

Government Girls PG College, Ghazipur

Department of Botany

Program outcomes (B.Sc. Botany)

- Includes approaches to understand benefits derived from the plant world. The entire living world, especially man, is directly or indirectly dependent on plants.
- To know more about the utility of plants which will be useful for further studies in the various fields like Agriculture, Horticulture, Floriculture, Modern Medicine, Ayurveda.
- Plant biologists (students) who can employ and implement their gained knowledge in basic and applied aspects that will profoundly influence the prevailing paradigm of agriculture, industry, healthcare and environment to provide sustainable development.
- It will increase the ability of critical thinking, development of scientific attitude, handling of problems and generating solution, improve practical skills, enhance communication skill, social interaction, and increase awareness in judicious use of plant resources by recognizing the ethical value system.
- Lifelong learning be achieved by drawing attention to the vast world of knowledge of plants and their domestication.

Program Specific Outcomes (PSOs 1; B. Sc. Botany)

- Understanding the nature and basic concepts of all the plant groups, their metabolism, components at the molecular level, biochemistry, taxonomy and ecology. The course will make them aware of natural resources and environment and the importance of conserving it. Hands on training in various fields will develop practical skills, handling equipment's and laboratory use along with collection and interpretation of biological materials and data. Knowledge gained through theoretical and lab-based experiments will generate technical personnel in various priority areas such as genetics, cell and molecular biology, plant systematics and biotechnology.
- Botanists are able to contribute to all these fields and therefore, are mainly employed with educational institutions, government or public sectors or companies in industries, such as agriculture or forestry, oil, chemical, biotechnology, geological survey,

environmental protection, drugs, genetic research, plant resources laboratories, plant health inspection services, lumber and paper, food, fermentation, nursery, fruit and so on. Jobs available as a Botanist, Microbiologist, Plant pathologist, Taxonomist, Plant Physiologist, Plant Biochemist, Researcher, Mycologist, Ecologist, Weed Scientist, Palaeo-botanist, Conservationist, Fruit Grower, Morphologist, Cytologist, Ethnobotanist, Plant geneticists etc.

- Inculcate strong fundamentals on modern and classical aspects of Botany, Understand knowledge of Botany is an essential pre-requisite for the pursuit of many applied sciences. It will facilitate students for taking up and shaping a successful career in Botany and allied sciences.
- Introduction of research project will inculcate research aptitude and passion for higher education and scientific research.

Course Outcomes (COs 1; B. Sc. Botany)

B. Sc. Ist Year (Certificate course in Microbial Technology and Classical Botany)

This course may impart knowledge in different fields of plant biology through teaching, interactions and practical classes. It shall maintain a balance between the traditional botany and modern science for shifting it towards the frontier areas of plant sciences with applied approach. Students would gain wide knowledge in following aspects:

1. Diversity of plants and microbes, their habitat, morphological architecture and reproduction.
2. Plant disease causing microbes, symptoms as well as their control.
3. Economic value of plants and their use in Human Welfare and Society.

B. Sc. IInd Year (Diploma in Plant Identification, Utilization and Ethno-medicine)

This course provides a broad understanding of identifying, growing and utilization of plants. It is primarily aimed to introduce people to the richness of plant diversity found in surrounding areas. Also, it is designed to cover fundamental topics concerning classification of plants and their utilization required for understanding the flora as well as vegetation. Practical sessions are organized following theory for easy understanding of the various parts of the plants, structural organization of floral parts and diversity therein. Participants are taken to different locations covering a variety of habitats and forest types to acquaint them with the native flora. In the long

run, will contribute towards building momentum for people's participation in environmental conservation without compromising on academic rigour and our rich wealth of knowledge inherited over generations.

1. The course will cover conventional topics in Field Botany like Evolutionary History and Diversity of Plants, Morphology, Nomenclature of plants, Systems of Classification, Keys to Important Families of Flowering Plants, Field Data Collection as well as Herbarium Techniques.
2. The course is designed to become a commercial crop grower, florist, and protected cultivator, greenbelt plant advisor to industries, pharmacologist and taxonomist.

B.Sc. IIIrd Year (Bachelor of Science)

The learning outcomes of three years graduation course are aligned with program learning outcomes but these are specific to-specific courses offered in a program. The core courses shall be the backbone of this framework whereas discipline electives, generic electives and skill enhancement courses would add academic excellence in the subject together with multi-dimensional and multidisciplinary approach.

1. Understanding of plant classification systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms.
2. This course is suitable to produce expertise in conservation biology like ex-situ conservation, response to habitat change, genotype characterization and reproductive biology.
3. Understanding of various analytical techniques of plant sciences, use of plants as industrial resources or as human livelihood support system and is well versed with the use of transgenic technologies for basic and applied research in plants.
4. Understanding of various life forms of plants, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, transgenic technology and use of bioinformatics tools and databases and the application of statistics to biological data.
5. Entrepreneurship Skill Development, Understand the issues of environmental contexts and sustainable development, Inculcation of human values,
6. Strengthen mathematical and computational skills. Enable students to use ICT and AI effectively.
7. Develop good skills in laboratory such as observation and evaluation by the use of modern tools and technology.