 3)	3.2	Diagnosis and Treatment: DNA Probe, ELISA Technique,	K1 – K5	2	CO1 – CO5	Lecture PowerPoint Presentation	Discussion
July 29 – Aug 3, 2026	**C.A. Test - I**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3.2	Diagnosis and Treatment: Hybridoma Technology, Vaccines, DNA Fingerprinting and Gene Therapy	K1 – K5	3	CO1 – CO5	Lecture PowerPoint presentation Case studies	Discussion on recent research advancements
Aug 7 – 14, 2026 (Day Order 1- 6)	3.3	Genetically Modified Organisms (Microorganisms, Plants and Animals) - Benefits and Hazards of Genetic Engineering -ELSI related to Genetic Engineering	K1 – K5	5	CO1 – CO5	Lecture Case studies Debate	Summarising / Interpretation of research articles Component: Scrapbook on Genetically Modified

							Organism – 20 marks
Aug 17 - 24, 2026 (Day Order 1- 6)	4.1	Animal Cell and Tissue Culture Techniques – Culture Media – Natural and Artificial – Primary and Secondary Cell Lines – Culture Methods – Merits and Demerits	K1 – K5	5	CO1 – CO5	Lecture PowerPoint presentation	Recapitulation
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	4.2	Stem Cell: Classification, Applications and Ethical Issues	K1 – K5	5	CO1 – CO5	Lecture Group discussion	Think-Pair-Share Activity
Sep 3 – 11, 2026 (Day Order 1- 6)	4.3	Biotechnology & Intellectual Property: Intellectual Property Rights (IPR) & Intellectual Property protection (IPP)- patenting of biological materials	K1 – K5	5	CO1 – CO5	Lecture PowerPoint Presentation	Questioning
Sep 15-17, 2026 (Day Order 1 - 3)	5.1	DNA sequencing-Sanger method & applications	K1 – K5	2	CO1 – CO5	Lecture Audiovisual presentation	Discussion
Sep 18 –23, 2026	**C.A. Test - II**						
Sep 24 - 28, 2026 (Day 4 – 6)	5.2	Human Genome Project & its significance - Organisation of Human Genome	K1 – K5	3	CO1 – CO5	Lecture Group discussion	Discussion

Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	5.3	Basic Concept of Bioinformatics: Proteomics and Genomics	K1 – K5	5	CO1 – CO5	Lecture Simulation	Questioning
Oct 8 - 14, 2026 (Day Order 1 - 6)	5.4	Enzyme Technology: Production, Immobilisation and Application	K1 – K5	5	CO1 – CO5	Lecture PowerPoint presentation	Component: Assignment Submission on Enzyme Technology & Application – 20 marks
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : **Zoology**

Name/s of the Faculty : **Ms. Albina Jerome D**

Course Title : **Genetics**

Course Code : **23ZL/MC/GN54**

Shift : **I**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the basic concepts of Mendelian Genetics and extensions of Mendelian Genetics, linkage, crossing over and linkage mapping, sex determination mechanisms and sex linkage, mutations, genetic disorders, pedigree analysis, genetic counselling, population genetics, developmental genetics, epigenetics and conservation genetics	K1
CO2	describe the Mendelian inheritance, other patterns of inheritance, mechanisms of sex-determination, linkage and crossing over, mutations, genetic disorders, genetic counselling and the concepts in population genetics, developmental genetics, epigenetics, and conservation genetics	K2
CO3	apply the acquired knowledge to solve problems, construct pedigree charts, differentiate the patterns of inheritance, discuss the mechanisms of sexdetermination, linkage and crossing over, the types and causes of mutations, genetic disorders and significance of genetic counselling, and to explain the concepts in population genetics, developmental genetics, epigenetics and conservation genetics	K3
CO4	analyse the different patterns of inheritance, mechanisms of sex-determination, linkage and crossing over, types and causes of mutations, genetic disorders and significance of genetic counselling, and concepts in population genetics, developmental genetics, epigenetics, and conservation genetics	K4

CO5	evaluate the patterns and mechanisms in genetic inheritance, pedigree charts, sexdetermining mechanisms, types and causes of mutations, genetic disorders, significance of genetic counselling and the concepts in population genetics, developmental genetics, epigenetics and conservation genetics						K5
Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Jun 15 – 22, 2026 (Day Order 1- 6)	1.1	Introduction: Mendel and his Experiments - Laws - Back Cross / Test Cross - Application of Mendel's principles to predict the outcomes of crosses (The Punnett-Square Method, The Forked-Line Method and The Probability Method)	K1 - K5	4	CO1 - CO5	Interaction & Lecture Audio Visual Presentation - https://youtu.be/95SL6UbP3ww?si=RCxHySU7CrPqECf6 Virtual Game Based Learning - https://biomanbio.com/HTML5GamesandLabs/Genegames/genetics.html	Problems based on Monohybrid and Dihybrid crosses
Jun 23 – July 1, 2026 (Day Order 1- 6)	1.2	Interaction of Genes : Incomplete Dominance – Codominance - Lethal Genes	K1 - K5	4	CO1 - CO5	Lecture Problems based on the topic	Quiz
July 2 – July 8, 2026 (Day Order 1- 6)	1.2	Interaction of Genes : Epistasis and other	K1 - K5	4	CO1 - CO5	Lecture	Quiz

		modified ratios: Inheritance of flower colour in Sweet Pea, seed capsule shape in Shepherd's Purse, Fruit Colour in Summer Squash, Coat colour in mice - Phenocopy - Penetrance and Expressivity				Problems based on the topic	
July 9 – 16, 2026 (Day Order 1- 6)	1.3	Extra Chromosomal Inheritance : Criteria for Extra Chromosomal Inheritance - Cytoplasmic Inheritance (Plastid Inheritance in *Mirabilis jalapa*) - Maternal Influence (Shell Coiling in *Limnaea*) – Mitochondrial Inheritance (Kearns - Sayre Syndrome)	K1 - K5	4	CO1 - CO5	PowerPoint Presentation Construction of concept maps Problems solving	Questioning using flash cards
July 17 – 24, 2026 (Day Order 1- 6)	2.1	Polygenic Inheritance: Characteristics – Eg. Skin Colour in Humans - Transgressive Variation (Weight in Chicken) -	K1 - K5	4	CO1 - CO5	Audio Visual Presentation - Documentary on skin colour - The Biology of Skin Color —	Problems based on the topic

		Calculating the number of polygenes				HHMI BioInteractive Video Problem solving	
July 25 – 28, 2026 (Day Order 1- 3)	2.2	Multiple Allelic inheritance: Characteristics – Eg.Coat Colour in Rabbits	K1 - K5	2	CO1 - CO5	Lecture and PowerPoint Presentation Problem-based learning	Exit Tickets - Students summarise the learnings in a short write up
July 29 – Aug 3, 2026	**C.A. Test - I**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	2.3	Linkage and Crossing Over: Complete and Incomplete Linkage in *Drosophila*	K1 - K5	2	CO1 - CO5	PowerPoint Presentation	**Component 1 - Genetics Problem Test** Units included: Based on 1.1, 1.2, 2.1 and 2.2 Marks allotted: 15 marks
Aug 7 – 14, 2026 (Day Order 1- 6)	2.3	Cytological Proof of Crossing Over, Eg. *Drosophila* – Linkage Mapping	K1 - K5	4	CO1 - CO5	PowerPoint Presentation	Construction of Linkage maps

Aug 17 - 24, 2026 (Day Order 1- 6)	3.1 & 3.2	Sex Determination: Chromosomal Mechanisms of Sex Determination, Male Haploidy - Environmental Factors Affecting Sex Determination Sex Determination in *Drosophila* - Sex Determination in Humans - Dosage Compensation: Barr Body and Lyon's Hypothesis	K1 - K5	4	CO1 - CO5	Lecture and Audio Visual Presentation Group Discussion	Questioning using Flash cards
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	3.3	Sex Linkage: X-linked recessive inheritance (Drosophila, Eye Colour – Humans, Duchenne Muscular Dystrophy) - Y- Linked Inheritance - Sex Influenced and Sex Limited Genes in Humans	K1 - K5	4	CO1 - CO5	PowerPoint Presentation Pedigree Analysis	Pedigree Problems
Sep 3 – 11, 2026 (Day Order 1- 6)	4.1	Mutations: Classification - Point Mutations: Frameshift and	K1 - K5	4	CO1 - CO5	Lecture and PowerPoint Presentation	Quiz on mutations

		Substitution mutations, Mutagens - Ames Test					
Sep 15-17, 2026 (Day Order 1 - 3)	4.2	Numerical Variations: Non-disjunction and autosomal and allosomal aneuploid condition in humans, Polyploidy: origin, types, examples and significance	K1 - K5	2	CO1 - CO5	Audio Visual Presentation Construction of Concept Maps	**Component 2 - Genetic Disorder Diary submission** Units included: Based on 1.2, 3.3, 4.1, 4.2 and 4.3 Marks allotted: 15 marks
Sep 18 –23, 2026	**C.A. Test - II**						
Sep 24 - 28, 2026 (Day 4 – 6)	4.2 & 4.3	Chromosomal Aberrations: Types, Examples and Causes - Inborn Errors of Metabolism: Phenylalanine metabolic pathway, Galactosemia and Lactose Intolerance- Genetic Counselling	K1 - K5	2	CO1 - CO5	Audio Visual Presentation Construction of Concept Maps Guest Lecture - Genetic Counselling	Quizizz Quiz

Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	5.1 & 5.2	Population Genetics: Gene Pool and Gene Frequency, Hardy - Weinberg Law and Factors Influencing Allele Frequency Genetic Regulation of Development in Drosophila: Developmental Stages – Three Major Classes of Developmental Genes (Maternal Effect Genes, Segmentation Genes and Homeotic Genes)	K1 - K5	4	CO1 - CO5	Lecture Problem based Learning PowerPoint Presentation	Problems based on Population Genetics Questioning
Oct 8 - 14, 2026 (Day Order 1 - 6)	5.3 & 5.4	Epigenetics: Definition, Mechanisms – Epigenetics and cancer, imprinting, nutrition and ageing. Conservation Genetics:- Ex Situ Conservation : pros and cons, examples of Captive Breeding and Gene Banks- In Situ Conservation: pros and cons, examples of Population	K1 - K5	4	CO1 - CO5	Lecture Group Discussion and Summarizing Research articles on Epigenetics Guest Lecture & Case Study Analysis	**Component 3 - Quiz** Units included: 5.1 and parts of 5.2 Marks allotted: 20 marks

		Augmentation - Case study Analysis					
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : **Zoology**

Name/s of the Faculty : **Ms. Albina Jerome D, Dr. Amritha N, Dr. Parimalam M and Dr. Lyndsay Priscilla A**

Course Title : **Cell and Molecular Biology, Genetics and Biotechnology Practical**

Course Code : **23ZL/MC/P553**

Shift : **I**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	submit a record of practical work carried out in the laboratory and/or a report on a laboratory visit and/or report on inheritance of Mendelian traits	K1
CO2	illustrate and describe the *Drosophil*a mutant forms, equipment used in *Drosophila* culture and various biotechnology experiments	K2
CO3	demonstrate the necessary skills for squash/smear preparation and to determine the ABO blood groups and Rh type	K3
CO4	analyse the inheritance patterns, pedigree of some human inherited traits/diseases/disorders, Mendelian traits, normal and abnormal Karyotypes and calculate the gene frequency and genotypic frequency	K4
CO5	calibrate the ocular micrometer to standardise the microscope and determine the size of microscopic specimen, count the total number of RBCs and WBCs and interpret the results	K5

Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Jun 15 – 22, 2026 (Day Order 1- 6)	1	Syllabus, Microscopy & Introduction to Micrometry	K5	2	CO5	Audio Visual Presentation Explanation	Questioning Evaluation of Observation Notebook
	1	Micrometry	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	1	Micrometry - Repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
Jun 23 – July 1, 2026 (Day Order 1- 6)	1	Micrometry - Repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	1	RBC count	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	1	RBC count - repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook

July 2 – July 8, 2026 (Day Order 1- 6)	1	RBC count - repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	2	Study of any five Mendelian Traits	K4	2	CO4	Explanation PowerPoint Presentation	Activity & Problems based on Mendelian Traits
	1	WBC count	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
July 9 – 16, 2026 (Day Order 1- 6)	1	WBC count - repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	1	WBC count - repeat	K5	2	CO5	Demonstration & Explanation	Evaluation of Observation Notebook
	3	Mitosis - in onion root tip	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation Notebook
July 17 – 24, 2026 (Day Order 1- 6)	3	Mitosis - repeat	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide &

							Observation Notebook
	3	ABO Blood Grouping and Rh typing	K3	2	CO3	Demonstration & Explanation	Questioning Evaluation of Observation notebook
	4	*Drosophila* culture techniques - Workshop	K2	2	CO2	Guest Lecture Demonstration & Explanation	Culturing of flies by students Identification of equipments used in the process of culturing Drosophila
July 25 – 28, 2026 (Day Order 1- 3)	4	Observation and Identification of *Drosophila* mutants	K2	2	CO2	Explanation & PowerPoint Presentation	Evaluation of Observation Notebook Identification of Mutant forms of *Drosophila*

July 29 – Aug 3, 2026	**C.A. Test - I**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3	Meiosis - in grasshopper testis	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation
	3	Meiosis - in grasshopper testis - Repeat	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation
Aug 7 – 14, 2026 (Day Order 1- 6)	4	Genomic DNA extraction	K2	2	CO2	Demonstration & Explanation	Evaluation of observation notebook Identification of equipments used in the process
	2	Pedigree Analysis of some human inherited traits/disorders/diseases	K4	2	CO4	Explanation PowerPoint Presentation	Problems based on Pedigree analysis Case study

	2	Pedigree Analysis of some human inherited traits/disorders/diseases - Continuation	K4	2	CO4	Explanation PowerPoint Presentation Case study	Problems based on Pedigree analysis
Aug 17 - 24, 2026 (Day Order 1- 6)	3	Chironomus - Polytene chromosome - squash preparation	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation
	3	Chironomus - Polytene chromosome - squash preparation - Repeat	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation
	Practical CA 1 (50 marks)						
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	2	Observation of normal male and female, Turner's, Klinefelter's and Down's syndrome karyotypes	K4	2	CO4	Explanation PowerPoint Presentation	Identification of Karyotypes form photographic plates
	3	Squamous epithelium squash preparation – Barr body	K3	2	CO3	Demonstration & Explanation	Evaluation of Slide & Observation

	4	Total RNA extraction	K2	2	CO2	Demonstration & Explanation	Evaluation of observation notebook Identification of equipments used in the process
Sep 3 – 11, 2026 (Day Order 1- 6)	4	Agarose Gel Electrophoresis - Demo	K2	2	CO2	Demonstration & Explanation	Evaluation of observation notebook Identification of equipments used in the process
	4	Agarose Gel Electrophoresis - Group practical	K2	2	CO2	Demonstration & Explanation	Evaluation of observation notebook Identification of equipments

							used in the process
	4	Isolation of Plasmid DNA - Demo	K2	2	CO2	Demonstration & Explanation	Evaluation of observation notebook Identification of equipments used in the process
Sep 15-17, 2026 (Day Order 1 - 3)	1	Micrometry - Revision	K5	2	CO5	Demonstration & Explanation	Evaluation of observation notebook
Sep 18 –23, 2026	**C.A. Test - II**						
Sep 24 - 28, 2026 (Day 4 – 6)	4	Camera Lucida	K2	2	CO2	Demonstration & Explanation	Identification of equipments used in the process
	2	Hardy -Weinberg Equilibrium – Calculating Gene	K4	2	CO4	Explanation Activity	Problems based on Hardy - Weinberg

		Frequency and Genotypic Frequency using bead experiments - calculation of Allelic frequency					Equilibrium
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	2	Hardy -Weinberg Equilibrium – Calculating Gene Frequency and Genotypic Frequency using bead experiments - calculation of Allelic frequency - Continuation	K4	2	CO4	Explanation Activity	Problems based on Hardy - Weinberg Equilibrium
	4	Polymerase Chain Reaction (Demo) & Revision	K2	2	CO2	Demonstration & Explanation Simulation / Virtual Lab	Evaluation of observation notebook Identification of equipments

							used in the process
	Revision						
Oct 8 - 14, 2026 (Day Order 1 - 6)	**Practical CA 2 (50 marks)**						
	Revision						
	Revision						
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
COURSE PLAN (June - November 2026)

Department : **SOCIOLOGY and ZOOLOGY**
Name/s of the Faculty : **Dr. SHANMUGA PRIYA.S and Dr. S. A. VIDHYA**
Course Title : **SOCIOETHNOZOOLOGY**
Course Code : **23ID/IC/SZ55**
Shift : **I**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	understand / recall basic definitions related to ethnology, sociology and their derivatives, concepts regarding human - animal relationships and the role of animals in culture, historical, sociological and economic importance of animals including their use as food, medicine and zooindicators of weather and climate,social evolution and organisation, and communication in humans and animals	K1
CO2	describe/ discuss the wide ranging relationships between humans and animals, communication in humans and animals, social evolution, social organisation, ethnological and sociological concepts	K2
CO3	apply the knowledge gained to identify the historical, sociological and economic use of animals including their use as food, medicine and zooindicators of weather and climate; discuss the meaning of ethnology, sociology and related disciplines,human-animal relationships, social evolution, social organisation and communication in humans and animals	K3
CO4	examine the process of social evolution, social organisation, modes of communication and their functions in humans and animals, human-animal relationships, historical, sociological and economic use of animals	K4

	including their use as food, medicine and zooindicators of weather and climate	
CO5	explain concepts related to Ethnology, Sociology and Sociobiology; human - animal relationships, significance of animals in culture, historical, sociological and economic use of animals including their use as food, medicine and zooindicators of weather and climate; social evolution, social organisation in invertebrates and vertebrates; and communication in humans and animals.	K5

Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Jun 15 – 22, 2026 (Day Order 1- 6)	1	Introduction 1.1 Basic definitions Qualities of Sociality 1.2 Role of animals in human culture: Biological predisposition and individual differences in human attitudes towards	K1-5	6	CO1-5	Concept Mapping Story Telling	Self Narrative
	1	1.1 Ethnobiology and Ethnozoology – Basic definitions (Zoology)	K 1-5	6	CO 1-5	Lecture with Interaction Activity:	One-minute papers

						Connections (to discuss each family's traditional practices) TED talk: 3000-year-old solutions to modern problems	
Jun 23 – July 1, 2026 (Day Order 1- 6)	1	Animal Mythology in the Indian context 1.3 Meaning of Ethnology; Sociology; Sociobiology	K1-5	6	CO1-5	Video Screening	Review
	1	1.4 Human – Animal Relationship (a zoological perspective)	K 1-5	6	CO 1-5	Lecture with interaction	Group quiz
July 2 – July 8, 2026 (Day Order 1- 6)	1	1.4 Interdisciplinary Approach in understanding Human-Animal Relationship	K1-5	6	CO1-5	Group Discussion	III Component Ethnographic Report Presentation (portion unit 1, 25 marks)
	1	3.1 Human – Animal Relationship (a zoological perspective)	K 1-5	6	CO 1-5	Documentary: Mitigating	Group Discussion

		Sociozoologic Scale				Human-Wildlife Conflict	
July 9 – 16, 2026 (Day Order 1- 6)	2	Sociology of Human and Animal Relationship 2.1 Significance of Sociology of Human-Animal Relationship	K1-5	6	CO1-5	Lecture	Quiz
	3	3.2 Animals as food: Arthropods – Molluscs – Echinoderms - Vertebrates	K 1-5	6	CO 1-5	Flipped Classroom	Quiz
July 17 – 24, 2026 (Day Order 1- 6)	2	2.2 Scope of Sociology of Human-Animal Relationship	K1-5	6	CO1-5	Audio Video Presentation	Quiz
	3	3.3 Animals in medicine: zootherapy: Traditional and Contemporary	K 1-5	6	CO 1-5	Lecture with interaction	Exit ticket
July 25 – 28, 2026 (Day Order 1- 3)	2	2.3 Sociological Perspective on Human Animal Relationship	K1-5	3	CO1-5	Group Discussion	Quiz
	3	3.4 Economic importance of animals and their products -	K 1-5	3	CO 1-5	Elicitation	Revision

		Animals as zooindicators of weather and climate				Documentary: How animals predict earthquakes	
July 29 – Aug 3, 2026	**C.A. Test - I**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	2	2.3 Symbolic Interactionism Theory and Conflict Theory	K1-5	3	CO1-5	Lecture	Quiz
	4	4.1 Meaning of Organic Evolution, Natural Selection and Social Evolution – Cooperation, coordination and division of labour	K 1-5	3	CO 1-5	Lecture	Discussion
Aug 7 – 14, 2026 (Day Order 1- 6)	2	2.4 Social Relationships and Social Organizations.	K1-5	6	CO1-5	Group Activity	Quiz
	4	4.1 Meaning of Organic Evolution, Natural Selection and Social Evolution – Cooperation, coordination and division of labour 4.2 Social Groups: Altruism, kin selection, dominance and hierarchy	K 1-5	6	CO 1-5	Lecture with interaction	Muddiest point

Aug 17 - 24, 2026 (Day Order 1- 6)	3	Historical and Sociological significance of animals and their domestication	K1-5	6	CO1-5	Narrative	Quiz
	4	4.2 Social Groups: Altruism, kin selection, dominance and hierarchy 4.3 Coloniality: Adaptive basis of coloniality – Adaptive significance of roles – Optimisation of Caste Systems	K1-5	6	CO1-5	Game-based learning activity: Find the leader Post-game discussion and lecture	Group quiz
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	2	2.3 Social Behaviour	K1-5	6	CO1-5	Group discussion	Quiz
	4	4.3 Social insects: Ants, Bees and Termites – evolution of social organisation – Other social species: invertebrates (Coelenterates)	K1-5	6	CO1-5	Ant Walk on campus	Component: Report on observation of ants on campus (portion 4.3, 25 marks)
Sep 3 – 11, 2026 (Day Order 1- 6)	5	5.1 Origin of human language – Forms of communication	K1-5	6	CO1-5	Lecture, Audio video presentation	Quiz
	4	4.3 Social insects: Ants, Bees and Termites – evolution of social organisation – Other social species:	K1-5	6	CO1-5	Lecture Documentary: Siphonophores-	Post-documentary feedback

		invertebrates (Coelenterates)				drifting colonies of life	
Sep 15-17, 2026 (Day Order 1 - 3)	5	5.1 Origin of human language – Forms of communication	K1-5	3	CO1-5	Lecture, Audio video presentation	Quiz
	4	4.3 Fish, Frogs, Reptiles, Birds and Mammals Social Traits and Social Behaviour in Chimpanzee	K 1-5	3	CO 1-5	Mind map	Revision
Sep 18 –23, 2026	**C.A. Test - II**						
Sep 24 - 28, 2026 (Day 4 – 6)	5	Communication functions	K1-5	3	CO1-5	Discussion	Flowchart
	4	4.4 The Theory of Parental Investment – Ecology of Parental Care – Parent – Offspring conflict – Alloparental care	K 1-5	3	CO 1-5	Lecture with realia	Group quiz
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	5	5.2 Verbal communication and its functions	K1-5	6	CO1-5	Games and Group activity	Discussion

	5	4.4 The Theory of Parental Investment – Ecology of Parental Care – Parent – Offspring conflict – Alloparental care 5.3 Non-verbal communication in animals: Discrete versus graded signals – Signal specificity – Signal economy	K1-5	6	CO1-5	Lecture with interaction	Recapitulation
Oct 8 - 14, 2026 (Day Order 1 - 6)	5	5.2 Non–verbal communication and its functions	K1-5	6	CO1-5	Games and Group activity	Discussion
	5	5.4 Functions, advantages and disadvantages of animal communication– a comparative study	K1-5	6	CO1-5	Game – based learning Post- game discussion	Quiz
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
COURSE PLAN (June - November 2026)

Department : **Zoology**
Name/s of the Faculty : **Ms. Mary Angelin**
Course Title : **Biology of Human Reproduction**
Course Code : **23ZL/GE/HR22**
Shift : **I**

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

COs	Description	CL
CO1	recall the structure and function of the human reproductive system, stages in reproductive life, hormonal control of reproduction, causes for male and female infertility, control of fertility, mechanism of sex determination, embryonic and fetal development, fetal death, parturition, lactation, birth defects, consanguinity, sexually transmitted diseases, Assisted Reproductive Technology, surrogacy and adoption and related ethical issues	K1
CO2	describe the structure and function of the human reproductive system, stages in reproductive life, hormonal control of reproduction, causes for male and female infertility, control of fertility, mechanism of sex determination, embryonic and fetal development, fetal death, parturition, lactation, birth defects, impact of consanguinity, Sexually Transmitted Diseases, methods in Assisted Reproductive Technology, Surrogacy, Adoption and related ethical issues	K2
CO3	apply the knowledge gained to differentiate the structure and functioning of male and female reproductive systems, stages in reproductive life, discuss the causes for male and female infertility and explain the mechanism of sex determination, role of hormones in reproduction, processes of embryonic and fetal development, parturition, lactation, birth defects, impacts of consanguinity, Sexually Transmitted Diseases, methods in Assisted Reproductive Technology, Surrogacy, Adoption and related ethical issues	K3

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 15 – 22, 2026 (Day Order 1- 6)	1.1	Introduction and syllabus Reproductive System: Testis, Testicular Functions, Ovary, Uterine and Ovarian Cycle	K1 – K3	2	CO1 – CO3	Human model Lecture PowerPoint Presentation	Recapitulation
Jun 23 – July 1, 2026 (Day Order 1- 6)	1.2	Hormonal Control of Reproduction: H-P-G Axis	K1 – K3	2	CO1 – CO3	Lecture Audio visual presentation	Group discussion
July 2 – July 8, 2026 (Day Order 1- 6)	1.3	Puberty - PMS - Menopause – Andropause	K1 – K3	2	CO1 – CO3	Lecture Group discussion on menstrual hygiene Audiovisual presentation	Questioning
July 9 – 16, 2026 (Day Order 1- 6)	1.4	Male and Female Infertility: Physiological Causes – other causes: smoking, obesity, PCOS, stress, alcoholism, psychoactive drugs	K1 – K3	2	CO1 – CO3	Lecture Group Discussion	Group discussion on the impact of lifestyle on fertility
July 17 – 24, 2026 (Day Order 1- 6)	2.1	Procreation – Fertilization – Implantation – Placentation- Embryonic	K1 – K3	2	CO1 – CO3	Lecture Concept Map	Component: Quiz on Embryonic and Fetal

		and Fetal Development- Sex Determination				Audio visual presentation	Development - 10 marks
July 25 – 28, 2026 (Day Order 1- 3)	2.2	Prenatal Diagnosis: Invasive and Non-Invasive Methods	K1 – K3	2	CO1 – CO3	Lecture Audiovisual presentation Case analysis	Debate on using technology for prenatal diagnosis
July 29 – Aug 3, 2026	**C.A. Test - I**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	No Class						
Aug 7 – 14, 2026 (Day Order 1- 6)	2.3	Pregnancy – Parturition - Lactation- Nutritional requirements during pregnancy	K1 – K3	2	CO1 – CO3	Lecture Group discussion	Jigsaw Activity
Aug 17 - 24, 2026 (Day Order 1- 6)	2.4	Consanguinity – Fetal Loss - Birth Defects	K1 – K3	2	CO1 – CO3	Lecture PowerPoint presentation Case studies	Case-based discussion on consanguinity
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	3.1	Control of Fertility: Abstinence, Contraception - Medical Termination of Pregnancy	K1 – K3	2	CO1 – CO3	Lecture Discussion on MTP	CA Test

Sep 3 – 11, 2026 (Day Order 1- 6)	3.2	Sexually Transmitted Diseases: Gonorrhea, Syphilis, Genital Herpes	K1 – K3	2	CO1 – CO3	Lecture Powerpoint presentation	Quiz
Sep 15-17, 2026 (Day Order 1 - 3)	3.3	Assisted Reproductive Technology: Artificial Insemination, Induced Ovulation, IVF and ET, Cryopreservation, Stem Cell Banking – associated ethical issues	K1 – K3	2	CO1 – CO3	Audio visual and PowerPoint presentations	Discussion
Sep 18 –23, 2026	**C.A. Test – II**						
Sep 24 - 28, 2026 (Day 4 – 6)	No Class						
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	3.3	Assisted Reproductive Technology: Artificial Insemination, Induced Ovulation, IVF and ET, Cryopreservation, Stem Cell Banking – associated ethical issues	K1 – K3	2	CO1 – CO3	Lecture Flipped classroom	Component: Poster Submission on Assisted Reproductive Technology – 15 marks
Oct 8 - 14, 2026 (Day Order 1 - 6)	3.4	Surrogate Motherhood - Adoption, and related ethical issues	K1 – K3	2	CO1 – CO3	Lecture Group Discussion	Students' presentation on aspects of Adoption
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						