

ANIMAL SCIENCE (ANSC)

ANSC 0420 Animal Biology and Nutrition 4 cr

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 types of feedstuffs that each species can utilize. The general function of nutrients within animals will also be discussed. Nutrient content of feedstuffs and application to nutrient requirements will be discussed.

ANSC 0600 Animal Health and Welfare 3 cr

This course explores the common livestock and poultry diseases of the Prairie provinces. Emphasis will be placed on prevention through management and health programs, but treatment of specific diseases will also be addressed. Additionally, animal welfare as it relates to commercial animal production will be discussed.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 0420.

ANSC 0670 Beef Cattle Production and Management 4 cr

(Lab required) This course provides an overview of the beef cattle industry including types of beef cattle enterprises and factors affecting profitability of production. Application of principles of nutrition, genetics and physiology in the management of beef cattle enterprises will be covered. May not be held with ANSC 4520.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 0420.

Mutually Exclusive: ANSC 4520

ANSC 0680 Dairy Cattle Production and Management 4 cr

(Lab required) This course provides a study of current production practices in Canada's dairy industry with focus on nutrition, reproduction, genetics, health, replacement rearing and marketing. May not be held with ANSC 4530.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 0420.

Mutually Exclusive: ANSC 4530

ANSC 0690 Swine Production and Management 4 cr

(Lab required) This course focuses on the swine industry, including the types of swine enterprises and factors affecting profitability of production. Application of principles of nutrition, genetics and physiology in the management of swine are covered. May not be held with ANSC 4640 or the former ANSC 4540.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 0420.

Mutually Exclusive: ANSC 4540, ANSC 4640

ANSC 0700 Poultry Production and Management 4 cr

(Lab required) This course provides an overview of the poultry industry, including its marketing system, breeding, hatchery practices, management and feeding within large scale turkey and chicken enterprises. May not be held with ANSC 4550.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 0420.

Mutually Exclusive: ANSC 4550

ANSC 0720 Special Topics in Livestock Management 3 cr

Selected topics of current interest in livestock management.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: Written consent of Director of the School of Agriculture.

ANSC 2500 Animal Production 3 cr

(Lab required) Production practices in the major animal industries in Canada, focusing on key factors including the biology of growth, reproduction and nutrition. Issues related to welfare, environment, housing, and contributions to the Canadian economy are introduced.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: AGRI 1600 (or the former AGRI 1510) (D).

ANSC 2510 Anatomy and Physiology 1: Control Systems 3 cr

(Lab required) This course covers the structure, functions and interactions of the coordinating/regulatory systems in the animal body, including the nervous, muscular, cardiovascular, respiratory, renal and endocrine systems.

ANSC 2520 Anatomy and Physiology 2: Nutrient Utilization 3 cr

(Lab required) This course examines the digestion, absorption and utilization of nutrients by farmed species including basic characteristics of the digestive system, aspects of regulation of feed intake and rates of passage, intermediary metabolism of nutrients, growth and development, health, and other factors influencing nutrient utilization.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2510.

ANSC 2540 Companion Animal Nutrition and Management 3 cr

This course covers the functional anatomy, genetics, nutrition, reproduction, behaviour, and diseases of non-equine companion animals and ornamental fish.

ANSC 3300 Horse Production and Management 3 cr

This course explores the principles of horse production, including anatomy and physiology, breeds, reproductive management, nutrition and health and their applications to major sections of the horse industry. In many ways, owning horses is much different than owning other species of livestock and/or companion animals, in that the horse is, for most, considered an athlete. As such, it is important to know the basics of equine production and management including nutrition, anatomy and physiology, health and diseases, stable/pasture management and behaviour. This course also aims to enhance student understanding of dentistry, reproduction, feed production, sport injuries and common issues in the various spheres of equine sport. This course will include a field trip component. May not be held with the former ANSC 0730 or AGRI 3030 when titled "Special Topics: Horse Production and Management".

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2500 or ANSC 0420 or consent of the instructor.

Equiv To: ANSC 3030

Mutually Exclusive: AGRI 3030, ANSC 0730

ANSC 3500 Principles of Animal Genetics 3 cr

Topics discussed will include population genetics, quantitative variation, selection and mating systems with particular reference to domestic species.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: PLNT 2520.

ANSC 3510 Feeds and Feeding 3 cr

A detailed discussion of feedstuffs used for domestic animals, animal nutrient requirements, ration balancing, feedstuff processing and feed safety.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2520.

ANSC 3520 Animal Reproduction 3 cr

The comparative anatomy and physiology of reproduction of farmed animals will be emphasized. Focus will be on the natural synchronization of reproductive processes and the potential to regulate and improve reproductive efficiency.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2510.

ANSC 3530 The Animal and Its Environment 3 cr

(Lab required) This course explores how an animal is influenced by its environment with respect to effects upon health, welfare and performance. Principles of farmed animal behaviour, welfare and behavioural management, health, and facility design and modification will be considered in the context of animal/environment interactions.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2510 or BIOE 2590.

ANSC 4090 Livestock Problems 3 cr

A minor thesis on livestock problems, prepared by the student under direction. (For Animal Systems Majors only).

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: Consent of department head.

ANSC 4220 Animal Science Investigations 6 cr

Minor research on some problem in animal science. Instruction and supervision in setting up the project, in collecting and processing data, and in writing the report. (For fourth-year students in Animal Systems Major only.)

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: Consent of Department Head.

ANSC 4240 Mathematical Modeling of Biological Systems 3 cr

Lectures and computer based laboratory exercises will be used to discuss mathematical modeling methods applied to biological systems taking aspects of animal science as a model to develop modeling techniques.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: One of MATH 1500, MATH 1501, MATH 1524, or the former MATH 1520.

ANSC 4280 Applied Animal Genetics 3 cr

Application of principles of animal breeding. Modern methods, techniques, and programs for genetic improvement of cattle, sheep, and swine.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 3500.

ANSC 4410 Grassland Agriculture: Plant, Animal and Environment 3 cr

Inter-relationships between the biological components of grassland agriculture as they relate to forage production on the Canadian Prairies. Topics include utilization by wild and domestic animals, plant community relationships and role of forages in multiple land use planning. This course also given in Plant Science as PLNT 4410.

Equiv To: PLNT 4410

ANSC 4500 Animal Health 3 cr

Responses of basic animal functions to challenge by potentially pathogenic organisms, genetic or metabolic disorders, and toxicants will be discussed. Strategies for prevention and treatment will be outlined. Offered in 2005-2006 and alternate years thereafter.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2520.

ANSC 4510 Domesticated Animal Behaviour 3 cr

An awareness and understanding of normal behaviors of animals will be emphasized. Relationships between behavior, welfare and management will be explored. Emphasis will be on farmed animals but companion animals, wild animals and laboratory species will also be discussed. Offered in 2006-07 and alternate years thereafter.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2520 or consent of the instructor.

ANSC 4520 Ruminant Production Systems-Meat 3 cr

(Lab required) To provide an appreciation of the ruminant industry in terms of size, complexity and relationship to the economy and give an understanding of the breeding, feeding, management and marketing strategies for modern ruminant production systems. May not be held with ANSC 0670.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: A minimum of 60 credit hours and ANSC 2500 (D).

Mutually Exclusive: ANSC 0670

ANSC 4530 Ruminant Production Systems-Milk 3 cr

(Lab required) This course provides a description of the ruminant milk industry in terms of size, complexity and relationship to the economy and gives an understanding of the breeding, feeding, management and marketing practices in a modern system for milk production. May not be held with ANSC 0680.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: A minimum of 60 credit hours and ANSC 2500 (D).

Mutually Exclusive: ANSC 0680

ANSC 4550 Avian Production Systems 3 cr

(Lab required) Describes the various avian production systems in terms of size, complexity, and relationship to the economy and gives an understanding of the management and marketing practices in the usual poultry systems. May not be held with ANSC 0700.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: A minimum of 60 credit hours and ANSC 2500 (D).

Mutually Exclusive: ANSC 0700

ANSC 4570 Advanced Applied Animal Nutrition 3 cr

An advanced study of theoretical and applied aspects of monogastric and ruminant nutrition. A laboratory component will provide training in current techniques in feed analyses and computer modeling. Offered in 2005-2006 and alternate years thereafter.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 3510.

ANSC 4600 Animal Microbiome and One Health 3 cr

Throughout this course, we will introduce the principles of microbiome research in relation to animal health and performance, as well as the environmental footprint of livestock production systems. Topics may include current techniques used for the study of complex host-associated microbial communities, the role of microbiota in gut health, epithelial barrier, and colonization resistance against pathogens, strategies used to modify the microbiome of livestock for improved production and disease resilience, and the use of microbiome therapeutics as an alternate to conventional antimicrobials and growth promoters. Furthermore, we will analyze the One Health concept, specifically examining its connection to the environmental footprint of livestock production, encompassing areas like greenhouse gas emissions and the emergence of antimicrobial resistance.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: ANSC 2520 or permission of the instructor.

ANSC 4640 Swine Production Systems 3 cr

(Lab required) Describes the swine industry in terms of size, complexity and relationship to the economy and gives an understanding of the breeding, feeding, management and marketing practices in a modern production unit. Outlines other monogastric production systems of relevance to the agriculture industry. May not be held with ANSC 0690 or the former ANSC 4540.

PR/CR: A minimum grade of C is required unless otherwise indicated.

Prerequisite: A minimum of 60 credit hours and ANSC 2500 (D).

Equiv To: ANSC 4540

Mutually Exclusive: ANSC 0690