UM | Faculty of Agricultural and Food Sciences

Effective September 2023

B.Sc. in Agriculture (Plant Biotechnology)

Year 1

Course No.	Course Name	Credit Hours
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[1]	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
MATH 1300[2] or MATH 1210[2] or MATH 1500[2] or MATH 1510[2] or MATH 1524[2]	Vector Geometry and Linear Algebra or Techniques of Classical and Linear Algebra or Introduction to Calculus or Applied Calculus 1 or Mathematics for Management and Social Sciences	3
Free Elective[6]		3
Total Credit Hours		30

Year 2

Course No.	Course Name	Credit Hours
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 2730/MBIO 2730[3]	Elements of Biochemistry 1	3
CHEM 2740[4]	Introduction to the Biochemistry Laboratory	3
CHEM 2750/MBIO 2750[5]	Elements of Biochemistry 2	3
PLNT 2520/BIOL 2500	Genetics	3
PLNT 2530	Plant Biotechnology	3
Free Elective[6]		3
Total Credit Hours		30

Year 3

Course No.	Course Name	Credit Hours
ABIZ 2510	Introduction to Agricultural and Food Marketing	3
AGEC 2370/BIOL 2300	Principles of Ecology	3
PLNT 3400/BIOL 3400	Plant Physiology	3
SOIL 3600	Soils and Landscapes in Our Environment	3
MBIO 1010	Microbiology 1	3

Note: Any discrepancies between this document and the Academic Calendar, the Academic Calendar takes precedent.

PLNT 2500	Crop Production	3
Restricted[7]/Free Electives[6]/Co-op		12
Total Credit Hours		30

Year 4

Course No.	**Course Name**	**Credit Hours**
ANSC 2500	Animal Production	3
AGRI 4100	Current Issues in Agricultural Systems	3
Restricted[7]/Free Electives[6]/Co-op		24
Total Credit Hours		30

Notes:

1. CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) can be substituted for 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.

3. Under required courses, students can take either CHEM 2730/MBIO 2730 (Elements of Biochemistry 1) or CHEM 2700/MBIO 2700 (Biochemistry I: Biomolecules and an Introduction to Metabolic Energy).

4. Under required courses, students can take either CHEM 2740 (Introduction to the Biochemistry Laboratory) or CHEM 2720 (Principles and Practices of the Modern Biochemistry Laboratory).

5. Under required courses, students can take either CHEM 2750/MBIO 2750 (Elements of Biochemistry 2) or CHEM 2710/MBIO 2710 (Biochemistry 2: Catabolism, Synthesis, and Information Pathways).

6. There are 21 credit hours of Free Electives required for the Plant Biotechnology program. 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.

7. There are 21 credit hours of Restricted Electives required in the Plant Biotechnology program. Students must complete:

Restricted Electives		**Credit hours**
Group 1 – choose two courses from the following:		6
ANSC 4410/PLNT 4410	Grassland Agriculture: Plant, Animal and Environment	
ENTM 3170	Crop Protection Entomology	
PLNT 2510*	Fundamentals of Horticulture	
PLNT 3540	Weed Science	
Group 2 – choose five courses from the following:		15
PLNT 3520	Principles of Plant Improvement	
PLNT 3570	Fundamentals of Plant Pathology	
PLNT 4310	Introductory Plant Genomics	
PLNT 4330	Intermediate Plant Genetics	
PLNT 4550	Developmental Plant Biology	
PLNT 4570	Research Methods in Plant Pathology	
PLNT 4580	Molecular Plant-Microbe Interactions	
PLNT 4590	Physiology of Crop Plants	
PLNT 4610	Bioinformatics	

*This course is usually offered every 2nd year - planning ahead is important.