

PhD Botany Study Plan



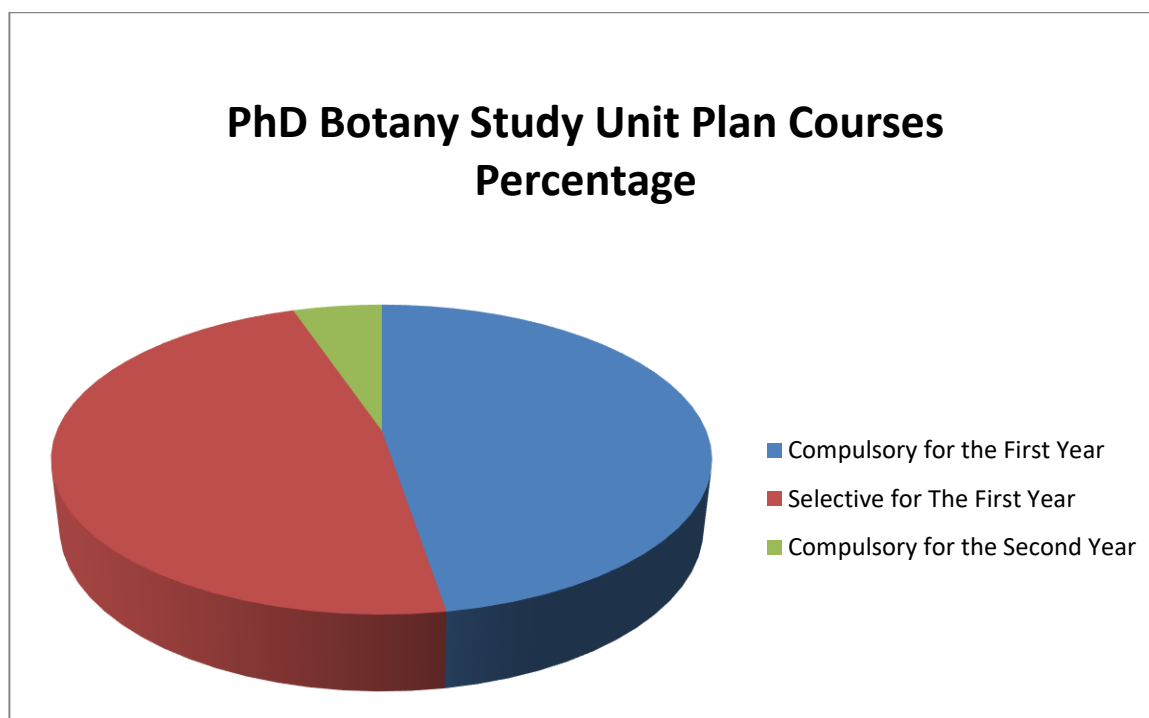
Botany and Microbiology Department

2024 – 1446H

PhD Botany Study Unit Plan Courses Percentage

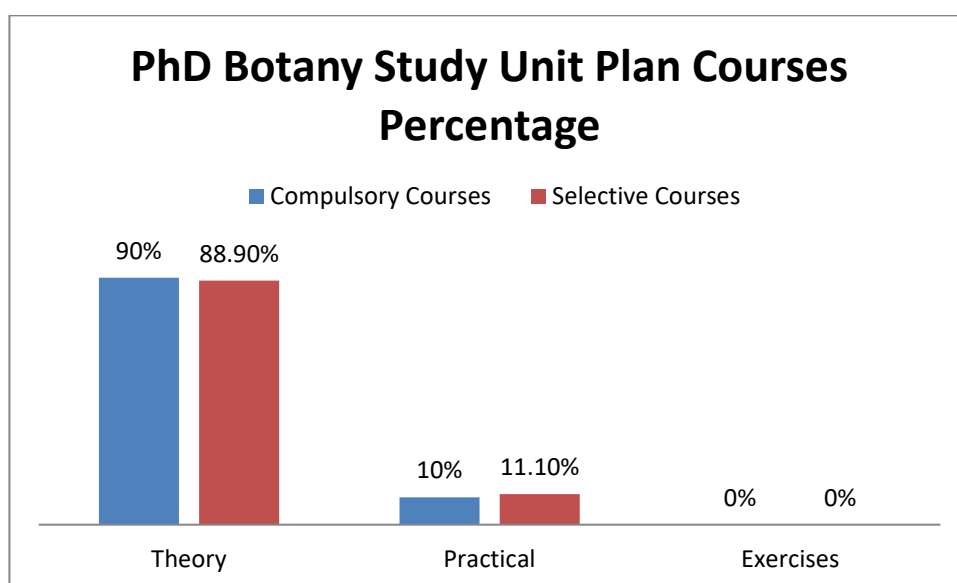
Required Study Courses	Number of Courses	Total Study Unit	Percentage from 19 Unit
Compulsory for the First Year	5	9	47.4%
Selective for The First Year	4	9	47.4%
Compulsory for the Second Year	3	1	5.2%
Total		19	

PhD Botany Study Unit Plan Courses Percentage



PhD Botany Study Unit Plan Courses Percentage

	Number of Courses	Total Study Units	Theory	Percentage of 96 Units	Practical	Percentage of 96 Units	Exercises	Percentage of 96 Units
Compulsory Courses	8	10	9	90%	1	10%	0	0%
Selective Courses	4	9	8	88.9%	1	11.1%	0	0%
Total	12	19	17	89.5	2	10.5%	0	0%



PhD Botany Study Plan

First Semester (COMPULSORY)				
Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
BOT 611	ADVANCED PLANT ANATOMY	-	-	2(2+0+0)
BOT 641	BASIC CHARACTERISTICS OF HABITATS & THEIR PLANTS IN SAUDI ARABIA	-	-	2(2+0+0)
BOT 651	GENE REGULATION & DEVELOPMENT PATTERNS	-	-	2(2+0+0)
BOT 671	ADVANCED STRESS PHYSIOLOGY	-	-	2(2+0+0)
BOT 691	SEMINAR	-	-	1(1+0+0)
Total of Credit Hours				9

Second Semester / ELECTIVE COURSES (9 CREDIT HOURS) according to student minor specialization (which include plant physiology, ecology, and genetic)				
Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
BOT 621	ADVANCED EXPERIMENTAL TAXONOMY	-	-	2(2+0+0)
BOT 642	SEED ECOLOGY	-	-	2(1+0+2)
BOT 652	GENETIC ENGINEERING	-	-	2(2+0+0)
BOT 672	ADVANCED STUDY IN PLANT GROWTH REGULATORS	-	-	2(2+0+0)
BOT 673	PLANT CELL METABOLISM	-	-	2(2+0+0)
BOT 674	SEED PHYSIOLOGY	-	-	2(2+0+0)
BOT 692	SPECIAL TOPICS	-	-	3(3+0+0)
Total of Credit Hours				9

Third Semester (COMPULSORY)				
Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
COM 700	COMPREHENSIVE EXAM	-	-	0(0+0+0)
BOT 699	RESEARCH PROPOSAL PREPARATION	-	-	0(0+0+0)
BOT 700	RESEARCH (THESIS)	-	-	1(0+0+6)
Total of Credit Hours				1

Fourth Semester (COMPULSORY)				
Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
BOT 700	RESEARCH (THESIS)	-	-	1(0+0+6)
Total of Credit Hours				1

(Lect – Exer. – Pract.) = (Lecture – Exercise – Practical)

List of PhD Compulsory Courses

Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
BOT 611	ADVANCED PLANT ANATOMY	-	-	2(2+0+0)
BOT 641	BASIC CHARACTERISTICS OF HABITATS & THEIR PLANTS IN SAUDI ARABIA	-	-	2(2+0+0)
BOT 651	GENE REGULATION & DEVELOPMENT PATTERNS	-	-	2(2+0+0)
BOT 671	ADVANCED STRESS PHYSIOLOGY	-	-	2(2+0+0)
BOT 691	SEMINAR	-	-	1(1+0+0)
BOT 699	RESEARCH PROPOSAL PREPARATION	-	-	0(0+0+0)
BOT 700	RESEARCH (THESIS)	-	-	1(0+0+6)
COM 700	COMPREHENSIVE EXAM	-	-	0(0+0+0)

List of PhD Elective Courses

Course Code	Course Title	Pre-Req.	Co-Req.	Credits (Lect.-Exre.-Pract.)
BOT 621	ADVANCED EXPERIMENTAL TAXONOMY		-	2(2+0+0)
BOT 642	SEED ECOLOGY	-	-	2(1+0+2)
BOT 652	GENETIC ENGINEERING	-	-	2(2+0+0)
BOT 672	ADVANCED STUDY IN PLANT GROWTH REGULATORS	-	-	2(2+0+0)
BOT 673	PLANT CELL METABOLISM	-	-	2(2+0+0)
BOT 674	SEED PHYSIOLOGY	-	-	2(2+0+0)
BOT 692	SPECIAL TOPICS	-	-	3(3+0+0)

PhD Botany Short Course Description

Course Code	Course Title	Credits (Lect.-Exre.-Pract.)
BOT 611	ADVANCED PLANT ANATOMY	2(2+0+0)
Anatomy and taxonomy, Anatomy and phylogeny. Comparative anatomy. Ecological anatomical adaptations of plants to arid and other environments. Scanning electron microscopy and its applications		
BOT 621	ADVANCED EXPERIMENTAL TAXONOMY	2(2+0+0)
Polymorphism and species. Speciation and species limits. Plant Taxonomy and Phylogeny. Ecological and anatomical criteria in Plant Taxonomy. Hybridization, Endemisms, Usage of Computer in Taxonomy.		
BOT 641	BASIC CHARACTERISTICS OF HABITATS & THEIR PLANTS IN SAUDI ARABIA	2(2+0+0)
Natural, regenerated resources. Endangered and rare plant taxa in various habitats in the Kingdom of Saudi Arabia. Reserves and their types. Conserved areas and the plant communities they harbor. Example of selected high altitudinal locations with special references to some their distinctive taxa. Ecological evaluation of botanical data gathered under natural and experimental conditions.		
BOT 642	SEED ECOLOGY	2(1+0+2)
Dynamics of seed reproduction in plants. Post-dispersal of seeds and prior danger. Soil as seed storage. Seed dormancy and its effects on germination. Example of seed dormancy and the strategy of seed germination in desert and other habitats under natural conditions in the Kingdom of Saudi Arabia.		
BOT 651	GENE REGULATION & DEVELOPMENT PATTERNS	2(2+0+0)
Introduction and repression pattern in prokaryotes. The operon model, Lac operon, control of gene expression in eukaryotes. Control of cell divisions, Oncogeny and photooncogeny.		
BOT 652	GENETIC ENGINEERING	2(2+0+0)
Aspects and methods in genetic engineering. Genetic engineering of plant using crown gall. The experimentally controlled introduction of DNA into yeast cells.		
BOT 671	ADVANCED STRESS PHYSIOLOGY	2(2+0+0)
Types of environmental stresses. Effect of stress with emphasis on drought, high temperature, high light intensity and salt on growth, development and metabolism. Mechanisms of physiological and biochemical adaptation to stresses. Improvement of crop growth and production under stresses. Improvement of crop growth and production under stresses. Physiology of desert plants and halophytes.		

BOT 672	ADVANCED STUDY IN PLANT GROWTH REGULATORS	2(2+0+0)
The nature of plant growth regulators, biosynthesis and metabolism. Modes of movements (mainly auxins) and the mechanisms of the regulators action. Phytochromes and photomorphogenesis and the possible role of growth regulators.		
BOT 673	PLANT CELL METABOLISM	2(2+0+0)
Application of thermodynamics law to the cell. Structure and functions of organelles. Conversion of energy and matter.		
BOT 674	SEED PHYSIOLOGY	2(2+0+0)
Types of seeds, fruit and seed development, physical and composition of seeds, factors affecting seed development and germination, dormancy, inhibition and stimulation of seed germination, metabolism of germinating seeds, effect of inhibitors and stimulants on their metabolism.		
BOT 691	SEMINAR	1(1+0+0)
Presentation and discussion of selected topics in botany according to the guidance of the course instructor.		
BOT 692	SPECIAL TOPICS	3(3+0+0)
Advanced topics in botany (Ecology, Genetics, physiology, Anatomy, Taxonomy) according to the need of the student and guidance of the supervisor.		
BOT 699	RESEARCH PROPOSAL PREPARATION	0(0+0+0)
The student must submit a written research plan to be consider by Research Committee for evaluation to be approved by Department Council		
BOT 700	RESEARCH (THESIS)	1(0+0+6)
The student must submit a long thesis involving proposal research, written by a candidate for a university degree		
COM 700	COMPREHENSIVE EXAM	0(0+0+0)
Intensive examination testing a student's proficiency in Botany field		