



St. Albert's College (Autonomous)

An initiative of Archdiocese of Verapoly

Affiliated to Mahatma Gandhi University, Kottayam

(Accredited with "A" Grade by NAAC)

Programme Outcomes

Programme Specific Outcomes

Course Outcomes

Department of Botany

B.Sc. Botany - Syllabus 2017

Programme Outcomes

PO1. Knowledge and understanding of:

- The evaluation of plant diversity and its classification with reference to the flora of Kochi, Kerala, vs India and the World.
- The role of plants in the functioning of the global ecosystem.
- Statistics as applied to biological data.
- Basic life science and fundamental process of plants and analyze any plant form.

PO2. Intellectual skills-able to:

- Assimilate knowledge and ideas based on wide reading, through books, journals, internet etc.
- Understand the evolving state of knowledge in a rapidly developing field.
- Construct and test hypothesis.
- Plan, conduct and write a report on an independent term project.

PO3. Practical skills in:

Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules.

- Interpreting plant morphology and anatomy.
- Mastery of vegetation analysis techniques.
- A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry.
- Analyze data using appropriate statistical methods and computer packages.
- Working towards the direction of developing plant clinics and farm support.

PO4. Transferable skills in:

- Use of IT (word-processing, use of internet, statistical packages and databases) for communication of scientific ideas in writing and oral presentation.
- Ability to work as part of a team.
- Ability to use library resources.
- Time management & Career planning.
- Local resource management in terms of plants

PO5. Design /development of solutions in investigation and management of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and development of the information to provide valid conclusions for the benefit of the society.

PO6. Modern tool usage:

Create, select, and apply appropriate techniques, resources, and modern instruments and equipments for biochemical estimation, molecular biology, biotechnology, plant tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.

PO7. The Botanist and Society:

Apply reasoning informed by the contextual knowledge to assess plant diversity, its importance for society, health, safety, legal and environmental issues and the consequent responsibilities relevant to the biodiversity conservation practice.

PO8. Environment and sustainability and ethics:

Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development with a right insight to apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

PO9. Life-long learning:

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Programme Specific Objectives

To develop an understanding of the plant diversity on earth along with study of representative members from the various plant groups.

- To develop a scientific aptitude by following scientific methodology during the course.
- To learn basic skills like identification of plants, examining their features like morphology, anatomy, biochemistry, physiology etc. and analysing data by the use of instrumentation and biostatistics.
- To acquire knowledge about developing and carrying out project works for the purpose of problem-solving.

- To develop the skills to find out applications of the subject in the context of daily-life.

Course Objectives

Core Courses

BOT1CRT0117 - Methodology of Science and An Introduction to Botany

- Understand the universal nature of science
- Demonstrate the use of scientific method
- To lay a strong foundation to the study in Botany
- Impart an insight into the different types of classifications in the living kingdom
- Appreciate the world of organisms and its course of evolution and diversity
- Develop basic skills to study Botany in detail

BOT2CRT0117 - Microbiology, Mycology and Plant Pathology

- Understand the world of microbes, fungi and lichens
- Appreciate the adaptive strategies of the microbes, fungi and lichens
- To study the economic and pathological importance of microorganisms

BOT3CRT0117 - Phycology and Bryology

- To study the evolutionary importance of Algae as progenitors of land plants
- Understand the unique and general features Algae and Bryophytes and familiarize it
- To study the external morphology, internal structure and reproduction of different types of Algae and Bryophytes
- Realize the application of Phycology in different fields.

BOT4CRT0117 - Pteridology, Gymnosperms and Paleobotany

- Understand the diversity in habits, habitats and organization of various groups of plants.
- To impart an insight into the modern classifications in lower forms of plants.
- Understand the evolutionary trends in Pteridophytes and Gymnosperms.
- Study the anatomical variations in vascular plants.
- Understand the significance of Paleobotany and its applications.

BOT5CRT0117-Anatomy, Reproductive Botany and Microtechnique

- Imparting an insight into the internal structure and reproduction of the most evolved group of plants, the Angiosperms.
- Understand the individual cells and also tissues simultaneously.
- Understand the structural adaptations in plants growing in different environment.
- Understand the morphology and development of reproductive parts.
- Get an insight in to the fruit and seed development.
- Understand the techniques used to preserve and study plant materials.

BOT5CRT0217 - Research Methodology, Biophysics and Biostatistics

- To equip the students to conduct independent research and prepare research reports.
- To make the students acquaint with different tools and techniques used in research work.
- To equip the students with basic computer skills necessary for conducting research.
- To enable the students to have enough numerical skills necessary to carry out research.

BOT5CRT0317 - Plant Physiology and Biochemistry

- Acquire basic knowledge needed for proper understanding of plant functioning.
- Familiarize with the basic skills and techniques related to plant physiology.
- Understand the role, structure and importance of the bio molecules associated with plant life.

BOT5CRT0417 - Environmental Science and Human Rights

- Acquaint the student with the significance of Environmental Science.
- Make the students aware about the extent of the total biodiversity and the importance of their conservation.
- Help the student to design novel mechanisms for the sustainable utilization of natural resources.
- Enable the students to understand the structure and function of the ecosystems.
- Enable the students to understand various kinds of pollution in the environment, their impacts on the ecosystem and their control measures
- Make the students aware about various environmental laws in India and the role of various movements in the protection of nature and natural resources.

Open Course BOT5COT0117 - Agri-Based Microenterprises

- Provide basic information about the business opportunities in plant sciences.
- Inform the student about sustainable agriculture and organic farming.
- Inculcate an enthusiasm and awareness about ornamental gardening, nursery management and mushroom cultivation.

BOT6CRT0117 - Genetics, Plant Breeding and Horticulture

- Imparting an insight into the principles of heredity
- Understand the patterns of inheritance in different organisms
- Understand the inheritance pattern of nuclear and extra nuclear genes
- Understand the methods of crop improvement
- Understand the importance of horticulture in human welfare
- Develop skill in gardening technique among students

BOT6CRT0217 - Cell and Molecular Biology

- Understand the ultra-structure and functioning of cell in the sub-microscopic and molecular level.
- Get an idea of origin, concept of continuity and complexity of life activities.
- Familiarization of life processes.
- Understand the basic and scientific aspect of diversity.
- Understand the cytological aspects of growth and development.
- Understand DNA as the basis of heredity and variation.

BOT6CRT0317 - Angiosperm Morphology, Taxonomy and Economic Botany

- Acquaint with the aims, objectives and significance of taxonomy.
- Identify the common species of plants growing in Kerala and their systematic position.
- Develop inductive and deductive reasoning ability.
- Acquaint with the basic technique in the preparation of herbarium.
- Familiarizing with the plants having immense economic importance.

BOT6CRT0417 - Biotechnology and Bioinformatics

- Understand the current developments in the field of Biotechnology and Bioinformatics.
- Equip the students to carry out plant tissue culture.
- Introduce the vast repositories of biological data knowledge.

- Equip to access and analyse the data available in the databases.

Elective course BOT6CBT0117 - Agribusiness

- Inculcate and impart an idea about the business opportunities in the field of plant sciences.
- Develop an entrepreneurial mindset and also to stick on to the core subject among the Botany students.
- Give an idea about the need of sustainable development and organic farming.
- Harness the opportunities and potentials in the field of ecotourism, processing technology and foodsciences.

Complementary Course

BOT1CMT0117 - Cryptogams, Gymnosperms and Plant Pathology

- Acquire fundamental knowledge in plant science and to make the student to understand that Botany is an integral part of the human life and developments.
- Foster and encourage an attitude of curiosity, appreciation and enquiry of various life forms of plants.
- Understand the identifying characters of the different types included in the syllabus.
- Understand the diversity of plants with respect to Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms.

BOT2CMT0117 - Plant Physiology

- Make the students realize the importance of all physiological processes which take place in plants.
- Understand the mechanism of various physiological processes related to plant life.

BOT3CMT0117 - Angiosperm Taxonomy and Economic Botany

- Acquaint the student with the objectives and components of Taxonomy.
- Help the student to understand the systems of classification of angiosperms.
- Help the student to identify the common angiosperm species of Kerala.
- Familiarize the student with plants of immense economic importance.

BOT4CMT0117 - Anatomy and Applied Botany

- Understand different types of plant tissues.

- Understand the internal structure of different plant organs with reference to their functions.
- Understand the process of normal and anomalous secondary thickening in plants.
- Know the morphological and anatomical adaptations of plants growing in different habitats.
- Understand how botanical knowledge could be applied for crop improvement.