

Course Outline Form: Fall 2016

General Information

Course Title: ANSC*4270 Dairy Cattle Nutrition

Course Description: We will review the transformation of nutrients from feed into milk in lactating dairy cows and into the body of cows, calves and growing heifers. Equations to estimate rates of nutrient transformation will be used in computer models during weekly lab periods to formulate and evaluate rations for dairy animals. Lab periods will also be used to demonstrate feed management on local dairy farms.

Credit Weight: 0.5

Academic Department (or campus): Department of Animal Biosciences

Campus: Guelph

Semester Offering: Fall

Class Schedule and Location: Lectures Rm 225 MCKN Mon, Fri 09:30 – 10:20
Labs Rm 259 ALEX Wed 14:30 – 17:20

Instructor Information

Instructor Name: John Cant

Instructor Email: jcant@uoguelph.ca

Office location and office hours: Rm 239 ANNU

GTA Information

GTA Name: Richelle Curtis

GTA Email: rcurtis@uoguelph.ca

GTA office location and office hours: Rm 229 ANNU

Course Content

Specific Learning Outcomes: Upon successful completion of the course, students will be able to
1) formulate and evaluate rations for lactating dairy cows on commercial dairy farms

- 2) estimate daily nutrient flows through an animal
- 3) express performance traits and efficiencies of the dairy enterprise numerically
- 4) describe the role of common ingredients in ruminant diets
- 5) use mathematical equations to predict animal performance
- 6) interpret reports of nutrient analysis of feedstuffs and dairy rations
- 7) recommend strategies to diagnose and prevent metabolic diseases of dairy cattle
- 8) recommend nutritional strategies to manipulate protein and fat content of milk produced on farm
- 9) condition score dairy cows
- 10) adjust animal rations for dry matter content of ingredients
- 11) estimate TDN content of feedstuffs and dairy rations from lab analyses of their nutrient contents

Lecture Content:

- The animal system
- Milk
- Milk synthesis
- Extramammary support of lactation
- Rumen microbial fermentation and growth
- Rumen pH
- Absorptive nutrient supply
- Nutritional manipulation of milk composition
- Feeding models
- NRC nutrient requirements
- Feeding pregnant, dry and transition cows
- Feeding calves
- Feeding heifers
- N and greenhouse gas emissions

Labs:

- Animal system
- Extramammary support of lactation
- Forage DM
- TDN estimation
- Ration comparison
- Ration balancing
- Low-CP ration
- Novel ingredient
- Consulting skills

Seminars: N/A

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
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Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Weekly online quizzes	before each Wed lab	15	2-5,7,8,10
Lab assignments	each Fri after lab	35	1-3,5,6,9-11
Mid-term exam 1	Mon, Oct. 2	12.5	2-7
Mid-term exam 2	Mon, Oct. 30	12.5	2-7
Final exam	Fri, Dec. 15	25	1-8,10

Additional Notes (if required): Weekly lab assignments to be handed in on fridays will be graded. Characteristics of common feed ingredients will be introduced every monday through CourseLink news. There will be weekly online quizzes administered via CourseLink, due before lab on wednesday.

Final examination date and time: Fri, Dec. 15 19:00 – 21:00

Final exam weighting: 25%

Course Resources

Required Texts: None

Recommended Texts: None

Lab Manual: None

Other Resources: Available on Courselink
 NRC, 2001. Nutrient Requirements of Dairy Cattle, 7th rev. ed. National Academies Press, Washington, DC.
 Lecture notes and ppt slides

Field Trips: The first 5 to 6 labs will be farm visits on a bus leaving from the parking lot between ANNU and FS buildings.

Additional Costs: Safety boots are required for visits to the Elora Dairy Research Centre and recommended for all farm visits.

Course Policies

Grading Policies: [Undergraduate Grading Procedures](#)

Course Policy on Group Work: N/A

Course Policy regarding use of electronic devices and recording of lectures: Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration: The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Academic Misconduct: 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.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Accessibility: The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website \(http://www.uoguelph.ca/csd/\)](http://www.uoguelph.ca/csd/).

Course Evaluation Information: End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](#) for more information.

Drop period: The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III \(Schedule of Dates\) of the Undergraduate Calendar](#).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).