ANSC*6250 - Growth and Metabolism

Winter 2025 Course Outline
Section: 01
Credits: 0.50

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

Animal growth and metabolism are considered at the cellular level in a manner that extends beyond the basic disciplines of biometrics and biochemistry with attention focused on the main carcass components - muscle, fat and bone.
Department(s): Department of Animal Biosciences

Lecture Schedule

Th 2:30pm-5:20pm in ANNU*101 (1/6 to 4/21)

Instructor Information

Katharine Wood
Email: kwood@uoguelph.ca

John Cant
Email: jcant@uoguelph.ca

Learning Resources

REQUIRED RESOURCES

Course Technologies and Technical Support (Software)

- CourseLink (primary classroom)

To help ensure you have the best learning experience possible, please review the list of system and software requirements: System and Software Requirements (https://opened.uoguelph.ca/studentresources/system-and-software-requirements/)

CourseLink

This course is being offered using CourseLink (powered by D2L's Brightspace), the University of Guelph's online learning management system (LMS). By using this service, you agree to comply with the University of Guelph's Access and Privacy Guidelines. Please visit the following links to review more details:

- Brightspace Privacy Statement (http://www.uoguelph.ca/web/privacy/)
- Brightspace Learning Environment Web Accessibility Standards (https://www.d2l.com/accessibility/standards/)

Technical Support

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support:

- Email: courselink@uoguelph.ca
- Tel: 519-824-4120 ext. 56939
- Toll-Free (CAN/USA): 1-866-275-1478

RECOMMENDED RESOURCES

Technical Skills (Software)

As part of your learning experience, you are expected to use a variety of technologies for assignments, lectures, teamwork, and meetings. In order to be successful in this course, you will need to have the following technical skills:

- Manage files and folders on your computer (e.g., save, name, copy, backup, rename, delete, and check properties)
- Install software, security, and virus protection
- Use office applications (e.g., Word, PowerPoint, Excel, or similar) to create documents
- Be comfortable uploading and downloading saved files
- Communicate using email (e.g., create, receive, reply, print, send, download, and open attachments)
- Navigate the CourseLink learning environment and use the essential tools, such as Dropbox, Quizzes, Discussions, and Grades (the instructions for this are given in your course)
- Access, navigate, and search the Internet using a web browser (e.g., Firefox, Internet Explorer)
- Perform online research using various search engines (e.g., Google) and library databases

Library access (Library Course Guides): Library Course Guides (https://www.lib.uoguelph.ca/)

As a student, you can access the University of Guelph's library collection, including physical and electronic materials. For information on checking out or couriering physical library items, accessing electronic journals, and returning items to the library, visit the library's website (https://www.lib.uoguelph.ca/). If you are studying off-campus and would like to access the library's electronic resources, use the Off Campus Login (https://www.lib.uoguelph.ca/campus-login/) and log in using your Single Sign-On credentials or using your last name and library barcode.

COURSE RESOURCES

- Scientific journal articles will be made available through Courselink.
- Lecture slides will be made available through Courselink.
- Guest lecture slides will be made available only at the discretion of the invited guest speaker.

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.

Cost of Textbooks and Learning Resources

There are no required textbooks for this course

Textbook / Learning Resource	Required / Recommended	Cost
NA	NA	NA

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

Course Learning Outcomes

1. Develop a 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 nutrient excretion
4. Develop confidence and expertise on advanced topics in growth and metabolism, including principals of identifying gaps in scientific literature, development of research proposals 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

Schedule of Topics and Assignments

Day	Date:	Topic	Activities	Due
Thu	1/9	Couse Introduction Lecture: Intro to energy metabolism (KW)		
Thu	1/16	Concepts in protein/AA metabolism (JC)	Sign up for mini review presentation dates	
Thu	1/23	Guest Lecture #1 Metabolic Control (JC) Understanding Power in Experimental Design (JC)		
Thu	1/30	Guest Lecture #2 Guest Lecture #3		
Thu	2/6	Guest Lecture #4 Guest Lecture #5		
Thu	2/13	Tips on Critiquing Scientific Literature (KW) Approaches to Proposal Development (KW) Tips on searching the literature (TBD)	Last date to submit a paper for approval for mini review/critique	Guest lecture summaries due
Thu	2/20	Winter Break		
Thu	2/27	Mini Review Presentations		Submit peer questions before class
Thu	3/6	Mini Review Presentations		Submit peer questions before class
Thu	3/13	Mini Review Presentations		Mini Review/Critique Written Due Submit peer questions before class
Thu	3/20	Proposal Presentation		Submit peer questions
Thu	3/27	Proposal Presentations		Submit peer questions
Thu	4/3	Proposal Presentations		Proposal Written due Submit peer questions
Thu	4/10	No Class		
Thu	4/17	No Class		

Assessment Breakdown

Description	Weighting (%)	Due Date
Guest Lecture Summary x 4	(4 x 5%)=20%	Feb 14
Mini Review Presentation	10%	Various
Mini Review Presentation from Peer evaluations	5%	Various
Mini Review Written	15%	March 13
Mini Review Peer Questions	2.5%	Various
Proposal Presentation	15%	Various
Written Proposal	30%	April 3
Proposal Peer Questions	2.5%	Various

Assessment Details

Guest Lecture Summaries

Guest **Lecture** **Summaries**

Course Learning Outcomes Assessed: 3, 4, 5

Mini review/critique presentation
Mini **review/critique** **presentation**
Course Learning Outcomes Assessed: 1, 2, 3, 4, 5

Mini Review Written
Mini **Review** **Written**
Course Learning Outcomes Assessed: 1, 2, 3, 4, 5

Proposal Presentations
Proposal **Presentations**
Course Learning Outcomes Assessed: 1, 2, 3, 4, 5

Proposal Written
Proposal **Written**
Course Learning Outcomes Assessed: 1, 2, 3, 4, 5

Peer Questions
Peer **Questions**
Course Learning Outcomes Assessed: 5

Last Day to Drop Course

The final day to drop Winter 2025 courses without academic penalty is the last day of classes: April 04

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 should be submitted electronically via the online Dropbox tool. When submitting your assignments using the Dropbox tool, do not leave the page until your assignment has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.

Be sure to keep a back-up copy of all of your assignments in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommend you save your assignments to a cloud-based file storage (e.g., OneDrive), or send to your email account, so that should something happen to your computer, the assignment could still be submitted on time or re-submitted.

It is your responsibility to submit your assignments on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that technical difficulty is not an excuse not to turn in your assignment on time. Don't wait until the last minute as you may get behind in your work.

If for some reason you have a technical difficulty when submitting your assignment electronically, please contact your instructor or CourseLink Support.

Late Assignments
If you choose to submit assignments to the Dropbox tool late, the full allocated mark will be reduced by **10% per day after the deadline** for the submission of the assignment to a limit of six days at which time access to the Dropbox folder will be closed. Late Graded Homework Assignments will NOT be graded if they are submitted after the solutions have been posted to CourseLink.

Extensions will be considered for medical reasons or other extenuating circumstances. If you require an extension, discuss this with the instructor as soon as possible and **well before the due date**. Barring exceptional circumstances, extensions will not be granted once the due date has passed. These rules are not designed to be arbitrary, nor are they inflexible. They are designed to keep you organized, to ensure that all students have the same amount of time to work on assignments, and to help to return marked materials to you in the shortest possible time.

Assignment Guidelines

Guidelines for Preparation of Research Proposal:

The written proposal should be organized into sections as follows:

1. Synopsis/Abstract (summarizing research problem, objectives, research approaches, significance to the industry and benefits to Canada) (mini ½ page; max 1 page)
2. Background, research problem/justification (min. 5 page; max. 7 pages, double spaced)
   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.
3. Proposed research question, hypothesis and objectives (about ½ page)
4. Materials and methods (2-3 pages, double spaced)
   a. Animals; including a power analyses, sample size determination
   b. Experimental diets
   c. Experimental procedures
   d. Laboratory analyses
   e. Calculations and statistical analyses approaches
5. Significance to science and industry (Max 1 page)
6. Deliverables (Max ½ page)
7. References

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, double 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
7. 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. •
8. 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).**
9. Proposal submitted in Courselink dropbox by due date

The presented proposal should be organized into sections as follows:

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

Each presentation will be for 15 minutes with 5 min of questions/discussion to follow

Guidelines for Mini Review/Critique of Published Research Papers

1. Student will choose a peer-reviewed paper (either in the topic area of growth or metabolism) and submit the paper to the instructor (John Cant) for approval. The papers should be peer-reviewed research papers from journals (reviews or short communications are not acceptable).
2. The instructors will post the chosen papers in course link at least one week prior to presentation to allow enough time for a thorough reading by the class. It is essential that all students read the papers that will be discussed in the upcoming class.

3. Provide 1)carefully selected background information on the topic, i.e., potentially from other sources than the paper itself, 2) brief description of key methodology, 3) key results and conclusions, 4)a critical assessment of the methods and conclusions, 5) the contributions of the papers to our understanding of the field, and 6) strengths and weaknesses of the paper.
4. Presentation will be about 12 minutes with 3 minutes question/discussion period.
5. Creating a mini-review paper: will be approximately 5 pages double-spaced 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.
6. An electronic copy of the mini-review written paper is due for submission at Courselink dropbox by the last days of mini review presentations

Guidelines for Peer Questions:

In order to help facilitate discussions, each student will be assigned a peer for each of the mini review/critiques and the proposal presentations. The student is expected to have 3-5 questions prepared for their assigned peer submitted **prior** to the start of class on the day the peer's presentation. Questions are to be submitted via Dropbox.

Guidelines for Guest Summaries

As part of the course a number of guest lecturers will present their work in the field of growth and metabolism. Each student is expected to submit four summaries of the guest lecturers presentations. This is to be submitted via Dropbox before Reading Week. Summaries should include a brief summary of each guest speaker's research area, key findings, and future directions. Summaries should be no more than 2 pages double-spaced for each summary. Students may submit summaries individually before the due date.

Standard Statements for Graduate 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/graduate-calendar/general-regulations/academic-misconduct/) is outlined in the Graduate 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.

Use of the SAS Exam Centre requires students to make a booking at least 10 business 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 Accommodation of Religious Obligations (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/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

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for Dropping Courses (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/) dropping courses are available in the Graduate Calendar (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/).

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 Graduate Calendar for information on regulations and procedures for Academic Consideration (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/grounds-academic-consideration/).