PLANT BIOTECHNOLOGY, B.SC. - AGRICULTURE

Overview/Entrance Requirements

The B.Sc. (Agriculture) is a professional program which prepares graduates for careers in the public and private sectors related to the production and distribution of agricultural commodities. Graduates are prepared to enter directly into a related graduate studies program.

The Plant Biotechnology Program will provide an integrated and comprehensive study of genetic, physiological and pathological factors and modern technological processes associated with the sciences of plant improvement, production, protection, and utilization. The program will provide an understanding of the biological principles that determine the heredity, growth, and responses of plants and plant pathogens to cultural and environmental factors. All students are required to take the following B.Sc. (Agriculture) degree core requirements and the respective program core courses.

Degree Requirements

Course	Title	Hours
B.Sc. Agriculture Degree Core		
ABIZ 1000	Introduction to Agribusiness Management	3
ABIZ 2510	Introduction to Agricultural and Food Marketing	3
AGEC 2370/ BIOL 2300	Principles of Ecology	3
AGRI 1600	Introduction to Agrifood Systems	3
AGRI 2030	Technical Communications	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
AGRI 4100	Current Issues in Agricultural Systems	3
ANSC 2500	Animal Production	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1130	Introduction to Organic Chemistry [1]	3
or CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	
ECON 1010	Introduction to Microeconomic Principles	3
HNSC 1200	Food: Facts and Fallacies	3
or HNSC 1210	Nutrition for Health and Changing Lifestyles	
One of the following: [2]		3
MATH 1210	Techniques of Classical and Linear Algebra	
MATH 1300	Vector Geometry and Linear Algebra	
MATH 1500	Introduction to Calculus	
MATH 1510	Applied Calculus 1	
MATH 1524	Mathematics for Management and Social Sciences	
PLNT 2500	Crop Production	3
PLNT 2520	Genetics	3
or BIOL 2500	Genetics 1	
SOIL 3600	Soils and Landscapes in Our Environment	3
Plant Biotechnology Core		
BIOL 2242	The Flowering Plants	3
BIOL 2520	Cell Biology	3
CHEM/MBIO 2730	Elements of Biochemistry 1 [3]	3
CHEM 2740	Introduction to the Biochemistry Laboratory [4]	3
CHEM/MBIO 2750	Elements of Biochemistry 2 [5]	3
MBIO 1010	Microbiology I	3
PLNT 2530	Plant Biotechnology	3
PLNT/BIOL 3400	Plant Physiology	3
Restricted Electives		
6 credit hours from Group 1		6
15 credit hours from Group 2		15
Free Electives		
21 credit hours [6]		21
Total Hours		**120**

1. Students can hold CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) in place of CHEM 1130 (Introduction to Organic Chemistry).
2. Students are recommended to take one of the MATH courses listed in the program requirements above however may also use either MATH 1220 or MATH 1230 to meet the requirement. Students may use the former MATH 1520 to meet the MATH course requirement.
3. Under required courses, students can use either CHEM 2700/MBIO 2700 (Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy) in place of CHEM 2730/MBIO 2730 (Elements of Biochemistry 1).
4. Under required courses, student can use CHEM 2720 (Principles and Practices of the Modern Biochemistry Laboratory) in place of CHEM 2740 (Introduction to the Biochemistry Laboratory).
5. Under required courses, students can use CHEM 2710/MBIO 2710 (Biochemistry 2: Catabolism, Synthesis, and Information Pathway) in place of CHEM 2750/MBIO 2750 (Elements of Biochemistry 2).
6. Students can apply for the Cooperative Education Program. Two work terms are required to graduate with Co-op designation. Co-op courses (3 credit hours each) are used towards free electives.

Restricted Electives

Group 1

Course	Title	Hours
ANSC/PLNT 4410	Grassland Agriculture: Plant, Animal and Environment	3
ENTM 3170	Crop Protection Entomology	3
PLNT 2510	Fundamentals of Horticulture	3
PLNT 3540	Weed Science	3

Group 2

Course	Title	Hours
PLNT 3520	Principles of Plant Improvement	3
PLNT 3570	Fundamentals of Plant Pathology	3
PLNT 4310	Introductory Plant Genomics	3
PLNT 4330	Intermediate Plant Genetics	3

PLNT 4550	Developmental Plant Biology	3
PLNT 4570	Research Methods in Plant Pathology	3
PLNT 4580	Molecular Plant-Microbe Interactions	3
PLNT 4590	Physiology of Crop Plants	3
PLNT 4610	Bioinformatics	3

Progression Plan

Suggested Plant Biotechnology Program Progression

Course	Title	Hours
Year 1		
ABIZ 1000	Introduction to Agribusiness Management	3
AGRI 1600	Introduction to Agrifood Systems	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110 or CHEM 1130	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties or Introduction to Organic Chemistry	3
ECON 1010	Introduction to Microeconomic Principles	3
HNSC 1200 or HNSC 1210	Food: Facts and Fallacies or Nutrition for Health and Changing Lifestyles	3
One of the following:		3
MATH 1210	Techniques of Classical and Linear Algebra	
MATH 1300	Vector Geometry and Linear Algebra	
MATH 1500	Introduction to Calculus	
MATH 1510	Applied Calculus 1	
Free Elective		3
	Hours	**30**
Year 2		
AGRI 2030	Technical Communications	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
BIOL 2242	The Flowering Plants	3
BIOL 2520	Cell Biology	3
CHEM/MBIO 2730	Elements of Biochemistry 1	3
CHEM 2740	Introduction to the Biochemistry Laboratory	3
CHEM/MBIO 2750	Elements of Biochemistry 2	3
PLNT 2520/ BIOL 2500	Genetics	3
PLNT 2530	Plant Biotechnology	3
Free Electives		3
	Hours	**30**
Year 3		
ABIZ 2510	Introduction to Agricultural and Food Marketing	3
AGEC 2370/ BIOL 2300	Principles of Ecology	3
PLNT/BIOL 3400	Plant Physiology	3
SOIL 3600	Soils and Landscapes in Our Environment	3
MBIO 1010	Microbiology I	3
PLNT 2500	Crop Production	3
Restricted / Free Electives / Co-op		12
	Hours	**30**
Year 4		
ANSC 2500	Animal Production	3
AGRI 4100	Current Issues in Agricultural Systems	3
Restricted / Free Electives / Co-op		24
	Hours	**30**
	Total Hours	**120**