

**ANSC 0420 Animal Biology and Nutrition
Course Outline
2009-2010**

DESCRIPTION:

“An introduction to animal structure and function. Genetics, growth and reproduction will be related to animal production. Further, the digestive systems of various livestock species will be studied and related to the types of feedstuffs that each species can utilize. The general function on nutrients within animals will also be discussed. Nutrient content of feedstuffs and application to nutrient requirements will be discussed.”

CREDIT HOURS: 4

Lectures: 8:30 am Monday, Wednesday and Friday

Labs : Tuesday 11:30-1:00 or Thursday 10:00 – 11:30 or Thursday 11:30 -1:00

Instructor: Loreen Onischuk
Room 237 Animal Science
Office Hours: 1:30-5:00 Monday and Thursday
Phone: 474-9174
e-mail: onisch@cc.umanitoba.ca

TEXT BOOK: none required

Date	Lecture material	Lab
September 21 st	Introduction	NO LAB
September 23 rd	Genetics	
September 25 th	Genetics	
September 28 th	Genetics	GENETICS LAB – Punnett squares, expected progeny differences (EPD) etc.
September 30 th	Growth	
October 2 nd	Growth	MEAT GRADING LAB – beef and pork grading systems as related to genetics and growth
October 5 th	Growth	
October 7 th	Reproduction	
October 9 th	Reproduction	Tutorial – review for test on 16 th
October 12 th	NO CLASS	
October 14 th	Lactation	
October 16 th	TERM TEST ONE	REPRODUCTION LAB – anatomy of reproductive tracts, AI, embryo transfer
October 19 th	Lactation	
October 21 st	Lactation	
October 23 rd	Egg production	EGG QUALITY LAB – egg grading, reproductive tract of a hen
October 26 th	Digestive	
October 28 th	Digestive	
October 30 th	Digestive	DIGESTIVE TRACT – anatomy and function
November 2 nd	Energy	
November 4 th	Carbohydrates	

November 6 th	Carbohydrates	
November 9 th	Carbohydrates	Tutorial
November 11 th	NO CLASS	
November 13 th	TERM TEST TWO	
November 16 th	Lipids	Common feedstuffs and their nutrient content – processing and preserving of feedstuffs
November 18 th	Lipids	
November 20 th	Proteins	
November 23 rd	Proteins	Nutrient requirements of livestock and poultry – factors that affect the requirements
November 25 th	Proteins	
November 27 th	Minerals	
November 30 th	Vitamins	Feed formulation 1 – hand calculate simple diets to meet animal requirements
December 2 nd	Water	
December 4 th	Water	

GRADE ASSIGNMENT:

Test one – October 16th	20% of final grade
Test two – November 13th	20% of final grade
Lab Assignments	25% of final grade
Final exam	35% of final grade

SOME GROUND RULES:

Missing classes: This is up to the individual. I will not be taking attendance in the class room. However, if you are having any trouble understanding material I suggest attending.

Missing labs: Labs are mandatory and not attending can cost you marks. Some of the assignments are designed to be done during the laboratory session and if you miss those labs you lose those marks. Therefore, I recommend not missing labs!

Missing Tests: Students will not be allowed to make up missing tests except under exceptional circumstances. If you miss a test it is necessary for you to contact me immediately and to have a valid reason.

Late assignments: Assignments will be devalued by 10% for each school day that they are late. Also once assignments are returned I will not accept further assignments.
NOTE: I usually get assignments back within a week!

Class manners: I expect you to be respectful of myself and your fellow classmates. Therefore, cell phones off, talking at a minimum. Basically try not to be a distraction for myself and others.

Academic Integrity: Please refer to page 29 of the 20089-2010 University of Manitoba Undergraduate Calendar for guidelines on plagiarism and cheating.

Learning Objectives:

By the end of the course students should be able to:

- 1) Display a knowledge of Mendelian genetics by being able to predict the outcome of matings with regards to single gene traits
- 2) Demonstrate an understanding of the importance of heritability of traits in determining the change from generation to generation when making genetic selections
- 3) Explain why heterosis (hybrid vigour) occurs when we cross breed
- 4) Know the percent mature weight at which animal are marketed, bred etc.
- 5) Demonstrate a knowledge of how factors like age, sex, frame size, nutrition influence the carcass composition of an animal
- 6) List the main factors involved in the grading of carcasses in Canada
- 7) Name and label on a diagram the main parts of the male and female reproductive organs. Also be able to list the main functions of each of these parts.
- 8) List factors that are used in evaluating the breeding soundness of the male and discuss some factors that may influence that evaluation.
- 9) Describe the estrous cycle in terms of steroid, pituitary and uterine hormone changes and well as changes on the surface of the ovary and changes in animal behaviour.
- 10) Give examples of reproductive technologies that rely in our knowledge of the estrous cycle.
- 11) Briefly describe the placenta and the stages of parturition.
- 12) Define and describe the important features of colostrum.
- 13) Label a milk curve for dairy cows.
- 14) Describe several metabolic disorders in dairy cattle and some methods to try and reduce the incidence of these disorders.
- 15) Label a diagram of the oviduct of a bird and an egg.
- 16) Describe the formation of an egg as it passes through the oviduct.
- 17) Describe features of the egg that are used in egg grading.
- 18) Label diagrams of digestive tracts from pigs, poultry and ruminants.
- 19) List the major nutrient requirements for various livestock species (names not actual levels required)
- 20) Indicate where in the digestive tract each nutrient is digested and the end product that is produced by this digestive process
- 21) List common sources of the various nutrients
- 22) Indicate the value of processing on feed digestion, preservation etc.
- 23) Calculate a simple diet to meet the animals nutrient requirements