

# M.Sc. Botany, Choice Based Credit System

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## Course Structure and Scheme of Examination

### SEMESTER I

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 101	Bacteriology, Virology & General Microbiology	Core	3	0	3	
BOT 102	Biology and Diversity of Fungi and Plant Pathology	Core	3	0	3	
BOT 103	Biology and Diversity of Algae, Bryophytes and Lichens	Core	3	0	3	
BOT 104	Biology and Diversity of Pteridophytes and Gymnosperms	Core	3	0	3	
BOT 105	Practical Course Based on Theory Course 101 & 102	Core	0	3	3	
BOT 106	Practical Course Based on Theory Course 103 & 104	Core	0	3	3	
BOT-107	Assignment/Personality development	Core			1	
BOT-108	Seminar-I	Core			1	
BOT-109	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Value: #24

### SEMESTER II

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 201	Ecology-I Climatology, Soil Science and Autecology	Core	3	0	3	
BOT 202	Angiosperm Anatomy, Embryology and Palynology	Core	3	0	3	
BOT 203	Water Relations, Growth and Development	Core	3	0	3	
BOT 204	Plant Biochemistry and Metabolism	Core	3	0	3	
BOT 205	Practical Course Based on Theory Course 201 & 202	Core	0	3	3	
BOT 206	Practical Course Based on Theory Course 203 & 204	Core	0	3	3	
BOT-207	Assignment/Personality development	Core			1	
BOT-208	Seminar-II	Core			1	
BOT-209	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Values: #24



SEMESTER III

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 301	Angiosperm Morphology & Taxonomy	Core	3	0	3	
BOT 302	Ecology-II Synecology, Ecosystematology & Phytogeography	Core	3	0	3	
BOT 303	Major Elective I	1. Ethnobotany	3	0	3	
		2. Agroecology				
BOT 304	Major Elective II	1. Plant Biotechnology: In Vitro Culture, Genetic Engineering and IPR Issue	3	0	3	
		2. Pollution Ecology				
BOT 305	Practical - I	Core	3	0	3	
BOT 306	Practical - II	Core	3	0	3	
BOT-307	Assignment/Personality development	Core			1	
BOT-308	Seminar-II	Core			1	
BOT-309	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Values: #24

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**\*SEMESTER IV**

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 401	Genetics, Plant Breeding and Evolution	Core	3	0	3	
BOT 402	Cytology and Molecular Biology of Plants	Core	3	0	3	
BOT 403	Major Elective I	1. Industrial Microbiology	3	0	3	
		2. Stress Physiology				
BOT 404	Major Elective II	1. Bioinstrumentation	3	0	3	
		2. Plant Pathology				
BOT 405	Practical - I	Core	3	0	3	
BOT 406	Practical - II	Core	3	0	3	
BOT-407	Assignment/Personality development	Core			1	
BOT-408	Seminar-II	Core			1	
BOT-409	Comprehensive viva-voce exam	Virtual credit			4	

**Total Credit Values: (Total credits = 24)**

**NOTE: Lecture (L): 1 hr = 1 Credit**

**Tutorial (T): 2 hr = 1 Credit**

**Practical (P): 2 hr = 1 Credit**

**Total Core Course:**

**Total Elective:**

**Total Soft Course:**

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SESSION

JULY 2017

**JIWAJI UNIVERSITY  
GWALIOR (M.P.)**

BOT (01) BACTERIOLOGY

BACTERIOLOGY

UNIT I:

- 1. Historical introduction
- 2. Identification of bacteria
- 3. General characteristics of *Escherichia coli* and *Chlamydia*
- 4. Diseases caused by *Escherichia coli* and *Chlamydia*
- 5. Mode of multiplication: binary fission, conjugation, sporulation, budding

UNIT II:

- 1. General principles of sterilization culture media and culture techniques
- 2. A general view about bacterial toxins
- 3. Bacterial diseases caused by *Escherichia coli* and *Chlamydia*

**SYLLABUS**

UNIT III:

- 1. General properties and classification of viruses
- 2. Cultivation of virus and virus assay
- 3. Transmission of plant viruses and control measures
- 4. Oncogenic viruses and onco-oncogenes
- 5. Viral diseases: measles, Hepatitis, AIDS and Rabies

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UNIT IV:

- 1. General characteristics of fungi
- 2. Taxonomy of fungi: phylum, class, order, family, genus and species
- 3. Morphology, reproduction of *Aspergillus* and *Penicillium*
- 4. Mycotoxic, general, zoonotic and infectious diseases caused by them

**M.Sc. (BOTANY)**

UNIT V:

- 1. Biological conversion of waste products with particular reference to alcohol and biogas
- 2. General account of bioreactors, properties of substrates and inhibitors
- 3. Allergens and food allergens
- 4. Mycotoxic and food toxins

**SEMESTER SYSTEM**

PRACTICALS:

1. Preparation of culture media
2. Isolation of *Escherichia coli* and *Penicillium* from soil and moulds
3. Various methods of bacterial staining to study cell wall, endospore, capsule and flagella
4. Identification of micro-organisms by using biochemical tests: *Escherichia coli*, *Staphylococcus*, *Bacillus*, *Penicillium*, *Aspergillus*, *Wheat*, *Yeast*, *Aspergillus*
5. Construction of bacteriophage
6. Quantitative estimation of bacteria in a sample
7. Isolation of micro-organisms - resistant variant of *Neisseria*
8. Culture, tryptic case of bacterial virus, different antibiotics
9. Purification of DNA and study of chemical structure and function of DNA
10. Virus cultivation: identification by
11. Study of complex systems of plant virus
12. Bacteriophage culture
13. Isolation and identification of bacteria, *Escherichia coli* and *Staphylococcus aureus* and *Penicillium* different incubation
14. Use of selected media for isolation of bacteria
15. Identification of bacteria by using biochemical tests

**SESSION**

2015 - 2017



