

Course Outline Form: Winter 2019

General Information

Course Code: ANSC*6250

Course Title: Growth and Metabolism

Course Description:

The course covers molecular, cellular and systemic regulatory mechanisms, developmental changes, and animal (genetics, sex, etc) differences that influence requirements and efficiency of utilization of nutrients. Advanced concepts for optimizing nutrition to produce safe and healthy foods for human consumption, to safeguard the animal's own health and welfare, to minimize nutrients excretion and reduction of antibiotics usage will be discussed.

Credit Weight: 0.5

Course Prerequisite: None

Restriction: None

Academic Department (or campus): Animal Biosciences

Campus: Guelph

Semester Offering: Winter

Scheduled class time and Location: Room: TBC, Time: Thursdays 2:30 – 5:30 pm

Instructors Information

Dr. E. Kiarie

Email: ekiarie@uoguelph.ca

Office location and office hours: ANNU 226, arrange by email

Dr. Katharine Wood

Email: kwood@uoguelph.ca

GTAs Information

GTA Name:

GTA Email:

GTA office location and office hours

Specific Learning Outcomes:

1. Develop basic understanding of the processes of dietary energy and nutrients transformations at the gut and systemic levels in terms of anabolism and catabolism, metabolic control, partitioning and efficiency.
2. Develop advanced understanding of optimal and balanced dietary nutrient supply in relation to metabolism at the molecular, cellular, and systemic levels, including special metabolic needs during growth, reproduction, stress, and maintenance.
3. Gain experience and confidence in integrating information on energy and nutrient metabolism in relation to optimal animal productivity, product quality, gut health, metabolic disorders and nutrients excretion.
4. Develop confidence and expertise on advanced topics in growth and metabolism, including principles of identifying gaps in scientific literature, development of research proposals commensurate to NSERC standards to address contemporary challenges in food animal production
5. Demonstrate proficiency on personal and professional integrity by respecting diverse points of view and the intellectual contribution of others in a group discussion

Course Content

Lecture Content:

Date	Week#	Instructor	Topic
Jan 10	1	Instructors	Course introduction Lecture: concepts on growth and metabolism I
Jan 17	2	Instructors	Lecture: concepts on growth and metabolism II Assignment of research proposal topics & review article topics
Jan 24	3	Instructors & Librarian	Lecture: I. How to search for scientific papers, plagiarism etc II. Critiquing scientific papers III. Approaches in proposal development
Jan 31	4	Guests	Industry, government, faculty
Feb 7	5	Instructors	Review paper presentations
Feb 14	6	Instructors	Review paper presentations
	7	Instructors	Break
Feb 28	8	Instructors	Review paper presentations
Mar 7	9	Instructors	Review paper presentations
Mar 14	10	Guests	Industry, government, faculty
Mar 21	11	Instructors	Proposal defense/presentations
Mar 28	12	Instructors	Proposal defense/presentations

Course Assignments and Tests:

Assignment of test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Class participation		10	1-3, 5
Students' assignments of critique of published research papers on topics on growth and metabolism-Oral presentation	Varies by schedule	10 (instructor) 5 (peer)	1-5
Critique of published research papers on topics on growth and metabolism-Mini review	Varies by schedule, prior to presentation via dropbox	20	
Research proposal on a topic on growth and metabolism-oral defense	Varies by schedule	10 (instructor) 5 (peer)	1-5
Research proposal on growth and metabolism-written submission	Mar 20, 5 PM via dropbox	40	1-5

Guidelines for preparation of research proposal:

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. 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 margin 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 for 30 minutes (20 minutes, presentation, 10 minutes questions)

Guidelines for critique of published research papers:

Students will be assigned to lead a critique and discussion on one original research paper. Students will choose their paper in discussion with the course instructor. The paper should be chosen from peer-reviewed journals. Paper for the class presentation and discussion should be selected and submitted to the course instructor for posting to students the previous week to allow enough time for a thorough reading. It is essential that all students read the papers that will be discussed in the upcoming class.

When presenting critique of the published paper, the student will need to provide some carefully selected background information on the topic, i.e., potentially from other sources than the paper itself, followed by a description of key methodology and results, a critical assessment of the methods and conclusions, the contributions of the papers to our understanding of the field, and strengths and weaknesses of the paper. The instructor will clarify concepts and direct discussions when appropriate. Each student paper presentation will be about 30 minutes with 10 minutes question/discussion period. Student presentations will be posted as PDF files after the presentations in class for further references. The mini-review paper will be approximately 3 pages without including references. The critique should be typed with 1" margin space around and double line spacing by using 12 point font. A cover page is required to include student's name and ID. A hard copy and electronic copy of the min-review paper is due for submission.

Final examination date and time: Not applicable

Final exam weighting:

Course Resources

- Scientific journal articles will be made available through Courselink.
- Lecture slides will be made available through Courselink.

Course Policies

Grading Policies:

The article (i.e. hard copy) is due at the beginning of the class scheduled above. Students submitting late assignments will receive a 5% late penalty per day.

Course Policy on Group Work:

While students are encouraged to participate in an individual-and group-learning environment to better understand the course material, all assignments must reflect the work of each individual student.

Course Policy regarding use of electronic devices and recording of lectures:

Since electronic recording of classes is useful for reviewing course material, it will be allowed with the consent of the course instructor. These recordings 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](#).