UM | Faculty of Agricultural and Food Sciences

Effective September 2026

B.Sc. Food Science (Science Option)

High school courses required as prerequisites to required degree courses include:

- Math 40S (Pre-Cal with 60% or higher)
- Biology 40S (50% or higher)
- Chemistry 40S (50% or higher)

*Upgrading options available – please contact aginfo@umanitoba.ca for more information.

Course prerequisites require a final grade of C or higher. For example, a C in CHEM 2370 and CHEM 2740 is required to take FOOD 2500, FOOD 2500 is a required prerequisite to take FOOD 4160. Prerequisites are enforced. Deviating from the recommend progression and failure to secure the required prerequisites may result in a delay in program and prolong graduation.

Year 1

Course No.	Course Name	Credit Hours
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	Food: Facts and Fallacies	3
HNSC 1210	Nutrition for Health and Changing Lifestyles	3
MATH 1300[2] or MATH 1210[2]	Vector Geometry and Linear Algebra or Techniques of Classical and Linear Algebra	3
MATH 1524[3] or MATH 1500[3] or MATH 1510[3]	Mathematics for Management and Social Sciences or Introduction to Calculus or Applied Calculus 1	3
Total Credit Hours		30

Year 2

Course No.	Course Name	Credit Hours
ABIZ 1000	Introduction to Agribusiness Management	3
AGRI 2030	Technical Communications	3
AGRI 2400[4]	Experimental Methods in Agricultural and Food Sciences	3
CHEM 1110 or CHEM 1130[1]	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties or Introduction to Organic Chemistry	3
CHEM 2730/ MBIO 2730[5]	Elements of Biochemistry 1	3
CHEM 2740[6]	Introduction to the Biochemistry Laboratory	3
FOOD 2500	Food Chemistry	3
MBIO 1010[7]	Microbiology 1	3
Free Electives/Co-op[8]		6
Total Credit Hours		30

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

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Year 3

Course No.	Course Name	Credit Hours
BIOE 3530	Engineering Fundamentals	3
FOOD 3010	Food Process 1	3
FOOD 3210	Food Engineering Fundamentals	3
FOOD 4150	Food Microbiology 1	3
FOOD 4160	Food Analysis 1	3
FOOD 4250	Food Analysis 2	3
MKT 2210	Fundamentals of Marketing	3
FOOD 4270	Sensory Evaluation of Food	3
Restricted Electives[9]		3
Free Electives/Co-op[8]		3
Total Credit Hours		30

Year 4

Course No.	Course Name	Credit Hours
FOOD 4010	Food Process 2	3
FOOD 4100	Current Issues in Food and Human Nutrition	3
FOOD 4200	Quality Control in Foods	3
FOOD 4510	Food Product Development	3
FOOD 4502	HACCP and Food Safety Regulations	3
Restricted Elective[9]		6
Free Electives/Co-op[8]		9
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 MATH 1300 or MATH 1210 however may also substitute MATH 1220 to meet the requirement.

3. Students are recommended to take one of MATH 1500 or MATH 1510 or MATH 1524 however may also substitute MATH 1230 to meet the requirement.

4. STAT 2000 (Basic Statistical Analysis 2) can be substituted for AGRI 2400 (Experimental Methods in Agricultural and Food Sciences).

5. 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).

6. 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).

7. Students who already have credit for MBIO 1220 (Essentials of Microbiology) before entering the program can use it towards MBIO 1010 (Microbiology 1).

8. There are 18 credit hours of Free Electives required for the Food Science, Science Option program. Students may apply for the Cooperative Education Program. Three work terms are required to graduate with Co-op designation. Co-op courses (3 credit hours each) are used towards Free Electives.

9. There are 9 credit hours of Restricted Electives required for the Food Science, science option. Students must complete:

Restricted Electives		
Group 1 – Food Safety:		3
FOOD 1000	Food Safety, Today and Tomorrow	
Group 2 – General: choose two courses from the following:		6
FOOD 3160*	Frozen Dairy Products	
FOOD 3170*	Cheese and Fermented Milk Products	
FOOD 3200	Baking Science and Technology	
FOOD 3220*	Grains for Food and Beverage	
FOOD 3330	Ingredient Technology for Food Design	
FOOD 3500*	Processing of Animal Food Products	
FOOD 4260	Water Management in Food Processing	
FOOD 4400	Research Project in Food and Human Nutritional Sciences	
FOOD 4540	Functional Foods and Nutraceuticals	
HNSC 2160	Principles of Food Preparation and Preservation	

*These courses are usually offered every 2nd year - planning ahead is important.