

# SWAMI VIVEKANAND MAHAVIDYALAYA UDGIR

DEPARTMENT OF LIFE SCIENCES

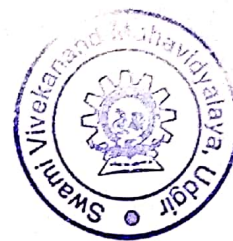
TEACHING PLAN – WINTER 2021

Class: - M.Sc. Microbiology Second Year

Semester:-III

Paper Code & Title:- MB 301 MOLECULAR IMMUNOLOGY

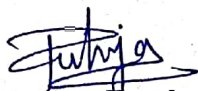
Subject Teacher:- Ms.Digraskar R.B.

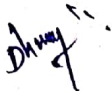


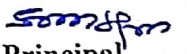
Sr.No.	Date	Day	Topic
			<b>Unit-I Organs and Cells of Immune System</b>
1	20-Oct-21	Wednesday	Primary lymphoid organs - structure and function
2	21-Oct-21	Thursday	Lymphatic system
3	25-Oct-21	Monday	Secondary lymphoid organs
4	26-Oct-21	Tuesday	MALT
5	27-Oct-21	Wednesday	Cutaneous associated lymphoid tissue
6	28-Oct-21	Thursday	Langerhans cells
7	11-Nov-21	Thursday	Lymphoid cells - B-lymphocytes
8	15-Nov-21	Monday	T- lymphocytes
9	16-Nov-21	Tuesday	Null cells, $\gamma \delta$ T cells
10	17-Nov-21	Wednesday	Microglial cells
11	18-Nov-21	Thursday	Haematopoiesis
12	22-Nov-21	Monday	Mast cell

## Unit-II Immunogens and Immunoglobulins

13	23-Nov-21	Tuesday	Types of antigens
14	24-Nov-21	Wednesday	Exogenous, Endogenous, Autologous, Xenogenic
15	25-Nov-21	Thursday	Properties of antigens
16	29-Nov-21	Monday	Haptens, Supera antigens and Adjuvants
17	30-Nov-21	Tuesday	Macrophage activation
18	1-Dec-21	Wednesday	Epitopes: A.A.sequence /structure
19	2-Dec-21	Thursday	Immunoglobulins: Classes, Structure,
20	6-Dec-21	Monday	Isotypic, Allotypic, Idiotypic determinants
21	7-Dec-21	Tuesday	Idiotype network
22	8-Dec-21	Wednesday	Antibody production theories

  
Subject Teacher

  
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**TEACHING PLAN – WINTER 2021**

**Organization and Expression of Immunoglobulin genes**

23	9-Dec-21	Thursday	Genetic model for Ig structure
24	13-Dec-21	Monday	Germ line and somatic variation models
25	14-Dec-21	Tuesday	Dryer and Bennett two gene models
26	15-Dec-21	Wednesday	K chain genes, $\lambda$ chain genes
27	16-Dec-21	Thursday	Heavy chain genes, VH gene segments
28	20-Dec-21	Monday	Gene rearrangement in VH region
29	21-Dec-21	Tuesday	In heavy chain
30	22-Dec-21	Wednesday	Variables region DNA rearrangement,
31	23-Dec-21	Thursday	Generation of antibody diversity
32	27-Dec-21	Monday	Regulation of Ig gene transcription

**Unit-IV MHC Complexes and Clinical Immunology**

33	28-Dec-21	Tuesday	MHC class-I
34	29-Dec-21	Wednesday	MHC class-II - Structure of molecules
35	30-Dec-21	Thursday	Gene organization
36	3-Jan-22	Monday	Genetic polymorphism of molecule
37	4-Jan-22	Tuesday	Peptide interaction with molecule
38	5-Jan-22	Wednesday	MHC and immune responsiveness
39	6-Jan-22	Thursday	MHC and susceptibility to infectious diseases
40	10-Jan-22	Monday	Minor MHA - structure, role and genetics
41	11-Jan-22	Tuesday	HLA system
42	12-Jan-22	Wednesday	Antigen processing and presentation
43	13-Jan-22	Thursday	Hypersensitivity
44	17-Jan-22	Monday	Immunology of Tumors
45	18-Jan-22	Tuesday	Immunodeficiency diseases
46	19-Jan-22	Wednesday	Autoimmune diseases
47	20-Jan-22	Thursday	Immunomodulation
48	24-Jan-22	Monday	Immunological tolerance



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**Subject Teacher**

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TEACHING PLAN – WINTER 2021

Class: - M.Sc. Microbiology Second Year

Semester:-III

Paper Code & Title:- MB 302 RECOMBINANT DNA TECHNOLOGY

Subject Teacher:- Miss. Sonphule S.S.




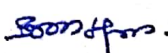
Sr.No.	Date	Day	Topic
			<b>Unit-I Basic tools of r DNA Technology</b>
1	20-Oct-21	Wednesday	Enzymes used with their types
2	21-Oct-21	Thursday	Nucleases
3	25-Oct-21	Monday	Endonucleases
4	26-Oct-21	Tuesday	Nomenclature and classification of type II
5	27-Oct-21	Wednesday	DNA ligation
6	28-Oct-21	Thursday	DNA Manipulating enzymes
7	11-Nov-21	Thursday	Cloning Vectors
8	15-Nov-21	Monday	Plasmids
9	16-Nov-21	Tuesday	Cosmids, Phasmids
10	17-Nov-21	Wednesday	YACs, BACs, PACs
11	18-Nov-21	Thursday	Animal virus derived vectors
12	22-Nov-21	Monday	Expression vectors
13	23-Nov-21	Tuesday	Integrative vectors
14	24-Nov-21	Wednesday	Gene probes
15	25-Nov-21	Thursday	DNA and RNA probes

## Unit-II Nucleic acid Amplification

16	29-Nov-21	Monday	Polymerase Chain Reaction (PCR)
17	30-Nov-21	Tuesday	PCR and its applications
18	1-Dec-21	Wednesday	Viral and bacterial detection
19	2-Dec-21	Thursday	Methods of nucleic acid detection
20	6-Dec-21	Monday	Sequencing methods
21	7-Dec-21	Tuesday	Chemical DNA sequencing
22	8-Dec-21	Wednesday	Automated DNA sequencing
23	9-Dec-21	Thursday	RNA sequencing
24	13-Dec-21	Monday	DNA sequencing
25	14-Dec-21	Tuesday	Methods of nucleic acid hybridization
26	15-Dec-21	Wednesday	Southern blotting
27	16-Dec-21	Thursday	Northern blotting

  
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28	20-Dec-21	Monday	DNA fingerprinting
29	21-Dec-21	Tuesday	Chromosome walking and jumping

**Unit- III Cloning and Screening methodologies**

30	22-Dec-21	Wednesday	Insertion of foreign DNA
31	23-Dec-21	Thursday	Transformation, Transfection
32	27-Dec-21	Monday	Chemical and Physical method
33	28-Dec-21	Tuesday	Microinjection, electroporation
34	29-Dec-21	Wednesday	Gene transfer
35	30-Dec-21	Thursday	Cloning and expression in yeast
36	3-Jan-22	Monday	Plant transformation technology
37	4-Jan-22	Tuesday	Ti and Ri plasmids
38	5-Jan-22	Wednesday	Mechanism of DNA transfer
39	6-Jan-22	Thursday	cDNA and genomic cloning
40	10-Jan-22	Monday	Construction of cDNA
41	11-Jan-22	Tuesday	Hybridization

**Unit-IV Applications of R DNA technology and  
Legal issues**

42	12-Jan-22	Wednesday	Applications of recombinant DNA In medicine
43	13-Jan-22	Thursday	Agriculture, Forensic & veterinary sciences
44	17-Jan-22	Monday	Engineering microbes for the production
45	18-Jan-22	Tuesday	Human genetic engineering and Gene therapy
46	19-Jan-22	Wednesday	Science and the constitution
47	20-Jan-22	Thursday	Revision
48	24-Jan-22	Monday	Revision



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**TEACHING PLAN – WINTER 2021**



Class: - M.Sc. Microbiology Second Year

Semester:-III

Paper Code & Title:- MB 303 MICROBIAL DIVERSITY AND EXTREMOPHILES

Subject Teacher:- Miss. Shinde R.S.

Sr.No.	Date	Day	Topic
1	20-Oct-21	Wednesday	<b>Unit-I Biodiversity and Thermophiles</b>
2	21-Oct-21	Thursday	Introduction to microbial diversity
3	25-Oct-21	Monday	Distribution, Abundance
4	26-Oct-21	Tuesday	Ecological Niches
5	27-Oct-21	Wednesday	Types- Bacterial, Archaeal, Eucaryal
6	28-Oct-21	Thursday	Classification of Archae (Methanogens)
7	11-Nov-21	Thursday	Hyper-thermophilic habitat
8	15-Nov-21	Monday	Classification of Hyper-thermophilic habitat
9	16-Nov-21	Tuesday	Ecological aspects
10	17-Nov-21	Wednesday	Molecular basis of thermo-stability
11	18-Nov-21	Thursday	Heat stable enzymes and metabolism
12	22-Nov-21	Monday	Genetics of thermophiles
13	23-Nov-21	Tuesday	Minimal complexity model systems
14	24-Nov-21	Wednesday	Commercial aspects of thermophiles
15	25-Nov-21	Thursday	Application of thermoenzymes

**Unit-II Acidophiles and Alkalophiles**

16	29-Nov-21	Monday	Acidophiles- Classification
17	30-Nov-21	Tuesday	life at low pH
18	1-Dec-21	Wednesday	Acido-tolerance, applications
19	2-Dec-21	Thursday	Alkalophiles- Isolation
20	6-Dec-21	Monday	Distribution and Taxonomy
21	7-Dec-21	Tuesday	Cell structures
22	8-Dec-21	Wednesday	Physiology
23	9-Dec-21	Thursday	Intracellular enzymes
24	13-Dec-21	Monday	Molecular biology
25	14-Dec-21	Tuesday	Secretion vectors
26	15-Dec-21	Wednesday	Enzymes of alkaliphiles

*Rakhi*  
Subject Teacher

*Shinde R.S.*  
Head of Dept.

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Principal  
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### TEACHING PLAN – WINTER 2021

#### Unit- III Psychrophiles

27	16-Dec-21	Thursday	Conditions for microbial life at low temperature
28	20-Dec-21	Monday	Climate of snow and ice
29	21-Dec-21	Tuesday	life at subzero temperature
30	22-Dec-21	Wednesday	Microbial diversity at cold ecosystem
31	23-Dec-21	Thursday	Snow and glaciers ice
32	27-Dec-21	Monday	Psychropiezophiles
33	28-Dec-21	Tuesday	Anaerobic and cyanobacteria
34	29-Dec-21	Wednesday	Microalgae in Polar Regions
35	30-Dec-21	Thursday	Molecular adaptations to cold habitats
36	3-Jan-22	Monday	Cold adapted enzymes
37	4-Jan-22	Tuesday	Cryoprotectants and ice binding proteins
38	5-Jan-22	Wednesday	Role of exopolymers

#### Unit-IV Halophiles and Barophiles

39	6-Jan-22	Thursday	Halophiles- Classification
40	10-Jan-22	Monday	Hypersaline Environments
41	11-Jan-22	Tuesday	Halobacteria
42	12-Jan-22	Wednesday	Halotolerance
43	13-Jan-22	Thursday	Applications
44	17-Jan-22	Monday	Barophiles
45	18-Jan-22	Tuesday	Classification
46	19-Jan-22	Wednesday	Barophily ,death under pressure.
47	20-Jan-22	Thursday	Revision
48	24-Jan-22	Monday	Revision



*Rakhi*  
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*Dhruv*  
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*Suresh*  
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TEACHING PLAN – WINTER 2021

Class: - M.Sc. Microbiology Second Year

Semester:-III

Paper Code & Title:- MB 304 Biostatistics ,Computer Applications  
& Research Methodology


Subject Teacher:- Mr. Suryawanshi H.S.

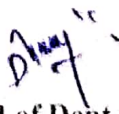


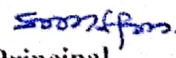
Sr.No.	Date	Day	Topic
	<b>Unit-I</b>	<b>Introductory</b>	<b>Biostatistics and Measures of Central Tendency</b>
1	20-Oct-21	Wednesday	Introductory biostatistics
2	21-Oct-21	Thursday	Sampling. Data collection and presentation
3	25-Oct-21	Monday	Methods of data collection
4	26-Oct-21	Tuesday	Graphical presentation
5	27-Oct-21	Wednesday	Diagrammatic presentation
6	28-Oct-21	Thursday	Measures of central tendency
7	11-Nov-21	Thursday	Mean, mode, and median
8	15-Nov-21	Monday	Quartile and percentile
9	16-Nov-21	Tuesday	Measures of Dispersion
10	17-Nov-21	Wednesday	Range, Standard deviation
11	18-Nov-21	Thursday	Standard Error and its significance
12	22-Nov-21	Monday	Measures of Skewness and Kurtosis
13	23-Nov-21	Tuesday	Measures of Skewness and Kurtosis

## Tests of Significance and Designing of Experiment

14	24-Nov-21	Wednesday	Tests of Significance
15	25-Nov-21	Thursday	Chi - square, t-test
16	29-Nov-21	Monday	Correlation and Regression
17	30-Nov-21	Tuesday	Probability: Definition
18	1-Dec-21	Wednesday	properties, Types, Rules of probability
19	2-Dec-21	Thursday	Applications to biological problems
20	6-Dec-21	Monday	Probability distributions
21	7-Dec-21	Tuesday	Analysis of Variance: ANOVA
22	8-Dec-21	Wednesday	Experimental designs
23	9-Dec-21	Thursday	Randomized Design
24	13-Dec-21	Monday	Latin square design

  
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**Unit- III Computer: Introduction and applications**

25	14-Dec-21	Tuesday	Introduction: Organization of computers
26	15-Dec-21	Wednesday	Classification of computers
27	16-Dec-21	Thursday	Hardware and software
28	20-Dec-21	Monday	Operating System
29	21-Dec-21	Tuesday	Programming languages
30	22-Dec-21	Wednesday	Application packages for microbiologists
31	23-Dec-21	Thursday	MS Office softwares and their applications
32	27-Dec-21	Monday	MS word
33	28-Dec-21	Tuesday	MS PowerPoint
34	29-Dec-21	Wednesday	MS excel
35	30-Dec-21	Thursday	Applications of these softwares in Microbiology
36	3-Jan-22	Monday	Computer based statistical techniques
37	4-Jan-22	Tuesday	statistical softwares
38	5-Jan-22	Wednesday	SAS University Edition, Scilab
39	6-Jan-22	Thursday	Statistical Lab, Dataplot and SOFA

**Unit-IV Research Methodology**

40	10-Jan-22	Monday	Introduction: Definition
41	11-Jan-22	Tuesday	Qualities of a good researcher
42	12-Jan-22	Wednesday	Types of research
43	13-Jan-22	Thursday	Steps in research
44	17-Jan-22	Monday	Formulation of hypothesis
45	18-Jan-22	Tuesday	Scientific writing
46	19-Jan-22	Wednesday	Scientific Documents
47	20-Jan-22	Thursday	Legal aspects of scientific authorship
48	24-Jan-22	Monday	Plagiarism, Impact factor & h-index



*H. H. H.*  
**Subject Teacher**

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**Head of Dept.**

*S. H. H.*  
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