

# ANSC\*3120 - Introduction to Animal Nutrition

## Fall 2024 Course Outline

**Section: 01**

**Credits: 0.50**

Section 01 & 02

Sub-Sections 101, 102, 103, 104, 105, 201, 202, 203, 204, 205

## Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

## Calendar Description

This course applies the principles of nutrition to the development of diets and feeding programs for the various species of animals of agricultural importance.

**Co-requisite(s):** NUTR\*3210

**Restriction(s):** Registration in BSC(Agr) or BSC.ABIO.

**Department(s):** Department of Animal Biosciences

## Course Description

Introduction to Animal Nutrition (ANSC 3120) covers the principles of farm animal nutrition, examining the factors influencing a given farm animal species' nutrient requirements based on age and stage of production. Major feed resources (forages, grains, oilseed meals, etc.), their origin and composition will be reviewed. The different types of nutrients and other dietary components will be reviewed and their analysis explored. The principles of formulation and manufacturing of animal feeds will be presented. During the lab sessions, the students will be introduced to nutritional analyses, diet (ration) formulation and will complete assignments aimed equipping the students with skills relevant to a career in animal nutrition. Each student will be involved in a monogastric feeding trial (chick) where they will be actively involved in feeding animals, collecting data, and then completing a technical report on their findings.

## Course Fit Within Program/Curriculum

This course builds on the basic nutrition knowledge acquired in NUTR 3210 Fundamentals of Nutrition and helps the students deepen their understanding of nutrition as it applies to different species of animal, from livestock species to companion animal to exotic animals. The course will equip the students with the knowledge necessary to take the advanced species-specific nutrition courses offered by the Department of Animal Biosciences. It will also prepare the students for a career in animal nutrition and equip them with practical skills relevant for such a career (e.g. feed formulation skills, etc.).

## Lecture Schedule

MonWedFri 12:30pm-1:20pm in MCLN\*102 (9/5 to 12/13)

## Laboratory Session Schedule

Day	Time	Location	Sections
Monday	2:30 - 4:20	ANNU 102	101 & 201
Tuesday	9:30 - 11:20	ANNU 102	102 & 202
Tuesday	2:30 - 4:20	ANNU 102	105 & 205

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Wednesday	2:30 - 4:20	ANNU 102	103 & 203
Thursday	9:30 - 11:20	ANNU 102	104 & 204

## Instructor Information

**Dominique Bureau**

Email: [dbureau@uoguelph.ca](mailto:dbureau@uoguelph.ca)

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## Additional Support

The instructor is available for consultation by email. The instructor will try to answer all emails within 24h. Online (Team or Zoom) and in person support can be provided by the instructor upon request. Students are encouraged to contact me by email to set up an in person or virtual (preferred) appointment. Students are encouraged to use the Discussion board set up on CourseLink to ask questions that the whole class would benefit from.

Graduate teaching assistants (TAs) will be available to assist the students during the laboratory sessions and may be available for consultation by email, online and assistance during the semester based on their availability.

For the F24 semester, the TAs will be :

Yann Malini Ferreira ([yferreir@uoguelph.ca](mailto:yferreir@uoguelph.ca))

Hannah Godfrey ([hgodfrey@uoguelph.ca](mailto:hgodfrey@uoguelph.ca))

Julia Petrou ([jpetrou@uoguelph.ca](mailto:jpetrou@uoguelph.ca))

Felix Njeri Muchini ([fmuchiri@uoguelph.ca](mailto:fmuchiri@uoguelph.ca))

Pawanpreet Singh ([pawanpre@uoguelph.ca](mailto:pawanpre@uoguelph.ca))

Cierra Kozole ([ckozole@uoguelph.ca](mailto:ckozole@uoguelph.ca))

The laboratory coordinator will be Dr. Rob Jones ([rjones12@uoguelph.ca](mailto:rjones12@uoguelph.ca)).

## Learning Resources

### Required Resources

Lecture slides, detailed introduction or description of the various laboratory sessions, as well as, resource material of relevance to different modules and laboratory activities will be posted in the course website on CourseLink in advance of the lectures or laboratory sessions.

### Course Resources

For some of the assignments that are part of the laboratory session, the students will require access to a computer equipped with MS Office. Some of the laboratory sessions may involve handling feed material and animals. The students should come dressed appropriately with closed shoes.

### Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors/>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by the Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons/>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

## Course Learning Outcomes

1. Introduce the principles of farm animal nutrition and identification of feed ingredients.
2. Introduce species and stage of production differences in nutritional requirements.
3. Introduce ration or diet formulation for farm animals.
4. Work together as a team to collect data and present findings.
5. Exercise critical thinking.

6. Integrate knowledge of diverse agricultural animal disciplines and sectors to identify local and global problems and to design solutions for animal production systems, the agricultural animal industry and society at large.
7. Acquire and develop relevant, practical, and theoretical skills based on the needs of the agricultural animal industry to support future employment and / or continued studies (e.g. graduate studies, veterinary medicine and care, professional certification).
8. Critically evaluate and accurately explain scientific information for problem solving and applications in animal production.
9. Demonstrate advanced, contemporary and relevant knowledge in animal nutrition, physiology, welfare, genetics and biotechnology.
10. Apply scientific methods and processes by formulating questions, designing investigations and generating, analyzing and interpreting data to draw conclusions and make evidence based decisions relevant to animal agriculture.
11. Critically evaluate ideas and arguments by gathering and integrating relevant information, assessing its credibility, and synthesizing evidence to formulate a position.
12. Accurately and effectively communicate ideas, arguments and analyses, to a range of audiences, in graphic, oral and written form.
13. Collaborate effectively as part of a team by demonstrating mutual respect, leadership, and an ability to set goals and manage tasks and timelines.
14. Plan for professional growth and personal development within and beyond the undergraduate program.
15. Acquire and develop relevant practical and theoretical skills to support continued studies (e.g. graduate studies, veterinary medicine, etc.) and/or potential employment (e.g. veterinary care, animal industry, zoological institutions, etc.).
16. Generate and interpret scientific data using quantitative, qualitative and analytical methodologies and techniques.
17. Interpret current scientific concepts and gaps in knowledge (and methods) in light of the historical development of a chosen discipline.
18. Demonstrate knowledge encompassing genetics, nutrition, physiology and behavior and their interactions on the health and welfare of domesticated, companion and wildlife animal species.
19. Apply contemporary research methods, skills and techniques to conduct independent inquiry in a chosen scientific discipline.
20. Apply knowledge of nutrient metabolism to improve animal wellness and productivity.

## Lectures and Laboratory Session Format

This course is offered both in a face-to-face format and through online broadcasting and recording of the lectures on Zoom. Attendance to lectures is not compulsory. The lecture components of the course and the evaluations can be done synchronously or asynchronously. Check your system requirements to ensure you will be able to participate. <https://opened.uoguelph.ca/student-resources/system-and-software-requirements>.

Laboratory sessions are slated as 2 hour in a face-to-face format. There are lab group activities which will require you to work as a lab group for various activities, such as gathering information on specific feed ingredient, feeding animals and data collection. Your lab groups to get together on an individual group basis to discuss completing an animal project report and a feed ingredient profile which are group activities. This will involve lab groups communicating during each student's assigned lab section and outside of class. Proper Netiquette should be followed always for this class.

## Schedule of Topics and Assignments

Day	Date:	Topic	Activities	Due
Fri	9/6	Introduction to Course, Laboratory Sessions, Instructor and TAs		
Mon	9/9	Introduction to Animal Nutrition: Why and What we Feed Animals? - Part 1		
Wed	9/11	Introduction to Animal Nutrition: Why and What we Feed Animals? - Part 2		
Fri	9/13	Review of Feed Resources - Part 1 Forages		
Mon	9/16	Review of Feed Resources - Part 2 Grains, Oilseeds and Their Co-Products		
Wed	9/18	Review of Feed Resources - Part 3 Animal Proteins, Fats and Novel Ingredients		
Fri	9/20	The Chemical Components of Foods and Feeds - Part 1		
Mon	9/23	The Chemical Components of Foods and Feeds - Part 2		
Wed	9/25	The Chemical Components of Foods and Feeds - Part 3		

Fri	9/27	Approaches to Characterizing the Composition of Ingredients and Feeds - Part 1
Mon	9/30	Approaches to Characterizing the Composition of Ingredients and Feeds - Part 2
Wed	10/2	Approaches to Characterizing the Composition of Ingredients and Feeds - Part 3
Fri	10/4	Approaches to Characterizing the Composition of Ingredients and Feeds - Part 4
Mon	10/7	Understanding the Animals: Digestive Systems and Digestion - Part 1
Wed	10/9	Understanding the Animals: Digestive Systems and Digestion - Part 2
Fri	10/11	Understanding the Animals: Digestive Systems and Digestion - Part 3
Mon	10/14	Thanksgiving Holiday
Wed	10/16	Intro to Feed Manufacturing
Fri	10/18	Understanding the Animals: Energy Utilization and Requirements Part 1
Mon	10/21	Understanding the Animals: Energy Utilization and Requirements Part 2
Wed	10/23	Understanding the Animals: Nutrient Utilization and Requirements - Part 1
Fri	10/25	Understanding the Animals: Nutrient Utilization and Requirements - Part 2
Mon	10/28	Understanding the Animals: Nutrient Utilization and Requirements - Part 3
Wed	10/30	Species Nutrition and Feeding Overview: Poultry (Guest Speaker)
Fri	11/1	Species Nutrition and Feeding Overview: Poultry (Guest speaker)
Mon	11/4	Species Nutrition and Feeding Overview: Equine (Guest speaker)
Wed	11/6	Species Nutrition and Feeding Overview: Equine (Guest speaker)
Fri	11/8	Analysis of Data from Animal Feeding Trials
Mon	11/11	Species Nutrition and Feeding Overview: Dairy Cattle (Guest speaker)
Wed	11/13	Species Nutrition and Feeding Overview: Dairy Cattle (Guest speaker)
Fri	11/15	Species Nutrition and Feeding Overview: Beef Cattle and Small Ruminants (Guest speaker)
Mon	11/18	Species Nutrition and Feeding Overview: Swine (Guest speaker)
Wed	11/20	Species Nutrition and Feeding Overview: Swine (Guest speaker)
Fri	11/22	Species Nutrition and Feeding Overview: Laboratory Animals (Guest speaker)
Mon	11/25	Species Nutrition and Feeding Overview: Companion animals (Guest speaker)

Wed 11/27 Species Nutrition and Feeding Overview:  
Exotic Animals (Guest speaker)

Fri 11/29 What does an Animal Nutritionist do? How  
Rewarding is a Career in Animal Nutrition?  
(Guests)

## Lab / Seminar Schedule

1. Laboratory Activity #1 Nutrition Calculations
2. Laboratory Activity #2 Feed Ingredients
3. Laboratory Activity #3 Monogastric Feed Formulation
4. Laboratory Activity #4 Animal Feeding Trial
5. Laboratory Activity # 5 Ruminant Ration Balancing

Detailed and up-to-date schedule for all the laboratory activities will be provided in the course website on Courselink.

An overview (introduction) and documents providing details on each laboratory activity will be posted on the course website on Courselink at least 24h before the laboratory activity.

## Assessment Breakdown

Description	Weighting (%)	Due Date
Lab Quizzes (5 quizzes)	5%	Different due dates
Course Quiz #1	10%	1 October 2024
Course Quiz #2	10%	29 October 2024
Course Quiz #3	10%	26 November 2024
Lab Act #1 Nutrition Calculations	10%	22 September 2024
Lab Act #2 Feed Ingredient Profile	10%	8 October 2024
Lab Act #3 Monogastric Feed Formulation	10%	10 November 2024
Lab Act #4 Animal Feeding Trial Report	10%	4 December 2024
Lab Act #5 Ruminant Ration Balancing	10%	27 November 2024
Take-Home Final Exam	15%	7 December 2024

## Assessment Details

### Quizzes

#### Lab Quizzes

Course Learning Outcomes Assessed: 1, 3, 7, 8, 9, 17, 18, 20

5%

#### Course Quiz #1

Course Learning Outcomes Assessed: 1, 2, 5, 6, 8, 9, 11, 15, 17, 18, 20

10%

#### Course Quiz #2

Course Learning Outcomes Assessed: 1, 2, 5, 6, 7, 9, 11, 14, 15, 17, 18, 20

10%

#### Course Quiz #3

Course Learning Outcomes Assessed: 1, 2, 5, 6, 8, 9, 11, 14, 15, 17, 20

10%

### Lab Activities

#### Lab Act #1 Nutrition Calculations

Course Learning Outcomes Assessed: 1, 5, 6, 7, 8, 10, 11, 14, 15, 16

10%

#### Lab Act #2 Feed Ingredient Profile

Course Learning Outcomes Assessed: 1, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15, 16, 19

10%

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<b>Lab Act #3 Monogastric Feed Formulation</b>	<b>10%</b>
Course Learning Outcomes Assessed: 1, 2, 3, 5, 7, 8, 14, 20	
<b>Lab Act #4 Animal Feeding Trial Report</b>	<b>10%</b>
Course Learning Outcomes Assessed: 1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20	
<b>Lab Act #5 Ruminant Ration Balancing</b>	<b>10%</b>
Course Learning Outcomes Assessed: 1, 3, 5, 6, 7, 8, 12, 14, 15, 19, 20	
<b>Exam</b>	
<b>Take-Home Final Exam</b>	<b>15%</b>
Course Learning Outcomes Assessed: 1, 2, 5, 6, 7, 8, 9, 11, 12, 14, 15, 17, 18, 20	

## Last Day to Drop Course

The final day to drop Fall 2024 courses without academic penalty is the last day of classes: November 29

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

## Course Grading Policies

### Submission of Assignments

Assignments and other evaluations (quizzes, etc.) must be completed and submitted by the specified date and time. The students are responsible for submitting assignments and other evaluations in a timely fashion.

### Late Assignment

A penalty of 10% by day late will be applied to assignments submitted after the specified deadline.

### Grading

Grading for quizzes will be automated. The graded will either be released automatically or one week after the quiz deadline and completion by all the students.

Assignments related to laboratory activities will be graded by the TAs and the instructor in a timely fashion. The grades will be released approximately two weeks after the deadline and completion by all the students.

## Standard Statements for Undergraduate Courses

### Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

### Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

## Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

## Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

## Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

## Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

## Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year/>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

## Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

## Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

## When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)