

## 4. DESCRIPTION OF PROGRAM CHARACTERISTICS

### 4.1 Program Description

The B.Sc. in Animal Bioscience will be a 4 year degree in the College and Agriculture and Bioresources. It will require 120 cu including core science requirements in biology, chemistry and biochemistry, mathematics, humanities and English. The program will provide students with a broad background in domestic animal biology (animal metabolism, genetics, physiology, nutrition, behavior, care, social and environmental impact) and prepare them to work in fields outside of traditional animal agriculture including biomedical sciences, companion, equine and research animal care, animal health and environmental sciences. The program focuses on experiential learning including:

- 1) Direct involvement with a wide variety of domestic animals
- 2) Relevant laboratory skills
- 3) Ability to work independently and in groups
- 4) Review, synthesis and communication of information
- 5) Development of decision making and problem solving skills

The program matches the current BSA in Animal Science sufficiently that students will be able to switch between programs with ease within their first 2 years in the program. Explicit Minor programs will not be developed for the program. However, the choice of restricted and open electives will allow students to select a subject concentration suitable to their goals after graduation. With the addition of appropriate electives, the program will also meet the requirements for entry into Veterinary Medicine and Medicine within the first 60 cu. Thus, the program provides a high degree of flexibility for students.

#### ***Disciplinary Maps***

A disciplinary mapping exercise was undertaken to establish skills and knowledge areas required for career paths in targeted areas and to ensure that students enrolled in the program would attain these. Tables showing skills and knowledge areas attained in specific courses offered in the B.Sc. (An. Biosc.) are shown in Appendix 3. Corresponding skills and knowledge areas required for targeted career paths are shown in Appendix 4.

**4.2 Program Syllabus<sup>a</sup>**

<b>First Year</b>	<b>30 cu</b>
ANBI 110.3	Domestic animal biology <sup>b</sup>
BIOL 120.3	Nature of life
CHEM 112.3	General chemistry I
CHEM 115.3	General chemistry II
MATH 104.3, 110.3 or 125.3	Mathematics
AGRC 112.3	Animal production and food science
BIOL 224.3	Animal body systems
3 cu	English
6 cu	Humanities, social science or fine arts
<b>Second Year</b>	<b>30 cu</b>
ANSC 212.3	Livestock and poultry production
ANSC 313.3	Animal breeding and genetics
BMSC 200.3	Biomolecules
BMSC 230.3	Metabolism
CHEM 250.3	Organic chemistry
FABS 212.3 or BMSC 210.3	Microbiology
PLSC 314.3	Statistical Methods
RCM 300.3	Rhetorical communication
3 cu	Open
3 cu	Restricted electives
<b>Third year</b>	<b>30 cu</b>
ANBI 375.3	Animals and the environment <sup>c</sup>
ANSC 315.3	Animal and poultry nutrition
VBMS 324.3	Animal physiology I
VBMS 325.3	Animal physiology II
VBMS 314.3	Comparative Anatomy
6 cu	Open
9 cu	Restricted electives
<b>Fourth Year</b>	<b>30 cu</b>
ANBI 492.3 or 494.6	Thesis <sup>b</sup>
ANBI 470.3	Applied animal biotechnology <sup>c</sup>
ANBI 411.3	Behaviour of domestic animals <sup>c</sup>
ANBI 420.3	Endocrinology <sup>b</sup>
VLAC 411 or VTPA 412	Animal or poultry diseases
9 cu	Open
6 cu	Restricted Electives

<sup>a</sup>See Appendix 5 for program requirements by term.

<sup>b</sup>New course

<sup>c</sup>Recommended name or number change

### 4.3 Draft Calendar Entry

#### Bachelor of Science in Animal Bioscience [B.Sc. (An. Biosc.)]

The Bachelor of Science in Animal Bioscience provides students with a broad background in domestic animal biology (animal metabolism, genetics, physiology, nutrition, behavior, care, social and environmental impact) and prepares them to work in fields outside of traditional animal agriculture including biomedical sciences, companion, equine and research animal care, animal health and environmental sciences. The program focuses on experiential learning including:

- 1) Direct involvement with a wide variety of domestic animals
- 2) Relevant laboratory skills
- 3) Ability to work in unstructured environments
- 4) Review, synthesis and communication of information
- 5) Development of decision making and problem solving skills

#### **First Year Requirements\***

ANBI 110.3; BIOL 120.3; CHEM 112.3; MATH 104.3 or MATH 110.3 or MATH 125.3; AGRC 112.3; BIOL 224.3; CHEM 115.3; 3cu ENG; 6 cu Humanities, social science or fine arts

#### **Second Year Requirements**

ANSC 212.3; FABS 212.3; BMSC 200.3; BMSC 230.3; CHEM250.3; PLSC 314.3; RCM 300.3; ANSC 313.3; 3 cu Open; 3 cu Restricted Electives

#### **Third Year Requirements**

ANSC 315.3; VBMS 324.3; VBMS 325.3; VBMS 314.3 ANBI 375.3; 6 cu Open; 9 cu Restricted Electives

#### **Fourth Year Requirements**

ANBI 492.3 or 494.6; ANBI 470.3; ANBI 411.3; ANBI 420.3; VLAC 411.3 or VTPA 412.3; 9 cu Open; 6 cu Restricted Electives

**RESTRICTED ELECTIVES: Students must take 18 cu of the following restricted electives [Course titles are included as Appendix 6]**

**ANIMAL SPECIES SPECIFIC RESTRICTED ELECTIVES (a minimum of 6 cu of the following courses)**

ANBI 320.3; ANBI 360.3; ANSC 340.3; ANSC 410.3; ANSC 430.3; ANSC 440.3; ANSC 460.3.

#### **DISCIPLINE SPECIFIC RESTRICTED ELECTIVES**

ANSC 301.3; BIOC 310.3; BIOC 311.3; BIOC 435.3; BIOC 436.3; BIOL 430.3; BINF 210.3; BMSC 220.3; BMSC 240.3; FABS 325.3; FABS 430.3; FABS 450.3; MCIM 209.3; MCIM 308.3; MCIM 321.3; PCOL 350.6; PHYS 115.3; PLSC 422.3; RCM 404.3; RRM 312.3; TOX 300.3; TOX 402.3; one of VLAC 411.3 or VTPA 412.3

**4.4 Saskatchewan High School Subjects Required for Admission**

Biology 30

Chemistry 30

Foundations of Mathematics 30 or Pre-calculus 30

Students can be admitted into this college with one subject deficiency that must be cleared before the second year of study.

**New Course Prefix**

The prefix we have selected for use with courses closely identified with the B.Sc. (An. Biosc.) program offered in Animal and Poultry Science is ANBI. New courses specifically designed for the program and courses offered as restricted electives in the BSA (Animal Science) program that have been identified as required in the B.Sc. (An. Biosc.) program will be renamed with this prefix. A list of new and renamed courses is given in Table 2. The use of a unique prefix for these courses will help to establish a clear identity for the program that is separate from the BSA (Animal Science).

Table 2. New and previously offered courses in Animal and Poultry Science to be assigned the ANBI course prefix

Proposed new course prefix and number	Current course prefix and number	Course Title	First Offering or Course Change	Comment
ANBI 110.3	N/A	Introductory Animal Bioscience	Sept 2013	New course
ANBI 320.3	N/A	Equine Science	Sept 2013	New course replaces ANSC250 and ANSC350
ANBI 360.3	ANSC 360	Canine and Feline Science	Sept 2013	
ANBI 375.3	ANSC 375	Animals and the Environment	Sept 2013	
ANBI 411.3	ANSC 411	Behaviour of Domestic Animals	Sept 2013	Offered annual vs. every other year
ANBI 420.3	N/A	Comparative Animal Endocrinology	Sept 2013	New course
ANBI 470.3	ANSC 470	Applied Animal Biotechnology	Sept 2013	
ANBI 492.3	N/A	Thesis	Sept 2013	New course to run parallel with ANSC 492
ANBI 494.6	N/A	Thesis	Sept 2013	New course to run parallel with ANSC494

**Appendix 5: B.Sc. Animal Bioscience program – suggested scheduling by term**

<b>B.Sc. Animal Bioscience</b>			
<b>First Year (30 Credits)</b>			
<b>Term 1</b>		<b>Term 2</b>	
ANBI 110.3	Domestic animal biology	AGRC 112.3	Agricultural Science II (Food/Animal Science)
BIOL 120.3	Nature of life	BIOL 224.3	Animal body systems
CHEM 112.3	General chemistry	CHEM 115.3	General Chemistry
MATH 104.3, 110.3 or 125.3	"Calculus"	ENG 1xx.3*	See below
Humanity	Can include Term 2 ENG 110.6	Humanity	
<b>Total Credits</b>	<b>30</b>		
<b>Second Year (30 Credits)</b>			
<b>Term 1</b>		<b>Term 2</b>	
ANSC 212.3	Livestock and Poultry Production	ANSC 313.3	Animal breeding and genetics
BMSC 200.3	Biomolecules	BMSC 230.3	Metabolism
CHEM 250.3	Organic Chemistry	PLSC 314.3	Statistical Methods
FABS 212.3 or BMSC 210.3	"Microbiology"	Open elective	
RCM 300.3	Rhetorical communication	Restricted elective	
<b>Total Credits</b>	<b>30</b>		
<b>Third Year (30 Credits)</b>			
<b>Term 1</b>		<b>Term 2</b>	
ANSC 315.3	Animal and Poultry Nutrition	ANBI 375.3	Animals and the environment
VBMS 314.3	Comparative anatomy	VBMS 325.3	Animal physiology II
VBMS 324.3	Animal Physiology I	Restricted Elective	
Restricted elective		Open elective	
Open elective		Open elective	
<b>Total Credits</b>	<b>30</b>		
<b>Fourth Year (30 Credits)</b>			
<b>Term 1</b>		<b>Term 2</b>	
ANBI 492.3 or 494.6	Thesis	VLAC 411 or VTPA 412	Animal or poultry diseases
ANBI 470.3	Applied animal biotechnology	ANBI 420.3	Comparative Endocrinology
Restricted elective		ANBI 411.3	Animal Behaviour
Restricted elective		Restricted elective	
Open elective		Open elective	
<b>Total Credits</b>	<b>30</b>		
<b>Overall Total Credits 120</b>			
*ENG 111.3, 112.3, 113.3, 114.3 or ENG 110.6			
Restricted electives-18 cu including a minimum of 6 cu species courses listed below			
Species courses = ANBI 320 (horses), 360 (dogs/cats), ANSC 340 (swine), 410 (Cow/Calf), 430 (Feedlot), 440 (Poultry), 460 (Dairy)			
<b>Summary</b>			
28 X 3 required courses = 84 cu			
6 X 3 Restricted electives = 18 cu			
6 X 3 Open electives = 18 cu			
<b>Total 120 cu</b>			

**Appendix 6: Course titles for restricted electives in the Animal BioScience program.**

**Restricted Elective-Course Titles**

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*Discipline Specific Courses*

ANSC 301.3 Animal Production Tour  
BIOC 310.3 Proteins and Enzymes  
BIOC 311.3 Introductory Molecular Biology  
BIOC 435.3 Intermediary Metabolism  
BIOC 436.3 Advanced Molecular Biology  
BIOL 430.3 Neurobiology of Behaviour  
BINF 210.3 Introduction to Bioinformatics Applications  
BMSC 220.3 Cell Biology  
BMSC 240.3 Laboratory Techniques  
FABS 325.3 Food Microbiology and Safety  
FABS 430.3 Environmental Microbiology  
FABS 450.3 Anaerobic and Rumen Microbiology  
MCIM 209.3 Medical Virology  
MCIM 308.3 Medical Bacteriology  
MCIM 321.3 Immunology  
PCOL 350.6 General Pharmacology  
PHYS 115.3 Physics and the Universe  
PLSC 422.3 Rangeland Management  
RCM404.3 Leadership as communication  
RRM 312.3 Natural Resource Management and Indigenous Peoples  
TOX 300.3 General Principles of Toxicology  
TOX 402.3 Systemic Toxicology  
VLAC 411.3 Diseases of Livestock  
VTPA 412.3 Diseases of Poultry

*Animal Species Specific Electives*

ANBI 320.3 Equine Science  
ANBI 360.3 Canine and Feline Science  
ANSC 340.3 Monogastric Animal Production I  
ANSC 410.3 Cow Calf Management  
ANSC 430.3 Intensive Management of Beef Cattle  
ANSC 440.3 Monogastric Animal Production II  
ANSC 460.3 Intensive Management of Dairy Cattle

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