

**ANSC 6490 ADVANCED DAIRY MANAGEMENT  
WINTER SEMESTER 2020 (2-3) [0.5]  
COURSE OUTLINE**

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**Professor:** Dr. Michael Steele, Dept. of Animal Biosciences, Room 235, ext. 53691, [masteele@uoguelph.ca](mailto:masteele@uoguelph.ca)

<b>Course Lectures:</b>	<b>Day</b>	<b>Time</b>	<b>Place</b>
Calf Biology & Management	Jan 14	9:00-12:00	ANNU 230
Weaning & Beyond	Jan 15	9:00-12:00	ANNU 230
Transition Cow Physiology	Jan 22	9:00-12:00	ANNU 230
Transition Cow Physiology	Jan 28	9:00-12:00	Faculty Club
Protein Nutrition	Feb 6	9:00-12:00	Greenhouse
Fat Nutrition	Feb 11	9:00-12:00	ANNU 230
Gut Health	Feb 12	9:00-12:00	ANNU 230
Immune System	Feb 25	9:00-12:00	ANNU 230
Reproductive Physiology	March 3	9:00-12:00	ANNU 230
Reproductive Management	March 4	9:00-12:00	ANNU 230

Presentations of proposals will be presented in the first week of April based on a date schedule by the class.

**Course Description:** Over the past decade there has been considerable advancements in dairy research and technologies that have impacted current management strategies. In this class we will evaluate the latest concepts in nutrition, physiology, reproduction and health management in dairy cattle production. The course is designed to promote independent research and hypothesis generation of the most up to date topics in dairy production science. Laboratories will emphasize practical applications of research via field trips and discussions.

**Course Objective:** To provide an understanding of the latest research topics in nutrition, physiology reproduction and health management of dairy cows.

## **Required Course Material**

Material will be supplied or on CourseLink

## **Topics**

The following is a list of advanced learning topics, which include, but are not limited to:

All the topics will embrace and highlight advancements in technology, information and learning resources, data synthesis, analysis, benchmarking, economics and society.

## **Lecture/Workshop, /Seminar**

There will be two 50-minute lecture periods per week, delivered by faculty or guest lecturers from industry, that will introduce all the course topics and material. Half of the lectures will be interactive presentations and half will be interactive journal article discussions.

The workshop/seminar time (3-hour period per week) will be portioned into: site visits (local dairy farms and another academic institution based on the interests of the class), data assimilation and analysis from participating national and international dairy farms via skype (approximately 2-3 farms), and student presentations and discussions.

## **Course Evaluation:**

### **Research Proposals (5 short research proposal based on lectures) = 50 %**

- Each student can select a specific topic of five of the ten lectures and develop a 2-3 page miniature proposal

### **Proposal and oral presentation of student selected research topic = 40%**

- Each student will write a 10-20 page proposal based on a topic of interest from lecture (30% of total mark)
- The presentation will summarize the proposal (10% of total mark)

### **Class Participation = 10%**

- Participation in journal article discussions and class lectures and labs will be evaluated.

## **Learning Outcomes:**

Graduate students completing this course will:

1. Be able to interpret and communicate the latest topics related to dairy cow nutrition, physiology, reproduction and health.
2. Be able to extrapolate, cultivate, construct and apply advanced research and analytical techniques, as demonstrated through modelling and integrated software programs presented in lectures and workshops.
3. Be able to effectively communicate their thoughts, arguments, and decision-making outcomes in an effective professional manner to a multitude of clientele including stakeholders, academics, government and primary producers. This will be demonstrated through the appraisal of domestic, national and international whole farm-based case studies using individual farm contact and social media interaction both in an individual and group leadership context.
4. Develop a mature intellectual independence, integrate ethical reasoning and apply it to independent evaluation of issues facing dairy farmers globally.

## **Guidelines for preparation of research proposal and presentation:**

The written proposal should be organized into sections as follows:

- i. Synopsis (summarizing research problem, objectives, research approaches, significance to the industry and benefits to Canada) (mini ½ page; max 1 page)
- ii. Background, research problem/justification (min. 5 page; max. 7 pages)
  - a. A clear description of the product, nutrient, or concept that you are researching (the 'what' and 'why').
  - b. A clear description of how the product, nutrient, or concept influences biology of growth and/or nutrient metabolism, focusing on the underlying biological mechanisms.
  - c. Critical analyses of available data on the impact of the product, nutrient or concept on 'whole animal growth and metabolism' to assess its practical value (the 'value'; use in commercial animal production).
  - d. Identification of gaps in scientific literature; end with a clear statement outlining the justification for further research.
  - e. Summary, including appropriate conclusions, about our current understanding and need for more information on the topic.
- iii. Proposed research question, hypothesis and objectives (Min. ½ page)
- iv. Materials and methods (min. 2 pages)

- a. Animals
- b. Experimental diets
- c. Experimental procedures
- d. Laboratory analyses
- e. Calculations and statistical analyses, including power analyses
- v. Significance to science and industry (Max ½ page)
- vi. Benefits to Canada (Max ½ page)
- vii. KTT plan (1/2 page)
- viii. References (1 page)

The written and submitted proposal should:

1. Not exceed indicated section maximum length, including figures and tables
  2. Be written using 12-point, black-colored font, single line spacing (six lines per inch) with no condensed type or spacing
  3. Have page margins of 1 inch all around
  4. Cite and list references from peer reviewed scientific journals only (A minimum of 10 references). You may use the 'web of science' to conduct a search of the scientific literature: visit <http://www.lib.uoguelph.ca> , go to 'journal articles', and 'agriculture and food science' and 'animal & poultry science' and 'web of science.
  5. Have no redundancies in literature citations; for example, no more than three citations to support a concept.
  6. Be submitted in MSword format
- Marks will reflect (1) content (as outlined above), (2) organization (flow, appropriate use of headings and sub-headings, (3) quality/appropriateness of references, and (4) quality of synopsis.
  - Do NOT copy and paste from other articles. Plagiarism is a major offense and can have serious consequences (Academic misconduct; section VIII in University of Guelph undergraduate calendar).

The presented proposal should be organized into sections as follows:

1. Title slide (1)
2. Outline slide (1)
3. Background slides (min 3; max 5)
4. Hypothesis and objectives (1)
5. Materials and methods (min 4; max 6)
6. Summary
7. References

Each presentation will be 25 minutes (15 minutes, presentation, 10 minutes questions)