

# ACADEMIC CALENDER 2023-24 (Running Session)

## DEPARTMENT OF BOTANY

### MAHARAJA BIJLI PASI GOVT. P.G. COLLEGE, ASHIYANA, LUCKNOW

**NAME OF TEACHER:** DR. VINAY KUMAR PRAJAPATI

**DESIGNATION:** ASSISTANT PROFESSOR

S.No.	Class/ Semester	Paper	Unit	Topic	Monthly Plan/ Weekly Plan	Teaching Pedagogy	Learning Outcome	Any Other Details
1	BSc-I SEM	I, BOT-101T / MINOR	UNIT-I	Nature, classification and structure (helical and icosahedral symmetry) of plant viruses; Symptoms (external & internal) of virus infected plants; Transmission of plant viruses; Genome organization and replication of tobacco mosaic virus; Techniques in plant virology - purification, serology and electron microscopy; Structure and replication of bacteriophage; Structure and replication of viroids.	Min 2 Lectures And Remedial & Tutorial Lectures	Lectures, PPTs/PDF Notes, ICT Methods & Interactive Sessions	To understand these concepts	Evaluation through Assignments and Discussion
			UNIT-II	Overview of cell structure and function in the prokaryotes (Bacteria and Archaea); Classification of prokaryotes based on cell structure (Archaea, Gram-positive and Gram-negative bacteria, Mollicutes); Metabolic diversity of bacteria (phototrophy, chemolithotrophy, autotrophy, heterotrophy, fermentation); Bacterial cell division and microbial growth; Bacterial genome and plasmids; Variability in bacteria: Mutation and genetic recombination; Microbial growth control; Bacterial culture and staining; Economic importance of bacteria.	Min 2 Lectures And Remedial & Tutorial Lectures	Lectures, PPTs/PDF Notes, ICT Methods & Interactive Sessions	To understand these concepts	Evaluation through Assignments and Discussion
		BOT-102P	UNIT-I	<b>Instruments &amp; Techniques</b> <input type="checkbox"/> Laboratory safety and good laboratory practices <input type="checkbox"/> Principles and application of Laboratory instruments- microscope, incubator, <input type="checkbox"/> autoclave, centrifuge, Laminar air flow cabinet, filtration unit, shaker, pH meter. <input type="checkbox"/> Buffer preparation & titration <input type="checkbox"/> Cleaning and Sterilization of glasswares <input type="checkbox"/> Preparation of media- Nutrient Agar and Broth <input type="checkbox"/> Inoculation and culturing of bacteria in Nutrient agar and nutrient broth <input type="checkbox"/> Preparation of agar slant, stab, agar plate <input type="checkbox"/> Phenol Coefficient method to test the efficacy of disinfectants	Min 2 Lectures	Lab work and Lectures	To understand these concepts	Evaluation through Experiments and Group Discussion
			UNIT-II	<b>Symptoms of plant virus infection, and Bacterial Identification</b> <input type="checkbox"/> Study the external symptoms of plant virus infection	Min 2 Lectures	Lab work and Lectures	To understand these concepts	Evaluation through Experiments and Group Discussion

				<input type="checkbox"/> Study of morphological forms of bacteria <input type="checkbox"/> Gram-staining of bacteria <input type="checkbox"/> Cultural characteristics of bacteria on nutrient agar <input type="checkbox"/> Pure culture techniques <input type="checkbox"/> Biochemical characterization of bacteria: Carbohydrate fermentation test, Mannitol motility test, Gelatin liquefaction test, Urease test, Nitrate reduction test, Catalase test, Oxidase test, Starch hydrolysis, Casein hydrolysis.				
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**NAME OF TEACHER:** DR. SMRATI MISHRA

**DESIGNATION:** ASSISTANT PROFESSOR

**CLASS:** M. Sc. I SEMESTER (APPLICABLE FROM SEPTEMBER 2023)

S.No.	SEMESTER	COURSE NUMBER	UNIT	COURSE NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER I	BOT-CC-103	UNIT I UNIT II UNIT III UNIT IV UNIT V	ALGAE AND BRYOPHYTES	08 08 08 16 08	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	Students will be able to understand general features and different classes of algae, their origin and phylogeny. They will also be able to know the salient features, origin, phylogeny, evolution and fossil history and economic importance of bryophytes.	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
2.	SEMESTER I	BOT-CC-104	UNIT I UNIT II	PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY	12 12	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	Students will be able to understand general features of pteridophytes, their classification, phylogenetic associations, economic significance and fossil history.	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
3.	SEMESTER I	BOT-CC-105		PRACTICAL BASED BOT-CC-101 TO BOT-CC-104	08 04 08 08	LAB WORK & LECTURE	CORE The students will identify the diversity in viruses, bacteria by using microscopic techniques. External and internal features of different form of algae, fungi, lichens, bryophytes, pteridophytes, and gymnosperm will be studied via naked eye observation and using microscope also.	EVALUATION THROUGH EXPERIMENTS AND GROUP DISCUSSIONS
4.		VALUE ADDED BOT-VC-101	UNIT III UNIT IV	CONSERVATION OF PLANT DIVERSITY	08 08	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The student will get an overview of the significance of plant diversity and different global strategies for sustainable use of biodiversity and their conservation	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS

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**DESIGNATION:** ASSISTANT PROFESSOR

**CLASS:** M. Sc. II SEMESTER (APPLICABLE FROM JANUARY 2024)

S.No.	SEMESTER	COURSE NUMBER	UNIT	COURSE NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER II	BOT-CC-201	UNIT I UNIT II UNIT III UNIT IV UNIT V	PLANT DEVELOPMENT AND REPRODUCTION	12 08 08 08 12	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will understand the differentiation and development of different plant organs and specialized structures They will have an understanding of the phenomenon of morphogenesis and will understand the concept of microsporogenesis and megasporogenesis	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
2.	SEMESTER II	BOT-CC-203	UNIT I UNIT II UNIT III UNIT IV UNIT V	CYTOGENETICS AND MOLECULAR GENETICS	12 10 08 08 10	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will have detailed understanding of the structure and chemical basis of chromosome and the physical and molecular basis of inheritance and heredity. The students will learn about different mechanisms related with gene expression in detail	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS

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**CLASS:** M.Sc. III SEMESTER (APPLICABLE FROM SEPTEMBER 2023)

S.No.	SEMESTER	COURSE NUMBER	UNIT	COURSE NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER III	BOT-CC-301	UNIT IV UNIT V	PLANT PHYSIOLOGY	10 10	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will understand the different aspects of plants growth and development, flowering response and will also be able to understand the mechanisms developed by plants to overcome abiotic stresses.	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
2.	SEMESTER III	BOT-CC-302		PRACTICAL BASED ON BOT-CC-301	08	LAB WORK & LECTURE	They will understand different aspects of above mentioned topics in an experimental way.	EVALUATION THROUGH EXPERIMENTS AND GROUP DISCUSSIONS
3.	SEMESTER III	BOT-EL-301A	UNIT I UNIT II UNIT III UNIT IV UNIT V	APPLIED BOTANY-I	08 08 08 08 08	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will get an idea about the impact of microorganisms on mankind, the industrial algae and, concept of IPM and understand the economic importance of Bryophytes, Pteridophytes.	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
4.	SEMESTER III	BOT-IN-301		SUMMER INTERNSHIP	16	INTERACTIVE SESSION	STUDENT PARTICIPATION	EVALUATION THROUGH GROUP DISCUSSIONS

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**DESIGNATION:** ASSISTANT PROFESSOR

**CLASS:** M.Sc. IV SEMESTER (APPLICABLE FROM JANUARY 2024)

S.No.	SEMESTER	COURSE NUMBER	UNIT	COURSE NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER IV	BOT-CC-401	UNIT IV UNIT V	CELL BIOLOGY AND PLANT BIOCHEMISTRY	10 10	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will gain knowledge of the structural and functional aspects of the cytoskeletal system and membrane transport. Learn about secondary metabolites and its biosynthesis, also have an idea of programmed cell death.	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSIONS
4.	SEMESTER IV	BOT-MT-401		MASTER THESIS	16	FIELD WORK LAB WORK & THESIS GUIDANCE	The students will get the necessary training for experimentation, writing thesis on assigned problem and the information collected through review of literature	EVALUATION THROUGH THESIS VIVA
5.	SEMESTER IV	BOT-IRA-401	UNIT I UNIT I UNIT III UNIT IV UNIT V	NATURAL RESOURCES AND THEIR CONSERVATION	08 08 08 08 08	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will develop a basic understanding of the limited natural resources and their conservation and sustainable use. They will also learn about the various types of soils and methods for their reclamation. The students will gather information on various sources of energy and generation of energy from waste	EVALUATION THROUGH ASSIGNMENTS, MID TERM EXAM AND GROUP DISCUSSION

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**DESIGNATION:** ASSISTANT PROFESSOR

**CLASS:** B. Sc. I SEMESTER (NEP 2020) (APPLICABLE FROM AUGUST 2023)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER I	BOT-101T	UNIT IV	DIVERSITY OF PLANT VIRUSES, BACTERIA, FUNGI AND ALGAE	16	LECTURES, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	Students will be able to understand general features and classification of algae, their economic importance. They will also be able to know about diversity among algal groups.	EVALUATION THROUGH ASSIGNMENTS, AND DISCUSSIONS
2.	SEMESTER I	BOT-102P	UNIT IV PHYCOLOGY	DIVERSITY OF MICRO-ORGANISMS	16	LAB WORK & LECTURE	Students will be able to understand external and internal organization of selected Algae	EVALUATION THROUGH EXPERIMENTS AND GROUP DISCUSSIONS

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**CLASS:** B. Sc. II SEMESTER (NEP 2020) (APPLICABLE FROM JANUARY 2024)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER II	BOT-201T	UNIT I  UNIT II	DIVERSITY OF BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS, AND PALAEOBOTANY	12  12	LECTURE PPTs NOTES ICT METHODS & INTERACTIVE SESSIONS	The students will develop understanding on general characters, classification, morphology, anatomy and reproduction in Bryophytes and Pteridophytes	EVALUATION THROUGH ASSIGNMENTS, AND GROUP DISCUSSIONS
2.	SEMESTER II	BOT-202P	UNIT I BRYOPHYTES  UNIT II PTERIDOPHYTES	DIVERSITY OF ARCHEGONIATES	12  12	LECTURE & LAB WORK	The Students will be able to understand diversity in external and internal organization among bryophytes and pteridophytes.	EVALUATION THROUGH EXPERIMENTS AND GROUP DISCUSSIONS



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**CLASS:** B. Sc. III SEMESTER (NEP) (APPLICABLE FROM SEPTEMBER 2023)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER III	BOT-301T	UNIT II UNIT III	PLANT TAXONOMY, DEVELOPMENT AND REPRODUCTION	12 12	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will develop clear concept of meristems, tissues, their growth and differentiation, and development of organ.	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
2.	SEMESTER III	BOT-302P	UNIT II UNIT III	PLANT ARCHITECTURE	12 12	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS

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**CLASS:** B. Sc. IV SEMESTER (NEP 2020) (APPLICABLE FROM JANUARY 2024)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER IV	BOT-401T	UNIT I UNIT II	ECOLOGY, SOIL SCIENCE AND ENVIRONMENTAL POLLUTION	12 12	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will Understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
2.	SEMESTER IV	BOT-402P	UNIT I UNIT II	PLANTS AND ENVIRONMENT	12 12	LECTURE & LAB WORK	They will understand the complex inter-relationship between organisms and environment and will learn about the methods for studying vegetation, community patterns and processes, ecosystem functions	EVALUATION THROUGH LAB WORK AND DISCUSSIONS

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**CLASS:** B. Sc. V SEMESTER (NEP 2020) (APPLICABLE FROM AUGUST 2023)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER V	BOT-501T	UNIT I	CYTOLOGY, GENETICS, AND PLANT BREEDING	10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will acquire knowledge on ultrastructure of cell	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
			UNIT II	CYTOLOGY, GENETICS, AND PLANT BREEDING	10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	They will have knowledge on cell division, Mendelian Genetic and gene interaction	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
			UNIT III	CYTOLOGY, GENETICS, AND PLANT BREEDING	10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will gain an insight to linkage, cytoplasmic inheritance and sex linked inheritance and mutation	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
			UNIT IV	CYTOLOGY, GENETICS, AND PLANT BREEDING	10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will understand techniques of plant breeding	EVALUATION THROUGH ASSIGNMENTS AND DISCUSSIONS
2.	SEMESTER V	BOT-504IN		INTERNSHIP/TERM PAPER	16	PDF, PPTs , Website link, on Assigned Topics, ICT METHODS & INTERACTIVE SESSIONS	To develop proper understanding about assigned topic and initiate individual research work at small experimenalt level	EVALUATION THROUGH PRESENTATIONS AND VIVA-VOCE

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**CLASS:** B. Sc. VI SEMESTER (NEP 2020) (APPLICABLE FROM JANUARY 2024)

S.No.	SEMESTER	PAPER NUMBER	UNIT	PAPER NAME	LECTURE	TEACHING PEDAGOGY	LEARNING OUTCOME	ANY OTHER DETAIL
1.	SEMESTER VI	BOT-603Tb	UNIT I	PLANT BIOTECHNOLOGY	10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will Understand the general aspects of.	EVALUATION THROUGH ASSIGNMENTS, AND DISCUSSIONS
			UNIT II		10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will gain insight into use of biotechnology in improving food quality, pest and disease resistance, plant development,	EVALUATION THROUGH ASSIGNMENTS, AND DISCUSSIONS
			UNIT III		10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will learn production of proteins, enzymes and vaccines	EVALUATION THROUGH ASSIGNMENTS, AND DISCUSSIONS
			UNIT IV		10	LECTURE, PPTs NOTES, ICT METHODS & INTERACTIVE SESSIONS	The students will acquire knowledge about plant tissue culture	EVALUATION THROUGH ASSIGNMENTS, AND DISCUSSIONS
2.	SEMESTER VI	BOT-602P	UNIT I	CYTOGENETICS, PLANT PHYSIOLOGY & BIOCHEMISTRY	10	LECTURE & LAB WORK	They will Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex linked inheritance	EVALUATION THROUGH LAB EXPERIMENTS AND DISCUSSIONS