

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: June - November 2024**

**Department : Botany**  
**Name/s of the Faculty : Dr.Antony Rose Immaculate C**  
**Course Title : Microbiology**  
**Course Code : 19BT/MC/MB54**  
**Shift : I**

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 - 6)	<p><b>Unit 1</b></p> <p><b>History of Microbiology</b></p> <p>1.1 Germ Theory of Disease, Koch’s Postulates, Whittaker’s Five Kingdom Theory and Three Domain Concept of Carl Woese</p> <p>1.2 Vaccination – Vaccina, BCG, MMR, DPT</p> <p>1.3 Classification (Bergey’s Manual), Outlines of major groups only</p> <p>1.4 Bacterial Morphology: Cell Wall, Capsule, Flagella, Fimbriae, Nucleus, Plasmids Endospore and Storage Granules</p>	<p>Lecture and Group Discussion on articles from scientific Journals related to vaccination</p> <p>Study of Bacterial morphology through practical isolation and characterization of Bacteria</p>	<p>Microbiology - Prescott, Harley and Klein; Essentials Microbiology – Hogg</p> <p>General Microbiology – Ajith Kumar</p>	
Jun 27 – July 4, 2024 (Day Order 1 - 6)	<p><b>Unit 2 Bacteria</b></p> <p>2.1 Growth: kinetics, Growth Curve, Factors Affecting Growth</p> <p>2.2 Nutritional Types and Types of Media</p> <p>2.3 Control of Microorganisms: Physical Agents -Temperature (high and low), Dessication, Filtration and Radiation, Chemical – Halogens, Alcohols, Preservatives – Natural (Salt &amp; Sugar) Chemical (Sorbates, Benzoate, Sulfur dioxide)</p>	<p>Lecture through practical</p>	<p>Microbiology - Prescott, Harley and Klein; Essentials Microbiology – Hogg; General Microbiology – Ajith Kumar</p>	<p><b>Assignment on 2.3 Marks- 15</b></p>

July 5 – 12, 2024 (Day Order 1 - 6)	2.4 Genetic Recombination: Conjugation, Transformation and Transduction	Lecture and Group Discussion	Microbiology – Pelczar et al; Environmental Microbiology – Maier, Pepper and Gerba; Microbiology – Prescott	
July 15 – 23, 2024 (Day Order 1 - 6)	<b>Unit 3 Viruses</b> 3.1 General Properties of Viruses, Cultivation, Purification and Assay (Plaque Formation)	Lecture through PPT	Microbiology - Prescott, Harley and Klein; Essentials Microbiology – Hogg;  General Microbiology – Ajith Kumar	
July 24 – 31, 2024 (Day Order 1 - 6)	3.2 Structure: Virion Size, Helical Capsid, Icosahedral Capsid and Viral Envelope	Lecture through PPT	Microbiology - Prescott, Harley and Klein; Essentials Microbiology – Hogg;  General Microbiology – Ajith Kumar	<b>Seminar On 3.2 Marks - 15</b>
Aug 1 – 5, 2024 (Day Order 1 - 3)	3.3 Replication: Bacteriophages (Lytic and Lysogenic Cycles)	Lecture through PPT	Microbiology – Pelczar et al; Environmental Microbiology – Maier, Pepper and Gerba;  Microbiology – Prescott	
Aug 6 – 10, 2024	<b>C.A. Test – I</b>			
Aug 12 – 14, 2024 (Day Order 4-6)	3.3 Plant Virus (Tobacco Mosaic Virus) and Animal Virus (Herpes Simplex Virus and Retro Virus)	Lecture through PPT	Microbiology - Prescott, Harley and Klein; Essentials Microbiology – Hogg;	

			General Microbiology – Ajith Kumar	
Aug 16 – 23, 2024 (Day Order 1-6)	<b>Unit 4 Soil Microbiology</b> 4.1 Role of Bacteria, Fungi and Actinomycetes in Composting 4.2 Biogeochemical Cycle: Nitrogen, Phosphorous and Carbon	Lecture through Learning by doing	Micobiology – Prescott;  Vermicology- The Biology of Earthworms – Ismail; Microbial Ecology - Atlas	<b>Quiz on 4.1 &amp; 4.2 Marks - 20</b>
Aug 27 – Sep 3, 2024 (Day Order 1-6)	4.3 Applications of VAM in Forestry and Agriculture	Lecture and Group Discussion	Microbiology – Powar and Daginawala	
Sep 4 – 11, 2024 (Day Order 1-6)	4.4 Causal organisms, Symptoms and Control measures of Root gall disease, Fusarium Wilt, Bunchy top of Banana and Little leaf of Brinjal	Lecture through PPT and practical exposure	Microbiology – Powar and Daginawala	
Sep 12 - 20, 2024 (Day Order 1- 6)	<b>Unit 5 Microbiology of Water and Air</b> 5.1 Microbiology of Domestic Water and Sewage	Lecture & Practical demonstration	Microbial Ecology – Atlas; General Microbiology – Powar II	
Sep 23 - 26, 2024 (Day Order 1-4)	5.2 Purification of Drinking Water	Lecture & Practical demonstration	Microbiology – Powar II	
Sep 27 – Oct 3, 2024	<b>C.A. Test – II</b>			
Oct 4 – 5, 2024 (Day 5 & 6)	5.2 Sewage Treatment and Disposal	Lecture and Industrial visit	Microbiology – Powar II	
Oct 7 - 15, 2024 (Day Order 1 to 6)	5.2 Sewage Treatment and Disposal	Lecture and Industrial visit	Microbiology – Powar II	
Oct 16 - 22, 2024 (Day Order 1 to 6)	5.4 Enumeration of Microorganisms in Air – Sampling Techniques	Lecture & Practical demonstration	Environmental Microbiology – Maier, Pepper and Gerba;	
Oct 23 - 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>			

