



SILVER OAK UNIVERSITY

Silver Oak Institute of Science

Bachelor of Science Physics

Course Name: Introduction to Biology

Course Code: 2050283103

Semester: 1st

Prerequisite:

1. Students should have a strong foundation in basic biology for comprehending the historical origin and evolution of life, as well as fundamental concepts in biology.

Course Objectives:

1. To enable students to trace the historical origin and evolutionary progression of life on Earth.
2. To analyze the fundamental principles underlying the classification and organization of living organisms.
3. To explore the morphological, physiological, and reproductive characteristics of plants and animals.
4. To explore the morphological, physiological, and reproductive characteristics of plants and animals.

Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
4	0	0	4	4

Contents:

Unit	Topics	Teaching Hours	% Weightage
1	Historical Origin and Evolution of life: History of Earth Origin of life Different approaches Cell Theory, Cell differentiation, Levels of organization; Law of Natural Selection Different Classification systems of Living organisms Development of Earliest Life forms: Viruses, Prokaryotes, Eukaryotes, Endosymbiont Theory for Mitochondria and Chloroplasts.	14	25
2	Overview of Plant Kingdom Evolution from Ocean to Land General Outline of Kingdom Plantae General characteristics of plant, Body of Plants Nutritional requirements of Plants Growth: Primary, Secondary, Morphogenesis and Differentiation Reproduction mechanism in Plants Plant Sensory System.	14	25
3	Overview of Animal Kingdom Evolution From Ocean to Land: Primitive and advanced marine animals, Adaptation to land, Exchange with Environment General Outline of Kingdom Animalia General characteristics of animals Levels of Body organization, Nutritional requirements of Animals Printing.	14	25

4	Fundamentals of Biological systems Overview of Digestion, Absorption, Metabolism(Anabolism & Catabolism), Nutrition, Photosynthesis, Respiration, Excretion, Cellular Division - Cell division & types, Phases of Mitosis and Meiosis, Significance Growth: Generation time & Growth rate, Cell cycle: Checkpoints, Phases, Regulators.	14	25
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Course Outcomes:

Sr. No.	CO Statement	Unit
CO-1	Explain knowledge about origin and historical events of evolution of life on earth.	1
CO-2	Understand knowledge of plant kingdom, their classification system and related mechanisms.	2
CO-3	Understand knowledge of animal kingdom, their classification system and related mechanisms.	3
CO-4	Explain fundamental processes of the biological system.	4

Teaching & Learning Methodology:

1. Problem based learning
2. Experiment centric teaching methods
3. Competency based learning
4. Cooperative based learning

Books Recommended:

1. Eugene P. Odum, "Fundamentals of Ecology".
2. Taiz and Zieger, "The Plant Physiology".
3. Willey, J. M., Sherwood, L. M. and Woolverton, C. J. Prescott, Harley and Klein's "Microbiology", McGraw Hill International Edition..
4. Lehninger, "Principle of Biochemistry".

List of Open-Source Software/learning website:

1. <http://silveroakuni.ac.in/video-lecture>

CO-PO-PSO Matrix:

CO. No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-1	1	-	-	-	-	3	1	-	-	-	3	-	-
CO-2	2	-	-	-	-	2	1	-	-	-	3	-	-
CO-3	3	1	1	2	-	2	1	-	-	-	3	-	-
CO-4	3	1	1	2	-	3	1	-	-	-	3	-	-