

## COURSE CURRICULUM FRAMEWORK UNDER AUTONOMY

**Program: B.Sc.**

**Department: Life Sciences**

<b>Semester 1</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
SLSC101	<b>Life Sciences at the molecular and cellular levels</b> Features of living cells Macromolecules & Separation techniques Concept of prokaryotic and eukaryotic cells	02
SLSC102	<b>Introduction to plant and animal life processes</b> Multicellularity, specialized function and physiology Life processes – I Life processes – II	02
SLSC1PR	<b>SEMESTER – I PRACTICALS</b>	02

<b>Semester 2</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
SLSC201	<b>Life Sciences at the molecular and cellular levels</b> Features of living cells Energy Metabolism Cytoskeleton, Structure of Cell Wall and Cell division	02
SLSC202	<b>Elementary genetics, ecology and behaviour</b> Genetics I Genetics II Ecology and Behaviour	02
SLSC2PR	<b>SEMESTER – II PRACTICALS</b>	02

<b>Semester 3</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
<b>SLSC301</b>	<b>Comparative Physiology</b> Homeostasis Control and Coordination in plants and animals Developmental Biology	<b>3</b>
<b>SLSC302</b>	<b>Life processes at the tissue, organ and organism levels: A Biochemical Approach</b> Enzymes Metabolism - Energy from Carbohydrates Metabolism - Energy from Lipids and Proteins	<b>3</b>
<b>SLSC303</b>	<b>Population approach: Population and communities as regulatory unit</b> Concepts in Evolution and Population Genetics Biostatistics Bioinformatics	<b>3</b>
<b>SLSC3PR</b>	<b>Practicals of SLSC301, SLSC302, and SLSC303</b>	<b>2.5</b>

<b>Semester 4</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
<b>SLSC401</b>	<b>Comparative Physiology</b> Homeostasis to stress Homeostasis during infections Infectious Diseases, Basics of Clinical Trials & Medical Pharmacology	<b>3</b>
<b>SLSC402</b>	<b>Life processes at the tissue, organ and organism levels: A Biochemical Approach</b> Metabolism - Anabolism of biomolecules DNA Replication & Transcription Translation & Regulation of gene expression	<b>3</b>
<b>SLSC403</b>	<b>Population approach: Population and communities as regulatory unit</b> Evolution and its consequences Biostatistics Bioinformatics	<b>3</b>
<b>SLSC4PR</b>	<b>Practicals of SLSC401, SLSC402, and SLSC403</b>	<b>2.5</b>

<b>Semester 5</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
<b>SLSC501</b>	<b>Genetics &amp; Immunology I</b> The Genetic material. Mechanisms of Inheritance and variation in Prokaryotes and Bacteriophages. Overview and cells and organs of immune system. Antigen recognition and Effector Mechanisms.	<b>4</b>
<b>SLSC502</b>	<b>Developmental Biology &amp; Neurobiology I</b> Developmental Biology – Model organisms. Animal Development. Introduction to Behaviour and the Nervous System. Cellular Organization of the Nervous System.	<b>4</b>
<b>SLSC503</b>	<b>Fermentation technology &amp; Genetic engineering: A Biotechnological approach I</b> Fermentation technology – Principles. Fermentation technology - Food and Beverage Production. Principles of Gene Cloning. Cloning and Screening Techniques	<b>4</b>
<b>SLSC504</b>	<b>Environmental Biotechnology I</b> Introduction to Fundamentals of Environmental Science. Biodiversity and its Conservation. Pesticides and Toxicology Management. Sustainable Development and Entrepreneurship Development.	<b>4</b>
<b>SLSC5PR1</b>	<b>Practical of SLSC501 and SLSC502</b>	<b>4</b>
<b>SLSC5PR2</b>	<b>Practical of SLSC503 and SLSC504</b>	<b>4</b>

<b>Semester 6</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Credits</b>
<b>SLSC601</b>	<b>Genetics &amp; Immunology II</b> Mechanisms of Inheritance and variation in Eukaryotes. Mutational Variation and Techniques in Molecular Genetics. Hypersensitivity, Vaccines and Immunodeficiency. Transplantation, Tumour Immunology, Tolerance and Autoimmunity.	<b>4</b>
<b>SLSC602</b>	<b>Developmental Biology &amp; Neurobiology II</b> Cellular Aspects of Development. Applications of Developmental Biology. Sensory and Motor System. Neurobiological Diseases.	<b>4</b>
<b>SLSC603</b>	<b>Fermentation technology &amp; Genetic engineering: A Biotechnological approach III</b> Enzyme and Pharmaceuticals Production. Tissue Culture biotechnology. Genetic Engineering. Tools in genetic engineering & Bioinformatics.	<b>4</b>
<b>SLSC604</b>	<b>Environmental Biotechnology II</b> Human Population and Urbanization. Renewable and Non-Renewable Resources. Environmental Management. Safety, Health and Environment.	<b>4</b>
<b>SLSC6PR1</b>	<b>Practical of SLSC601 and SLSC602</b>	<b>4</b>
<b>SLSC6PR2</b>	<b>Practical of SLSC603 and SLSC604</b>	<b>4</b>

