

# ANIMAL SYSTEMS, 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 Animal Systems program will provide an integrated and comprehensive study of the factors and processes associated with the science of animal production including their interaction with the environment. The program will be based on a strong foundation in the scientific disciplines underlying nutrition, growth, reproduction and welfare in animals. 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>B.Sc. Agriculture Degree Core</b>		
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 or CHEM 1110	Introduction to Organic Chemistry <sup>1</sup> Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
ECON 1010	Introduction to Microeconomic Principles	3
HNSC 1200 or HNSC 1210	Food: Facts and Fallacies Nutrition for Health and Changing Lifestyles	3
One of the following: <sup>2</sup>		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 or BIOL 2500	Genetics Genetics 1	3
SOIL 3600	Soils and Landscapes in Our Environment	3
<b>Animal Systems Core</b>		

ANSC 2510	Anatomy and Physiology 1: Control Systems	3
ANSC 2520	Anatomy and Physiology 2: Nutrient Utilization	3
ANSC 3500	Principles of Animal Genetics	3
ANSC 3510	Feeds and Feeding	3
ANSC 3520	Animal Reproduction	3
ANSC 3530	The Animal and Its Environment	3
CHEM/MBIO 2730	Elements of Biochemistry 1 <sup>3</sup>	3
CHEM 2740	Introduction to the Biochemistry Laboratory <sup>3,4</sup>	3
<b>Restricted Electives</b>		
3 credit hours from Group 1 - Ruminant Production		3
3 credit hours from Group 2 - Monogastric Production		3
6 credit hours from Group 3 - Advanced Animal Science		6
3 credit hours from Group 4 - Human Resources		3
<b>Free Electives</b>		
27 credit hours <sup>5</sup>		27
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students can hold CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) in place of CHEM 1130 (Introduction to Organic Chemistry).

<sup>2</sup> 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.

<sup>3</sup> 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) and may use CHEM 2720 (Principles and Practices of the Modern Biochemistry Laboratory) in place of CHEM 2740 (Introduction to the Biochemistry Laboratory).

<sup>4</sup> While CHEM 2740 is the recommended lab course for this program, student who are completing the Pre-Vet requirements may use either CHEM 1120 or CHEM 2740 to complete this requirement for Animal Systems as well. If a student has both courses, one is used towards free electives.

<sup>5</sup> 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 - Ruminant Production

Course	Title	Hours
ANSC 4520	Ruminant Production Systems-Meat	3
ANSC 4530	Ruminant Production Systems-Milk	3

### Group 2 – Monogastric Production

Course	Title	Hours
ANSC 4550	Avian Production Systems	3
ANSC 4640	Swine Production Systems	3

### Group 3 – Advanced Animal Science

Course	Title	Hours
ANSC 2XXX	Any ANSC course at the 2000 level	3
ANSC 3XXX	Any ANSC course at the 3000 level	3

ANSC 4XXX	Any ANSC course at the 4000 level	3
FOOD 3500	Processing of Animal Food Products	3
ENTM 3160	Veterinary and Wildlife Entomology	3

#### Group 4 – Human Resources

Course	Title	Hours
ABIZ 2620	Agricultural Human Resource Management	3
GMGT 2070	Introduction to Organizational Behaviour	3
HRIR 2440	Human Resource Management	3

## Progression Plan

### Suggested Animal Systems Program Progression

Course	Title	Hours
<b>Year 1</b>		
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	
MATH 1520		
Free Elective		3
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
ABIZ 2510	Introduction to Agricultural and Food Marketing	3
AGEC 2370/ BIOL 2300	Principles of Ecology	3
AGRI 2030	Technical Communications	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
ANSC 2500	Animal Production	3
ANSC 2510	Anatomy and Physiology 1: Control Systems	3
ANSC 2520	Anatomy and Physiology 2: Nutrient Utilization	3
CHEM/MBIO 2730	Elements of Biochemistry 1	3
CHEM 2740	Introduction to the Biochemistry Laboratory	3
Restricted/Free Electives/Co-op		3
<b>Hours</b>		<b>30</b>

<b>Year 3</b>		
ANSC 3510	Feeds and Feeding	3
ANSC 3520	Animal Reproduction	3
ANSC 3500	Principles of Animal Genetics	3
ANSC 3530	The Animal and Its Environment	3
PLNT 2500	Crop Production	3
PLNT 2520/ BIOL 2500	Genetics	3
SOIL 3600	Soils and Landscapes in Our Environment	3
Restricted/Free Electives/Co-op		9
<b>Hours</b>		<b>30</b>
<b>Year 4</b>		
AGRI 4100	Current Issues in Agricultural Systems	3
Restricted/Free Electives/Co-op		27
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

## Cooperative Education Program

Co-operative Education is a process that alternates periods of academic study with periods of paid work experience relating to the co-op student's area of study. Through the Co-operative Education Program, full-time, paid work terms provide the students with practical experience and provide guidance for further career specialization or further academic study.

Students secure full-time, paid co-op work placements with a faculty-approved employer(s) that are each a minimum of 420 hours, to be completed within 4 months. The faculty supports students on both a group and individual basis to determine their learning goals for the work placement. Students are expected to attend an orientation session as well as participate in a series of self-evaluations under the guidance of a sessional instructor. Prior to starting each work term, students will register in AGRI 2002 (first placement), AGRI 3002 (2nd placement), and AGRI 4002 (3rd placement) within the term that their co-op placement will take place and pay the fees. Students must submit a reflective written report at the end of the work term and are evaluated for both overall participation and the report on a Pass/Fail basis.

## Degree Program

**Admission:** Students who have been admitted to an undergraduate program within the faculty are eligible to apply to the Co-operative Education Program. Students are advised that satisfying the entrance requirements does not guarantee a place in the Co-operative Education Program. Full admission into the Program is dependent upon a student's ability to secure a work term placement. Normally, the first work term would take place at the end of the second academic year allowing students to pursue professional development activities in year one. However, with approval of the Faculty and employer, the first work term could commence after the first year of a four-year or second-degree program. Students admitted into the Program must maintain good academic standing (minimum DGPA of 2.0).

**Employment Term Requirements:** The Co-operative Education Program requires the student to secure two full-time, paid co-op work terms (minimum of 420 hours each) with a faculty approved employer(s). A third work term is optional. Prior to starting the work term, students are required to register in the appropriate Agricultural and Food Sciences Co-operative Education Work Term Course within the set deadlines and pay the fee. Successful completion of a work term includes participating in a mid-work term interview with the Co-op Coordinator and completion

of a written work term report at the end of each work term. Students who receive a passing grade on the work term reports for all required work terms graduate with the Co-operative Education designation acknowledged on their parchment.

During a work term, a co-op student may take a maximum of one additional course worth up to six credit hours for a total of nine (9) credit hours. Co-op credit hours earned can be used towards free elective requirements in any degree program.

## **Diploma Program**

Admission: To be considered for admission in the Cooperative Education Program, a first year diploma student must have a minimum Degree GPA of 2.0, and have completed at least 24 credit hours of studies by the end of the academic year of application.

Students are advised that satisfying the entrance requirements does not guarantee a place in the Cooperative Education Program. Full admission into the program is dependent upon the student receiving a job placement through the Cooperative Education Office.

Employment Term Requirements: The student will receive three credits for completing the Cooperative Education Program. Students are required to register in the employment term course and pay the fee prior to starting the employment term.