DEPARTMENT OF BOTANY

(Ph. D in Botany)

The Ph.D. course offered by the Department of Botany, Bodoland University, strictly adheres to CBCS pattern. The Department is offering Ph.D. programme in Botany since 2017. The duration of the Ph.D. course work shall be of 1 Semester (6 months) with 14 credits.

Program outcomes (POs)

 The goal of the course is The Ph.D. course work in Botany is framed to inculcate the Ph.D. scholars with basic and applied knowledge associated with biological science.

 To inculcate skill in problem solving and critical thinking vis-à-vis scientific problems.

 To apply relevant knowledge to problems that emerges from the broader interdisciplinary and multi-disciplinary areas such as biological sciences, environmental sciences, medicines, resource managements etc.

Program specific outcome (PSO's)

 The course will provides thorough knowledge of the literature and a comprehensive understanding of methods and techniques applicable to their own research.

 Course will help to discover the value of plant resources and how they can be used in traditional applications such as agriculture and health care.

 To interpret and communicate new knowledge through original research of publishable quality which satisfies peer review.

 Students would be made aware of the research ethics, scientific temper, intellectual property rights and code of conduct for pursuing career in research and development.

Course Outcome:

Name of the Course	**Course Code**	**Course Outcome**
Research Methodology	BOT CP-I	**CO1**: Knowledge on concepts of research, learn to identify research gap, develop questions, review related research articles, design hypothesis and objectives. And write research proposals or synopsis.

		CO2: Acquaint with various forms of scientific writings such as research article, review article, monographs, popular article, report etc. **CO3**: knowledge on patent, its process, laws regarding patent, copyright etc. **CO4**: Learn the techniques of collection and preservation of lower organisms like algae, lichen etc. and higher plants.
Computer Application	BOT CP II	**CO1:** Basics of computer and its application, how to represent data graphically, used excel for data analysis, browing internet for related literatures **CO2**: Knowledge on the use of adope photoshop, paint programs, various presentation techniques **CO3**: Knowledge on various websites and search engines for accessing quality articles, secondary data etc. **CO4**: Knowledge on various botanical websites such as IPNI, Tropicos, BHL etc.
Plant and Environment	BOT CP III	**CO1:** Concepts of biodiversity, different levels of biodiversity, legal issues, biodiversity hotspot, biodiversity in India **CO2**: Biodiversity and food security, cause of biodiversity loss, consequences, strategies for sustainable use of bio-resources **CO3**: Conservation strategies: in-situ and ex-situ conservation, conservation at various levels **CO4**: Knowledge on protected areas of NE-India and various issues such as animal corridor, connectivity etc.
Plant Taxonomy	BOT OP I	**CO1:** Understanding of Pre/Post Darwinian approaches of plant taxonomy, APG system.

		CO2: Knowledge on modern approaches of plant taxonomy. **CO3:** Understanding the problems teaching in plant taxonomy, taxonomic impediments Enhance the knowledge on taxonomic tools, literature search **CO4:** Skills on plant collections, identification techniques and Herbarium techniques etc.
Ecology	BOT OP II	**CO1 :** Enriched knowledge on field survey, sampling methods **CO2:** Knowledge on principles of ecology, concept and characteristics of ecology, population growth curves, population interactions etc. Also algal ecology in current scenario. **CO3:** Knowledge on ecosystem functioning, definition of ecosystem services (ES), methods of valuation, Ecologic al niche and its types **CO4:** Knowledge on degraded ecosystem research in NE India- current status and future direction, use of algae, microbes and plant for remediation
Plant Physiology and Biochemistry	BOT OP III	**CO1:** Knowledge on various types of stress encountered by plants, their consequences, ways to overcome such stress, ROS, effect and detoxification mechanism in plants **CO2:** Knowledge on secondary metabolites in plants and lichen, biosynthetic pathways and their applications **CO3:** Knowledge on various instruments and laboratory techniques for analytical experiments in plant as well as lichen **CO4:** Knowledge on types of media used, for

		culturing techniques for microbial organism
Research and Publication Ethics	BOT CP IV	**CO1:** Learn about the fundamental knowledge on philosophy, its nature, scope, branches and ethical concepts **CO2:** Awareness of misconducts done during research, its identification, data misinterpretationand predatory publication **CO3:** Learn about publication ethics its importance, violation, conflict of interest, indexing and citation databases research metrics such as citations, h-index, impact factor etc.