Lecture Plan

Name of the College: Government College of Arts, Science and Commerce. Sanquelim - Goa

Name of Faculty: Mrs. Preethi M. Pednekar	**Subject:** Zoology	
Paper code: ZOC 107	**Program: T.Y. BSc**	**Division: A**
Academic year: 2024-25	**Semester: V**	**Total Lectures: 60**

Course Objectives:
Comprehensive principles of molecular biology and evolution

Expected Course Outcome:
Understanding the replication ,transcription,translation,regulation and the broad evolutionary concepts including species concepts,speciation and modes,population genetics and fossils and their role in evolution

Student Learning Outcome: The student would be able to understand the basic principles of molecular biology and the concepts governing evolution of species and above

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June 2024	28 June 24	29 June 2024	02	Topic 1 --DNA replication and repair mechanism-introduction to nucleic acids . Topic 2-Replication in Eukaryotes-mechanism-part 1		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
JULY 2024	1 July	6 July	04	Topic 3- replication in Eukaryotes-mechanism-part 2 Topic 4-Semi-conservative, bidirectional and semi-discontinous replication Topic 5 -RNA priming Topic 6-Replication of telomeres		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
	8 July	13 July	04	Topic 7-Pyrimidine dimerization and mismatch repair		Power point presentation	Molecular biology by Becker Molecular biology by Watson

				Topic 8—RNA polymerase and transcription unit Topic 9-Mechanism of transcription in eukaryotes Topic 10—Synthesis of rRNA and mRNA			Molecular Biology by C.B Powar
	15 July	20 July	04	Topic 11-transcription factors Topic 12-Structure of globin mRNA Topic 13-split genes: concept of introns and exons, splicing mechanism Topic 14-Alternative splicing ,exon shuffling and RNA editing		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
	22 July	27 July	04	Topic 15-Processing of tRNA Topic 16- Genetic code and evolution Topic 17—Degeneracy and Wobble hypothesis Topic 18—Process of protein synthesis in eukaryotes		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
July-August	29 July	3 August	04	Topic 19-Ribosome structure and assembly in prokaryotes Topic 20-Fidelity of protein synthesis, aminoacyl synthetases and charging of tRNA Topic 21-Proteins involved in initiation of polypeptide chain		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar

				Topic 22 Proteins involved in elongation and termination of polypeptide chain			
August 2024	5 August 2024	10 August	04	Topic 23-Inhibitors of protein synthesis Topic 24-Difference between prokaryotic and eukaryotic translation. Topic 25-Transcription regulation in prokaryotes-principles Topic 26—Lac operon		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
August 2024	12 August	17 August	04	Topic 27—tryptophan operon Topic 28-Transcription regulation in eukaryotes-activators, enhancers ,repressors Topic 29-silencer elements, gene silencing Topic 30-genetic imprinting		Power point presentation	Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar
	19 August	24 August	04	Topic 31-Basic concept of organic evolution(micro,macro,mega evolution) Topic 32-Theories of evolution-Lamarckism Topic 33-Darwinism, Neo Darwinism Topic 34-Contribution of Weisman, De Vries, Huxley, Haeckel			Molecular biology by Becker Molecular biology by Watson Molecular Biology by C.B Powar Organic evolution by Rastogi

	26 August	31 August	04	Topic 35—Origin of earth-chemogeny Topic 36-biogeny, cognogeny Topic 37-concept of species-morphological, genetic, biological Topic 38-species categories-monotypic, polytypic, sibling		Power point presentation	Organic evolution by Rastogi
September 2024	2 September	14 September	04	Topic 39-subspecies,origin of species-allopatric Topic 40- sympatric, parapatric . Topic 41- Variability-nature and kind Topic 42- Causes and role of variability		Power point presentation	Organic evolution by Rastogi
	16 September	21 September	04	Topic 43- mutation-definition,characteristics Topic 44- mutation types Topic 45- causes and effects Topic 46- induced,natural gene mutations		Power point presentation	Organic evolution by Rastogi

	23 September	28 September	04	Topic 47- Classification and types of isolating mechanisms Topic 48- types of isolating mechanisms continued Topic 49- Reproductive isolation Topic 50- role of isolation in evolution			Organic evolution by Rastogi
Sept-October 2024	30 September	5 October	04	Topic 51- types of adaptations-1 Topic 52- types of adaptations-2 Topic 53- convergent ,divergent and parallel adaptations Topic 54- Pre, post and co-adaptations		Power point presentation	Organic evolution by Rastogi
October 2024	7 October 2024	12 October	04	Topic 55-Population genetics-gene pool, gene frequency and equilibrium Topic 56-Hardy-Weinberg law of equilibrium part 1 Topic 57-Hardy-Weinberg equilibrium part 2 Topic 58-fossils types		Power point presentation	Organic evolution by Rastogi

	14 October	22 October	04	Topic 59-formation of fossils Topic 60-dating and significance of fossils		Power point presentation	Organic evolution by Rastogi

*** Assessment Rubrics**

Component	Max Marks
ISA 1	10
ISA 2	10
Practical	50
Project	nil
Semester End Exam	80